



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

**Kirk Deighton Special Area of Conservation (SAC)
(UK0030178)**



Date of Publication: 15 May 2015

About this document

This document provides Natural England's supplementary advice for the European Site Conservation Objectives for Kirk Deighton SAC. This advice should therefore be read together with the SAC Conservation Objectives available [here](#).

This supplementary advice to the Conservation Objectives describes in more detail the range of ecological attributes which are most likely to contribute to a site's overall integrity and the minimum targets each qualifying feature needs to achieve in order to meet the site's objectives.

You should use the Conservation Objectives, this Supplementary Advice and any case-specific advice given by Natural England, when developing, proposing or assessing an activity, plan or project that may affect this site. Any proposals or operations which may affect the site or its qualifying features should be designed so they do not adversely affect any of the attributes listed in the objectives and supplementary advice.

The tables provided below bring together the findings of the best available scientific evidence relating to the site's qualifying features, which may be updated or supplemented in further publications from Natural England and other sources. The local evidence used in preparing this supplementary advice has been cited. The references to the national evidence used are available on request. Where evidence and references have not been indicated, Natural England has applied ecological knowledge and expert judgement. You may decide to use other additional sources of information.

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

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

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

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

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

About this site

European Site information

Name of European Site	Kirk Deighton Special Area of Conservation (SAC)
Location	North Yorkshire
Designation Date	April 2005
Qualifying Features	See below
Designation Area	4.03 hectares
Designation Changes	Not applicable
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)	Kirk Deighton SSSI
Relationship with other European or International Site designations	Not applicable

Site background and geography

Kirk Deighton SAC is located on the outskirts of the village of Kirk Deighton, situated just north of Wetherby in the Southern Magnesian Limestone National Character Area. This is a lowland site situated on neutral clay soils within a wider landscape characterised by a patchwork of arable land and grazed pastures.

At just over 4 hectares in size, the site supports an exceptionally large population of great crested newt *Triturus cristatus* and contains a breeding pond which is shallow, seasonal in nature and varies in size from year to year. This pond is surrounded by sheep and cattle grazed pasture and mature hedgerows which provide both essential feeding and hibernating sites for the great crested newts.

The pond also supports a small population of smooth newt *Triturus vulgaris* and common frog *Rana temporaria*. In addition, the site contains a smaller drainage pond also known to be used by the newts.

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:

Not applicable.

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, where they may range a considerable distance from breeding sites.

Breeding sites are usually 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 local 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, great crested newts *Triturus cristatus* breed in a large pond set in a depression in grazed pasture. This main breeding pond has a water level that fluctuates widely, sometimes leading to pond desiccation. As a result, there is relatively little aquatic vegetation but egg-laying occurs and recruitment is successful intermittently; however, a large population is present, demonstrating this species' ability to thrive in temporary pond sites. Newts range across an area comprising pasture with old hedgerows.



Great Crested Newt (female)

Table 1: Supplementary Advice for Qualifying Features: S1166 *Triturus cristatus*; Great crested newt

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat: structure/function	Overall Habitat Suitability Index score	Restore an overall great crested newt Habitat Suitability Index score of not less than 0.8.	<p>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 Great Crested Newt (GCN) habitat. In general, the higher the index score the more likely the site is to support great crested newts. The HSI should not be used as a substitute for more detailed surveys and consideration of other attributes where necessary.</p> <p>At this site, the HSI will be calculated for the main great crested newt (GCN) breeding pond and the smaller pond also utilised by GCN within the SAC. In February 2013 a HSI Assessment of the two ponds at Kirk Deighton SAC was carried out. This was updated when information came to light that both ponds are known to have dried up once since surveys began at the site and following reassessment of the number of ponds within 1km of the site. The following HSI score for the ponds was calculated:</p> <p>Main pond: HSI score 0.75 Small pond: HSI score 0.83 Current average HSI score across SAC ponds is 0.79</p> <p>This assessment found that the habitat suitability of the main breeding pond for GCNs could be improved by improving water quality, terrestrial habitat, increasing the number of ponds in the wider area and increasing macrophyte cover.</p>	<p>UK Amphibian and Reptile Groups (ARG-UK) Advice Note 5 on the Habitat Suitability Index (May 2010).</p> <p>GLEED-OWEN, C. (2013) SAC field survey. Data held by Natural England</p>
	Presence of ponds	Maintain the number of ponds present within the site at not less than two	<p>Ponds to include breeding ponds as well as non-breeding ponds, since the latter may be used for foraging or sustaining prey populations. The surface area of a pond is taken from when water reaches its highest level (excluding flooding events), which will usually be in the spring.</p> <p>Ponds within SAC: Main Pond at grid reference SE397502 Small Pond at grid reference SE396502</p> <p>*These two ponds were extant when Kirk Deighton was designated as a SAC in 2005.</p>	
Supporting	Permanence of	Maintain the permanence of	Ponds to include breeding ponds as well as non-breeding ponds, since the	

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
habitat: structure/ function	ponds	water within ponds present within the site, with a minimum summer water depth of 10cm for both ponds at least three years out of four.	<p>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.</p> <p>Record approximate depth of water in ponds between mid-August and mid-September. Ponds prone to periodic desiccation. Since records began it has been noted that the main pond dried up in 1992 and the small pond dried up in 2011.</p>	
	Cover of macrophytes	<p>Restore a high cover of macrophytes, typically between 25-80%, within ponds.</p> <p>Additional target: 15% - 100% of margin supporting marginal and emergent species, and 25% - 75% of pond bottom/ mid-water/ surface covered by submerged or floating species.</p>	<p>Marginal and emergent vegetation are important components of a great crested newt pond as they provide excellent egg-laying sites.</p> <p>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 water body and whilst it is preferable to have a good range and area of marginal plants, they should not extend across the entire water surface.</p> <p>In most circumstances it will be desirable to retain a fringe of marginal and emergent vegetation around at least half of a pond's edge. Where the marginal vegetation is particularly invasive, and provides no specific benefit to crested newts, it may be decided that its complete removal is necessary.</p> <p>At this SAC, the main pond is known to support water crowfoot, sedges <i>Carex</i> spp. and reed sweet-grass <i>Glyceria</i> spp.</p>	
	Supporting terrestrial habitat	Maintain the extent and quality of terrestrial habitat likely to be utilised by great crested newts, with no fragmentation of habitat by significant barriers to newt dispersal, by maintaining 3.91ha of grassland and the network of mature hawthorn hedgerows and scattered trees within the SAC.	<p>Great crested newts need both aquatic and terrestrial habitat. Good quality terrestrial habitat, particularly within 500m of the breeding ponds, provides important sheltering, dispersing and foraging conditions and can include all semi-natural habitat along with meadows, rough tussocky grassland, scrub, woodland, as well as 'brownfield' land or low-intensity farmland.</p> <p>Good quality terrestrial habitat for GCNs has structural diversity which can be provided by features such as hedges, ditches, stone walls, old farm buildings, loose stone/rocks, rabbit burrows and small mammal holes. Good habitat provides a range of invertebrates, such as earthworms, insects, spiders and slugs, on which GCNs are known to feed. Fragmentation refers to significant barriers to GCN movement such as walls and buildings, but not footpaths or</p>	JNCC. 2000. Kirk Deighton SAC Standard Data Form

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
			<p>tracks. Newts disperse over land to forage for food, and move between ponds.</p> <p>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.</p> <p>There is a network of approximately 868m of mature hawthorn hedgerows providing suitable resting, hibernation, foraging and commuting habitat within the SAC. Immediately surrounding the newt ponds is grassland which also provides suitable terrestrial habitat, particularly where it becomes increasingly 'tussocky' in structure closer to the main breeding pond.</p> <p>There is considerable suitable terrestrial habitat outside the boundary of the SAC and SSSI to the north, including a large area of rough grassland which has, historically, been un-managed. Great crested newts are also known to utilise gardens within the surrounding area including along Lime Kiln Lane.</p>	
Supporting habitat: structure/function	Shading of ponds	Pond perimeters should generally be free of shade (typically affecting less than 60% of the shoreline), with <20% of the southern margin of the main breeding pond solidly shaded.	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.	
	Presence of fish and wildfowl	Maintain the absence of fish and wildfowl from all ponds.	<p>At high densities, waterfowl (i.e. most water birds such as ducks, geese and swans but excluding moorhen) can remove all aquatic vegetation, adversely affect water quality and create turbid pond water conditions. Some may also actively hunt adult GCNs and their larvae. Similarly fish can be significant predators of GCN larvae. The presence of waterfowl and fish can reduce habitat suitability. These should be wholly absent from sites which support fewer than 5 ponds.</p> <p>No fish have ever been recorded in the ponds so their absence should be maintained. Wildfowl are not known to currently impact the site.</p>	
Supporting processes (on which the	Water quality	Restore the quality of pond waters within the site as indicated by the presence of an	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	English Nature and Natural England

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
feature or its supporting habitat relies)		abundant and diverse invertebrate community.	<p>groups present should include groups such as mayfly larvae and water shrimps. This will ensure ponds support a healthy (mainly invertebrate) fauna to provide food for developing GCN larvae and adults.</p> <p>Poor water quality has been noted in both ponds within the SAC in previous condition assessments in terms of having high turbidity which could impact on GCN by blocking gills, hampering displaying and reducing invertebrate numbers. The smaller pond was also noted as being eutrophic in 2009. The HSI assessment in February 2013 however found both ponds to have moderate water quality.</p> <p>The poor water quality is considered to be as a result of livestock entering the water defecating in it and causing poaching. In 2013 both ponds were fence to exclude livestock which should result in an improvement in water quality.</p>	<p>Condition Assessment data (1987, 1990, 2002, 2008, 2009, 2010 & 2011).</p> <p>GLEED-OWEN, C. (2013) SAC field survey. Data held by Natural England</p>
Population (of the feature)	Population abundance	Restore and then maintain the abundance of the population to a level which is above an average of 247 great crested newts, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	<p>This will ensure there is a viable population of the feature which is being maintained at or increased to a level that contributes as appropriate to its Favourable Conservation Status across its natural range in the UK.</p> <p>Due to the dynamic nature of population change, the target-value given for the population size or presence of this feature is considered to be the minimum standard for conservation/restoration measures to achieve. This minimum-value may be revised where there is evidence to show that a population's size or presence has significantly changed as a result of natural factors or management measures and has been stable at or above a new level over a considerable period (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>Target calculated from GCN surveys undertaken 1986 - 1995, data referenced in GIBSON, S. D. (Ed). Results of a survey and assessment of 15 great crested newt (<i>Triturus cristatus</i>) sites thought to hold large populations, using standardised survey techniques. JNCC, ISSN0963-8091</p>

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
			<p>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; this is typically 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. Whilst we will endeavour to keep these values as up to date as possible, local Natural England staff can advise that the figures stated are the best available.</p>	
Population (of the feature)	Population viability	Maintain the presence of great crested newt eggs in breeding ponds	<p>A "breeding pond" is defined as a pond in which egg-laying and successful metamorphosis (e.g. the pond doesn't dry up too soon) is likely to occur at least once every three years. The optimum time to survey for eggs is mid-March to mid-May. Presence of eggs can be recorded by day or night visits and surveys should be combined with visits for the adult component.</p>	
	Supporting metapopulation	Maintain the connectivity of the SAC's great crested newt population to other closely-associated populations (either within or outside of the site boundary)	<p>Great crested newts often exist as a metapopulation. This is a collective group of associated populations made up of newts which breed in, and live around, a cluster of ponds. There will be some interchange of newts between these populations, even though most adults consistently return to the same pond to breed, and so it will be important to avoid the isolation of these populations from each other.</p> <p>A metapopulation associated with a SAC may occur outside of the designated site boundary. The connectivity of the wider local landscape to the SAC may therefore be important as this may help to ensure the survival of the overall population even if sub-populations are temporarily affected by, for example, pond desiccation or fish introductions.</p> <p>There are no known GCN populations within 1km of the site. Although there is anecdotal evidence of newts breeding in garden ponds on the west and east sides of Main Road these have not been confirmed as great crested newt breeding ponds. Within the SAC GCN occur in both ponds and the connections between these ponds should not be severed. There is potential for GCN to occur in ponds out-with the SAC, such as the four ponds to the east and north which lie within 500m of the main breeding pond within the SAC, in the pond c.720m north-west of the SAC as well as in garden ponds within 500m of the SAC breeding pond.</p>	

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
			The ponds within 500m of the SAC should be assessed for their potential to support GCN, and to determine if they support a metapopulation with the SAC population, if they are likely to become severed from the ponds at Kirk Deighton SAC.	
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.	<p>Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. Further details about the necessary conservation measures for this site can be provided by contacting Natural England.</p> <p>This information will typically be found within, where applicable, supporting documents such as the Natura 2000 Site Improvement Plan, site management strategies or plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.</p>	
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	<p>A contraction in the range, or geographic spread, of the feature (and its component vegetation) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes.</p> <p>Contraction may also reduce and break up the continuity of a habitat within a site and how well the species feature is able to occupy and use habitat within the site. Such fragmentation may have a greater amount of open edge habitat which will differ in the amount of light, temperature, wind, and even noise that it receives compared to its interior. These conditions may not be suitable for this feature and this may affect its viability.</p>	
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	<p>This recognises the increasing likelihood of supporting habitat features to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning.</p> <p>Such environmental changes may include changes in sea levels, precipitation and temperature for example, which are likely to affect the extent, distribution, composition and functioning of a feature within a site. The vulnerability and response of features to such changes will vary. 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>	

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
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. 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 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).	<p>The supporting freshwater and terrestrial habitat of this feature is considered sensitive to changes in air quality.</p> <p>Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition (including food-plants) and reducing supporting habitat quality and population viability of this feature.</p> <p>Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH₃), oxides of nitrogen (NO_x) 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>It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales.</p>	More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).

Version Control

Advice last updated: N/A

Variations from national feature-framework of integrity-guidance:

Overall Habitat Suitability Index score – The SAC and SSSI citations for the site refer to the main pond within the site as being the GCN breeding pond. The SAC citation does not mention a second pond. Targets however have been set for both the main and smaller pond within the SAC as the small pond has been found to support excellent habitat suitability for GCN and is known to be utilised by GCN. There are only two ponds within the SAC and therefore the need to maintain this second smaller pond in a favourable condition for GCN is important in increasing the site's robustness against change for the GCN population.

Presence of ponds –The water levels of the ponds within the SAC are known to fluctuate widely over short periods of time, and so low pond surface areas will not

Attributes	Targets	Supporting and/or Explanatory Notes	Sources of site-based evidence (where available)
<p>necessarily indicate that the site is in unfavourable condition. The number of ponds has therefore been selected for this criterion, instead of pond surface area. Two ponds were present at designation.</p> <p>Cover of macrophytes - The wide fluctuation of water levels in the ponds leads to periodic desiccation which hampers the permanent establishment of aquatic macrophytes. A lower target cover of marginal and submerged species has therefore been set. This target is in line with the FCT target for macrophyte cover for the main breeding pond. However, for this SAC criterion the target is set for both ponds; given that both ponds would need to be in favourable condition if the site is to be robust enough to cope with change which may impact on the GCN population, such as pollution events or climate change.</p> <p>Shading of ponds – An additional target for the southern boundary has been set for the main breeding pond in line with the SSSI FCT target as shading of a pond's southern margins is particularly detrimental for GCN breeding success.</p> <p>Population viability: The method of identifying the species of newt for any egg found involves disturbing eggs, leaving them prone to desiccation and predation. There is little macrophyte cover in both ponds within this site, particularly emergent and marginal vegetation. It is therefore assumed that at this site egg-laying occurs on leaf litter and the fine-leaved grasses and water crowfoot present which would render egg searching difficult and more damaging to the site than if marginal vegetation were present. Since the site was designated as a SSSI in 2000 no GCN eggs have been recorded within the site indicating the difficulty in locating eggs within the ponds. It is therefore recommended that once the presence of GCN eggs has been identified in the ponds, egg-searching ceases to prevent further disturbance rather than continuing in order to determine the overall abundance of GCN eggs.</p>			

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