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

Bee's Nest & Green Clay Pits Special Area of Conservation (SAC)

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Date of publication: 27 May 2016

About this document

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to Bee's Nest and Green Clay Pits SAC. This advice should therefore be read together with the SAC Conservation Objectives which are available here.

This advice updates and replaces a previous version dated 31 March 2014.

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	Bee's Nest & Green Clay Pits Special Area of Conservation
Location	Derbyshire
EU Site Code	UK0030087
European Site background details (site description, boundary map, Standard Natura 2000 Data Form)	Available from http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030087
Names of component Sites of Special Scientific Interest (SSSIs)	Bee's Nest & Green Clay Pits SSSI
Relationship with other European Site designations	n/a

Site background and geography

Bee's Nest & Green Clay Pits SAC lies within the White Peak National Character Area in central Derbyshire and covers an area of 14.76 hectares, The Carboniferous Limestone outcrop here contains about 60 known 'pocket deposits' which are filled with silica sand, clay and pebble bands. Bee's Nest and Green Clay Pits is representative of such deposits, lying some 5 km west of Wirksworth, east of Brassington village. Silica sand has been commercially extracted from these pits for many years and a limited extraction of material still takes place on other sites. When sand extraction ceased, the site has acquired both geological and biological interest. The general character of the site is a complex mosaic of acidic and calcareous grassland communities, together with open water, scrub, wet and flushed areas and disturbed ground. Examples of both tall, un-grazed and short, rock-ledge grassland communities occur on the limestone around the pocket deposits. All of these habitats, and a series of well-established ponds, combine to support an important Great Crested Newt population.

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 species:

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

  The great crested newt is the largest native British newt, reaching up to around 17cms in length. It has a granular skin texture (caused by glands which contain toxins making it unpalatable to predators), and in the terrestrial phase is dark grey, brown or black over most of the body, with a bright yellow/orange and black belly pattern. Adult males have jagged crests running along the body and tail. 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.

  Breeding sites are mainly medium-sized ponds, though ditches and other water body types may also be used less frequently. Ponds with ample aquatic vegetation (which is used for egg-laying) seem to be preferred. Great crested newts can be found in rural, urban and post-industrial

settings, with populations less able to thrive where there are high degrees of fragmentation. The connectivity of the landscape is important, since great crested newts often occur in meta-populations that encompass a cluster of several or many ponds. This helps ensure the survival of populations even if sub-populations are affected by, for example, the temporary drying-out of breeding ponds.

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.

At this SAC the great crested newt feature is associated with a series of silica-sand pits supporting a complex mosaic of open water, acidic and calcareous grassland, with small areas of heathland communities. Great crested newts occur in a number of ponds on site, which vary in size, profile and vegetation cover.

Great crested newt (female)

Qualifying habitats:

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

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

  At Bees' Nest and Green Clay Pits SAC the Annex I habitat feature is known or estimated to comprise the following vegetation communities as referred to by the UK National Vegetation Classification (NVC); CG2 sheep's-fescue *Festuca ovina* – meadow oat-grass *Avenula pratensis* lowland calcareous grassland and the CG7 sheep's-fescue *Festuca ovina* – mouse-ear

hawkweed *Hieracium pilosella* – wild thyme *Thymus polytrichus ssp brittanicus (praecox)* grassland. The CG2 grassland is widely distributed in grazed calcareous pastures throughout the lowlands of England and Wales. Characteristic are plants such as meadow oat-grass, quaking-grass *Briza media*, common rock-rose *Helianthemum nummularium*, salad burnet *Sanguisorba minor ssp. minor* and small scabious *Scabiosa columbaria*. The stands of CG7 grassland occur on shallow, sharply-draining soils, and typically comprise more open swards in which there is typically a high frequency of mouse-ear hawkweed, wild thyme and annual/biennial species such as thyme-leaved sandwort *Arenaria serpyllifolia*.

Table 1: Supplementary Advice for Qualifying Features: 1166 Great crested newt *Triturus cristatus*

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
Supporting processes (on which the feature and/or its supporting habitat relies)	Conservation measures	Management or other measures, (within and outside the site boundary) which are necessary to maintain the structure, functions and supporting processes associated with the great crested newt feature are underway and are not being undermined or compromised.	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.	Natural England, 2014. Site Improvement Plan: Bees Nest & Green Clay Pits (SIP014) Natural England's Views about the Management of the SSSI which underpin this SAC are available from **http://www.sssi.naturalengland.org.uk/Special/sssi/search.cfm**
Supporting habitat: extent and distribution	Extent of supporting terrestrial habitat	The extent of habitats which support the great crested newt feature are either being maintained at or recovering to a dynamic mosaic of bare ground and rock, scrub, tall and short acid and calcareous grassland, heathland, wet and flushed areas	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 full extent of supporting habitats and their range within this SAC. There is also additional supporting habitat outside the SAC which plays an important role in maintaining the great crested newt feature of this SAC, and disturbance to this habitat within and without the site should be avoided. 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. The habitats known or likely to support the feature at this SAC are: a mosaic of bare ground and rock, scrub, tall and short acid and calcareous grassland, heathland, wet and flushed areas and open water. The component elements of the habitat mosaic should be dynamic and may change over time, although a full range of successional states should always be present.	This attribute will be periodically monitored as part of Natural England's site condition assessments. SAC Great Crested Newt survey 2004 (available from NE on request).
	Distribution of supporting habitat	Maintain the distribution and continuity of habitat supporting the feature, including where applicable its component vegetation types and associated transitional vegetation types, across the site. The component elements of the habitat mosaic should be dynamic and may change over time, although a full range of successional states	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.	. This attribute will be periodically monitored as part of Natural England's site condition assessments.

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
		should always be present.		
Supporting processes (on which the feature and/or its supporting habitat relies)	Adaptation and resilience of the feature and the supporting processes on which it relies	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, is not prejudiced	This attribute and target has been included to recognise 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. 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. The overall vulnerability of this particular SAC to climate change has been assessed by Natural England as being *low*, taking into account the sensitivity, fragmentation, topography and management of its habitats. 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 required.	NATURAL ENGLAND, 2015. Climate Change Theme Plan and supporting NBCCV Assessments for SACs and SPAs [both available at http://publications.naturalengland.org.uk/publication/4954594591375360].
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 PLFA ratio within typical values for the habitat	Soil and substrate 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 I feature.	
Supporting processes (on which the feature and/or its supporting habitat relies)	Air quality	Maintain or 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).	This target has been included because the supporting 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 reducing supporting habitat quality and population viability of this feature. For this feature, there could be indirect effects on algae and macrophyte abundance, altering suitability of pond as breeding site. Evidence suggests that whilst the eggs of *T. cristatus* do not tolerate exposure to strongly acidic conditions (pH 4.5), both the larvae and adults of the species are able to tolerate a similar level of acidity. The primary consideration then, appears to be the base content of the ponds in which *T. cristatus* breeds. Critical Loads and Levels are recognised thresholds below which such harmful	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/or Explanatory Notes	Sources of site-based evidence (where available)
			effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH3), oxides of nitrogen (NOx) and sulphur dioxide (SO2), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis. Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development.. 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.	
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 for ponds 1A, 1C, IG, 1H and 1I (main breeding ponds) and no less than 0.6 for other breeding ponds.	The Habitat Suitability Index provides an overall 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.	2004 Great Crested Newt survey; This attribute will be periodically monitored as part of Natural England's site condition assessments.
	Presence of ponds	Maintain the number and surface area of at least 12 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.	2004 Great Crested Newt survey; This attribute will be periodically monitored as part of Natural England's site condition assessments. Natural England GIS data (available from NE on request)
	Permanence of ponds	Maintain the permanence of water within ponds present within the site, with at least 50% of all ponds maintaining a summer water depth (mid-August to mid-September) of at least 10cm	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 permanance (they never or rarely dry out other than though 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. Some of the ponds are described in the 2004 GCN survey as being dry or almost dry by mid-May, however this was during a period of sustained low rainfall.	2004 Great Crested Newt survey; This attribute will be periodically monitored as part of Natural England's site condition assessments.
	Cover of macrophytes	Maintain a high cover of macrophytes, typically between 50-	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	2004 Great Crested Newt survey; This

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
		80%, within ponds 1A, 1C, IG, 1H and 1I (main breeding ponds).	water forget-me-not *Myosotis* scorpioides, flote/sweet grass *Glyceria fluitans* and great hairy willowherb *Epilobium hirsutum.* 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. Some of the ponds at the SAC are small and do not have a high macrophyte cover.	attribute will be periodically monitored as part of Natural England's site condition assessments.
Supporting habitat: structure/function	Quality of 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. The heterogeneous nature of the supporting terrestrial habitat at the SAC and that outside the boundary of the site is important in maintaining the Great Crested Newt population.	2004 Great Crested Newt survey; This attribute will be periodically monitored as part of Natural England's site condition assessments.
Supporting habitat: structure/function	Shading of ponds	Pond perimeters should generally be free of shade (typically affecting less than 60% 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.	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Supporting habitat: structure/function	Presence of fish and wildfowl	Fish and wildfowl are absent or rare in all ponds.	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 pondwater 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 suitabliity.	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Supporting processes (on which the feature	Water quality	Maintain the quality of pondwaters within the site as indicated by the presence of an abundant and	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	

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
or its supporting habitat relies)		diverse invertebrate community.	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.	
Population (of the feature)	Population size	The size of the great crested newt population is being maintained at or above a peak mean of 381 individuals	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 and between-year variation in population counts is frequent and so monitoring against the achievement of this target will allow for both natural fluctuations and any margins of error in data collection. This baseline population size is based on a peak count from 2004 survey.	2004 Great Crested Newt Survey; This attribute will be periodically monitored as part of Natural England's site condition assessments.
Population (of the feature)	Population viability	The presence of great crested newt eggs in breeding ponds is consistently at 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 (eg 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.	This attribute will be periodically monitored as part of Natural England's site condition assessments
	Supporting metapopulation	Maintain the connectivity of the SAC great crested newt population with other closely-associated populations (either within or outside of the site boundary)	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. A metapopulation associated with a SAC may also 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. The 2004 GCN survey identified that there were a further 17 ponds within 500m of the SAC, 11 of which supported a combined great crested newt population of at least 357 individuals. Therefore this supporting metapopulation is extremely important to sustaining the SAC population, and any barriers to dispersal/interaction should be strongly avoided.	Great Crested Newt Survey 2004 (available from Natural England on request)
Version Control Advice last updated: May 2016; adaptation and resilience updated with additional supporting notes conservation measures attribute updated with link to SIP				
Variations from national feature-framework of integrity-guidance: site-specific targets added. No generic attributes have been removed.				

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

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution of the feature	Extent of the feature within the site	Maintain the full extent of the H6210 grassland feature currently estimated to be approximately 9ha	There should be no measurable net reduction (excluding any trivial loss)in the extent and area of this feature, and in some cases, the full extent of the feature may need to be restored.. The baseline-value of extent is yet to be generated from 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. The extent of a Annex I habitat feature covers the sum extent of all of the component vegetation communities present and may include transitions and mosaics with other closely-associated habitat features. Where a feature is susceptible to natural dynamic processes, there may be acceptable variations in its extent through natural fluctuations. Where a reduction in the extent of a feature is considered necessary to meet the Conservation Objective for another Annex I feature, Natural England will advise on this on a case-by-case basis.	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Extent and distribution of the feature	Distribution of the feature, including associated transitional habitats, within the site	The distribution and continuity of the H6210 grassland feature, including where applicable its component vegetation types and associated transitional vegetation types, across the site is maintained	A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species) 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.	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	Vegetation community composition	Ensure the component vegetation communities of the H6210 grassland feature are referable to and characterised by the following National Vegetation Classification types; CG2 *Festuca ovina - Avenula pratensis* lowland calcareous grassland; CG7 *Festuca ovina - Hieracium pilosella - Thymus praecox* grassland.	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 the typical plant species of the SAC feature (i.e. the constant and preferential species of a community), at appropriate levels (recognising there may be natural fluctuations in their presence and abundance).	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and	Vegetation	The proportion of herbaceous	A high cover of characteristic herbs, including sedges (Carex species) is typical of	This attribute will be

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
function (including its typical species)	composition: proportion of herbs (including *Carex* spp)	species within the sward is being consistently maintained within the range 40%-90%	the structure of this habitat type.	periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the H6210 grassland feature at this site; CG2: *Anthyllis vulneraria, Campanula glomerata, Cirsium acaule, Filipendula vulgaris, Genista tinctoria, Gentianella spp., Helianthemum nummularium, Hippocrepis comosa, Leontodon hispidus/L. saxatilis, Leucanthemum vulgare, Linum catharticum, Lotus corniculatus, Pilosella officinarum (Hieracium pilosella), Plantago media, Polygala spp., Primula veris, Sanguisorba minor, Scabiosa columbaria, Serratula tinctoria, Succisa pratensis, Thymus spp* CG7: *Aira spp, Athanes spp, Astragalus danicus, Centaurium erythraea, Cladonia spp, Dianthus deltoids, Erigeron acer, Erodium cicutarium, Fragria vesca, Galium verum, Helianthemum nummularium, Leontodon hispidus/saxatilis, Lotus corniculatus, Pilosella officinarum, Rumex acetosella, Sedum acre, Thymus spp.*	Some plant or animal species (or related groups of such species) make a particularly important contribution to the structure, function and/or quality of an Annex I habitat feature at a particular site. These species will include; – Structural species which form a key part of the habitat's structure or help to define an Annex I habitat on a site (see also the attribute for 'vegetation community composition'). – 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 site. 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.	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	Vegetation composition: undesirable species	The frequency/cover of the following undesirable species are maintained at acceptable levels as expressed below and are not encouraged by changes in surface condition, soils, nutrient levels or changes to hydrology;	There will be a range of undesirable or uncharacteristic species which, if allowed to colonise and spread, are likely to have an adverse effect on the feature's structure and function, including its more desirable typical species. These may include invasive non-natives such as Cotoneaster spp, or coarse and aggressive native species which may uncharacteristically dominate the composition of the feature.	This attribute will be periodically monitored as part of Natural England's site condition assessments.

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
		1. No species/taxa more than occasional throughout the sward, or singly or together more than 5% cover: thistles *Cirsium arvense, Cirsium vulgare,* docks *Rumex crispus, Rumex obtusifolius,* ragwort *Senecio jacobaea,common nettle Urtica dioica.* 2. Cover of wavy hair-grass *Deschampsia flexuosa* should be not more than 20% 3. Cover of coarse grasses such as Yorkshire fog *Holcus lanatus* and cock's-foot *Dactylis glomerata* should be not more than 10% 4. Cover of bracken *Pteridium aquilinum* should not be more than 10% 5. Cover of the grasses *Brachypodium pinnatum* and *Bromopsis erecta* should not be more than 10%		
Structure and function (including its typical species)	Vegetation community transitions	Maintain the pattern of any natural vegetation zonations/transitions which form part of the H6210 grassland habitat, such as the scrub/grassland matrix.	These transitions/zonations are usually related to changes in soil, aspect or slope and will provide the grassland habitat feature with further structural and botanical diversity of considerable value.	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	Soils, substrate and nutrient cycling	The properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial PLFA ratio, are maintained within typical values for the H6210 grassland habitat	As explained above in Table 1	
Supporting processes (on	Air quality	Maintain as necessary concentrations and deposition of air	As explained above in Table 1	More information about site-relevant Critical

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
which the feature relies)		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).		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).
Structure and function (including its typical species)	Adaptation and resilience of the feature and the supporting processes on which it relies	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, is not prejudiced	As explained above in Table 1	
Supporting processes (on which the feature relies)	Conservation measures	Management or other measures (within and/or outside the site boundary as appropriate) necessary to maintain the structure, functions and supporting processes associated with the H6210 grassland feature are underway and are not being undermined or compromised.	As explained above in Table 1	Natural England's Views about the Management of the SSSI which underpin this SAC are available from http://www.sssi.naturalengland.org.uk/Special/sssi/search.cfm
Version Control Advice last updated: May 2016 – 'typical species' attribure replaced with 'key structural, influential and/or distinctive species'				
Variations from national feature-framework of integrity-guidance: Removed the attributes "Supporting off-site habitat" and "Functional connectivity with wider landscape" as whilst they can be said to be beneficial, are not considered critical to the conservation objectives of the SAC feature at this site.				

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