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

Holburn Lake and Moss
Special Protection Area (SPA)
Site Code: UK9006041

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About this document

This document provides Natural England's supplementary advice for the European Site Conservation Objectives relating to Holburn Lake and Moss SPA.

This advice should therefore be read together with the SPA Conservation Objectives available here.

You should use the Conservation Objectives, this Supplementary Advice and any case-specific advice given by Natural England when developing, proposing or assessing an activity, plan or project that may affect this site'

This Supplementary Advice to the Conservation Objectives presents attributes which are ecological characteristics of the designated species and habitats within a site. The listed attributes are considered to be those that best describe the site's ecological integrity and which, if safeguarded, will enable achievement of the Conservation Objectives. Each attribute has a target which is either quantified or qualitative depending on the available evidence. The target identifies as far as possible the desired state to be achieved for the attribute.

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

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

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

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

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

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

About this site

European Site information

Name of European Site	Holburn Lake and Moss Special Protection Area (SPA)
Location	Northumberland
Site Map	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	August 1998
Qualifying Features	See section below
Designation Area	22.05 ha
Designation Changes	None
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)	*Holburn Lake and Moss SSSI*
Relationship with other European or International Site designations	Holburn Lake & Moss Ramsar - UK11030

Site background and geography

Holburn Lake and Moss is located about 5 km inland from the coast of Northumberland in north-east England. The site comprises part of a lowland raised mire and parts of the adjacent slopes that form its catchment area. The south-western outflow to the mire was dammed in 1934 to create Holburn Lake. Raised mires are rare in Britain and few now remain intact. Holborn Moss is at the dry end of the range of variation in mires. The vegetation reflects this, being dominated by heather, with cotton-grasses and associated mosses. The core of the site comprises some 10 ha of largely heather-dominated vegetation, punctuated by wetter hollows that retain a Sphagnum-rich flora. There is a small area of poor fen at the eastern end of the lake. Pool margins support species such as cranberry, sundew and bog asphodel. The large heath butterfly, which is nationally uncommon, has also been recorded. Several pairs of whinchat breed on the moss

The site is of ornithological importance as a roost for the Icelandic population of Greylag Goose *Anser anser*. These birds feed in surrounding agricultural areas outside the SPA, sometimes beyond the immediate surroundings. Holburn Lake and Moss is situated with in the Mid Northumberland Character area, more information on the area can be found here

About the qualifying features of the SPA

The following section gives you additional, site-specific information about this SPA's qualifying features. These are the individual species of wild birds listed on Annex I of the European Wild Birds Directive, and/or the individual regularly-occurring migratory species, and/or the assemblages (groups of different species occurring together) of wild birds for which the SPA was classified for.

- **Qualifying individual species listed in Annex I of the Wild Birds Directive (Article 4.1)**

During the non-breeding season the SPA regularly supports:

- **A043 Greylag goose *Anser anser***

This site supports internationally significant numbers of Greylag geese during the winter months and when the SPA was classified in 1964 this represented 1% (upwards of 2000 birds) of the total North-West European wintering population. The population has seen a dramatic decline with recent counts of 14 individuals - counted between 2012-2017 (WeBS data from the BTO).

The greylag goose is the largest and bulkiest of the wild geese native to the UK and Europe. The habitat used by the geese on the site is restricted to Holburn Lake, although the site also includes lowland raised bog and upland heath which are not used by the geese. Greylag geese also make use of open-water habitat on nearby land which is not covered by the SPA designation.

Site-specific seasonality of SPA features

The table below highlights in grey those months in which significant numbers of each mobile qualifying feature are most likely to be present at the SPA during a typical calendar year. This table is provided as a general guide only.

Unless otherwise indicated, the months shown below are primarily based on information relating to the general months of occurrence of the feature in the UK. Where site-based evidence is available and has been used to indicate below that significant numbers of the feature are typically present at this SPA outside of the general period, the site-specific references have been added to indicate this.

Applicants considering projects and plans scheduled in the periods highlighted in grey would benefit from early consultation with Natural England given the greater scope for there to be likely significant effects that require consideration of mitigation to minimise impacts to qualifying bird features during the principal periods of site usage by those features. The months which are *not* highlighted in grey are not ones in which the features are necessarily absent, rather that features may be present in less significant numbers in typical years. Furthermore, in any given year, features may occur in significant numbers in months in which typically they do not. Thus, applicants should not conclude that projects or plans scheduled in months not highlighted in grey cannot have a significant effect on the features. There may be a lower likelihood of significant effects in those months which nonetheless will also require prior consideration.

Any assessment of potential impacts on the features must be based on up-to-date count data and take account of population trends evident from these data and any other available information. Additional site-based surveys may be required. Non-breeding water bird monthly maxima data gathered for this site through the Wetland Bird Survey ('WeBS') may be available upon request from the British Trust for Ornithology.

Feature	Season	Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Site-specific references where available
Greylag goose	*Non-breeding*	*Winter*													*Includes analysis of data from SPA's WeBS Counts*

Guide to terms:
Breeding – present on a site during the normal breeding period for that species
Non-breeding - present on a site outside of the normal breeding period for that species (includes passage and winter periods).
Summer – the period generally from April to July inclusive
Passage - the periods during the autumn and spring when migratory birds are moving between breeding areas and wintering areas. These periods are not strictly defined but generally include the months of July – October inclusive (autumn passage) and March – April inclusive (spring passage).
Winter - the period generally from November to February inclusive.

Table 1: Supplementary Advice for Qualifying Features: A043a. *Anser anser*; Greylag goose (Non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Non-breeding population	**Population abundance**	Restore the size of the non-breeding population to a level which is above 2000 Greylag geese whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	This will sustain the site's population and contribute to a viable local, national and bio-geographic population. Due to the mobility of birds and the dynamic nature of population change, the target-value given for the abundance 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 abundance 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. Given the likely fluctuations in numbers over time, any impact-assessments should focus on the current abundance 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 classified, 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. Maintaining or restoring bird abundance depends on the suitability of the site. However, factors affecting suitability can also determine other demographic rates of birds using the site including survival (dependent on factors such as body condition which influences the ability to breed or make foraging and/or migration movements) and breeding productivity. Adverse anthropogenic impacts on either of these rates may precede changes in population abundance (e.g. by changing proportions of birds of different ages) but eventually may negatively affect abundance. These rates can be	Annual records for this species can be found online on the BTO WeBS data site

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			measured/estimated to inform judgements of likely impacts on abundance targets. Unless otherwise stated, the population size 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 on whether the figures stated are the best available. Target is set here as restore due the significant decline in Greylag Geese numbers since notification. The reasons for this decline in Greylag numbers is largely speculative but birds appear to have possibly shifted their wintering distribution northwards over the past few decades and/or use other land within the fly zone of Lindisfarne which has been targeted for geese. Target will remain as restore until there is confirmation that there are no on-site issues causing these declines.	
Supporting habitat (both within and outside the SPA): extent and distribution	**Extent and distribution of supporting non-breeding habitat**	Maintain the extent and distribution of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding): 22.05ha of open water and lowland bog habitat	Conserving or restoring the extent of supporting habitats and their range will be key to maintaining the site's ability and capacity to support the SPA population. The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending to the nature, age and accuracy of data collection. This target may apply to supporting habitat which also lies outside the site boundary	Natural England (2008) Definition of Favourable Condition - Holburn Lake and Moss (Available on request from Natural England upon request
Supporting habitat (both within and outside the SPA): function/ supporting process	**Air quality**	Maintain 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 structure and function of habitats which support this SPA feature may be sensitive to changes in air quality. Exceeding critical values for air pollutants may result in changes to the chemical status of its habitat substrate, accelerating or damaging plant growth, altering vegetation structure and composition and thereby affecting the quality and availability of nesting, feeding or roosting habitats. Critical Loads and Levels are thresholds below which such harmful effects on sensitive UK habitats will not occur to a	More information about site-relevant Critical Loads and Levels for this SPA 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)
			noteworthy 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. 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. 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.	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Connectivity with supporting habitats**	Maintain the safe passage of birds moving between roosting and feeding areas generally within 10 km of each other	The ability of the feature to safely and successfully move to and from feeding and roosting areas is critical to their breeding success and to the adult fitness and survival. This target will apply within the site boundary and where birds regularly move to and from off-site habitat where this is relevant.	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Conservation measures**	Maintain management or other measures (whether within and/or outside the site boundary as appropriate) necessary to maintain the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	Active and ongoing conservation management is often needed to protect, maintain or restore this feature at this site. Other measures may also be required, and in some cases, these measures may apply to areas outside of the designated site boundary in order to achieve this target. Further details about the necessary conservation measures for this site 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. General management of Holburn Lake and Moss includes: livestock grazing of surrounding grass and heath habitats, scrub and invasive rhododendron control, maintenance of the	English Nature (2005), Views about Management, Holburn Lake and Moss. Natural England (2015) Holburn Lake and Moss SPA, Site Improvement Plan.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			water table to stabilise and prevent movement on peat by blocking existing drains using dams and installation of new dams in appropriate areas and the prevention of drainage into adjacent peat extraction workings	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain the availability of cereal grains potatoes and goose grass, where these sources are locally important to feeding flocks.	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of prey may adversely affect the population.	This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain a high cover/abundance of preferred food plants (e.g. *Lolium perenne Lolium multiflorum, Trifolium repens, Phleum pratense, Poa spp., Festuca spp.).*	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of prey may adversely affect the population.	This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments
Supporting habitat (both within and outside the SPA): function/ supporting process	**Water area**	Maintain the number and size of waterbodies of optimal size (>20 ha).	This feature depends on the presence and continuity of open water habitat; often requiring water bodies of a particular size to in order to successfully nest, rear their young, feed and/or roost. Changes in water area, and associated marginal habitat, can adversely affect the suitability of supporting open water habitat.	
Supporting habitat (both within and outside the SPA): function /supporting process	**Water quality/ quantity**	Where the supporting habitats of the SPA feature are dependent on surface water ensure water quality and quantity is maintained to a standard which provides the necessary conditions to support the feature.	For many SPA features which are dependent on wetland habitats supported by surface water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year during key stages of their life cycle. Poor water quality and inadequate quantities of water can adversely affect the availability and suitability of breeding, rearing, feeding and roosting habitats. 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	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			the SPA Conservation Objectives but in some cases more stringent standards may be needed to support the SPA feature. Further site-specific investigations may be required to establish appropriate standards for the SPA.	
Supporting habitat (both within and outside the SPA): minimising disturbance	**Minimising disturbance caused by human activity**	Reduce the frequency, duration and/or intensity of disturbance affecting roosting, foraging, feeding, moulting and/or loafing birds so that the feature is not significantly disturbed	The nature, scale, timing and duration of some human activities can result in the disturbance of birds at a level that may substantially affect their behaviour, and consequently affect the long-term viability of the population. Such disturbing effects can for example result in changes to feeding or roosting behaviour, increases in energy expenditure due to increased flight, and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, presence of people, animals and structures.	TUITE, C.H., HANSON, P.R. & OWEN, M. (1984). Some ecological factors affecting winter wildfowl distribution on inland Waters in England and Wales, and the influence of water-based recreation. J. Appl. Ecol., 21: 41-62. WATERFOWL MANAGEMENT HANDBOOK: Human Disturbances of Waterfowl: Causes, Effects, and Management. Fish and Wildlife Leaflet: 13.2.15. 1992 PLATTEEUEW, M. & HENKENS, J.H.G. (1997). Possible impact of disturbance to waterbirds: individuals, carrying capacity and populations. Wildfowl, 48: 225-236.
Supporting habitat (both within and outside the SPA): structure	**Landscape**	Maintain the amount of open and unobstructed terrain within at least 0.5 km of roosting and feeding areas, and no overall decrease in field sizes.	This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within feeding and roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour. An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat.	
Supporting habitat (both within and outside the SPA):	**Vegetation characteristics**	Maintain the extent and distribution of predominantly short (<10 cm) grassland swards in areas used for feeding is maintained.	The height, cover, variation and composition of vegetation are often important characteristics of habitats supporting this feature which enable successful nesting/rearing/concealment/roosting. Many bird species will have specific requirements that conservation measures will aim	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
structure			to maintain, for others such requirements will be less clear. Activities that may directly or indirectly affect the vegetation of supporting habitats and modify these characteristics may adversely affect the feature.	
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				