



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

**North York Moors Special Protection Area (SPA)
Site code: UK9006161**



North York Moors – Natural England

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About this document

This document provides Natural England's supplementary advice for the European Site Conservation Objectives relating to North York Moors SPA. This advice should therefore be read together with the SPA Conservation Objectives available [here](#).

This site overlaps with another European Site (the North York Moors SAC) and you should also refer to the separate European Site Conservation Objectives (including Supplementary Advice where available) provided for this site [here](#).

This advice replaces a draft version dated 25 September 2017 following the receipt of comments from the site's stakeholders.

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

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

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

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

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

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

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

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

About this site

European Site information

Name of European Site	North York Moors Special Protection Area (SPA)
Location	North Yorkshire
Site Maps	The designated boundary of this site can be viewed on the MAGIC website
Designation Date	12 th May 2000
Qualifying Features	See section below
Designation Area	44,087.68 ha
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)	North York Moors SSSI
Relationship with other European or International Site designations	Complete overlap with the North York Moors SAC.

Site background and geography

The North York Moors contain the largest continuous tract of heather moorland in England. The site is of national importance for its mire and heather moorland vegetation communities and of international importance for its breeding bird populations, particularly merlin and golden plover.

The site, which lies entirely within the North York Moors National Park, is situated in north-east Yorkshire and lies between the towns of Whitby and Scarborough to the east; Pickering and Helmsley to the south; Northallerton and Stokesley to the west and Loftus and Guisborough to the north. The site lies within a well-defined upland area which forms the [North York Moors and Cleveland Hills National Character Area](#) (NCA). The moors are generally low-lying with the majority of the plateaux elevated to between 150 m and 300 m. The maximum elevation is 545m on Urra Moor in the west. The elevation decreases towards the south and east.

The site consists of the four main moorland blocks within the North York Moors National Park. There are also five smaller outlying areas that lie close to, but do not join, the main blocks. The largest continuous moorland block is centrally placed within the site and consists of a series of moorland plateaux intersected by valleys. The block is delineated by Bilsdale to the west, Newtondale to the east and Eskdale to the North. The south side is marked by the edge of the moors as they grade into the lowland of the Vale of Pickering. The other three moorland blocks are separated from the central block by valleys and are situated to the west, north and east of it. The western block stretches from Bilsdale to Kepwick and Thimbleby Moors which mark the western edge of the moors and the site. The northern block is separated off from the central block by the Esk valley and lies between the northern edge of the National Park and the River Esk. The eastern block is separated by the narrow valley of Newtondale and stretches to the eastern edge of Brow Moor where the site boundary lies within half a mile of the north

east coast. The smaller outliers are scattered around the edges of the main moorland blocks and are generally low lying.

Vegetation Communities:

The vegetation displays a transition between blanket bog and dry heath land and supports diverse and extensive upland plant communities. The moorland plateaux are dominated by dry heath on the central and western moors and wet heath and mire communities on the northern and eastern moors. The plateaux are defined by a number of valleys, the sides of which support extensive strands of bracken and small areas of native woodland. Acid grasslands occur along some of the moorland edges.

Moorland plateaux:

Dry heath covers over half the site and forms the main vegetation type on the western, southern and central moors where the soil is free draining and only a thin peat layer exists. The dry heath is dominated by heather *Calluna vulgaris* and wavy hair-grass *Deschampsia flexuosa* almost to the exclusion of other species, although bilberry *Vaccinium myrtillus* becomes more dominant on the steeper slopes. Bell heather *Erica cinerea* is also found on well drained areas throughout the site, often fringing the sides of tracks and roads. On slopes where bracken *Pteridium aquilinum* has been controlled by spraying, bilberry predominates and cowberry *Vaccinium vitis-idaea* is also frequent.

Wet heath is the second most extensive vegetation type on the site and is predominantly found on the eastern and northern moors where the soil is less free draining. On Fylingdales and Goathland Moors wet heath is the dominant vegetation type, with dry heath being largely confined to the driest soils on the hill tops and ridges. Areas of wet heath tend to be dominated by heather with cross-leaved heath *Erica tetralix* becoming dominant in wetter areas. Purple moor-grass *Molinia caerulea* and heath rush *Juncus squarrosus* are also common within this community. In the wettest stands bog mosses *Sphagnum compactum* and *S. tenellum* and *Dicranum* moss *Dicranum scoparium* occur.

Blanket mire occurs in small amounts along the main watershed of the high moors where deep peat has accumulated. These areas are dominated by heather and cross-leaved heath with frequent hares-tail cotton grass *Eriophorum vaginatum* and common cotton grass *E. angustifolium*. The largest area of blanket mire occurs at the northern end of Bransdale.

Grassy mires occur in small peripheral stands on most moors, but form one of the main vegetation communities on the low lying Newton Mulgrave and Ugthorpe Moors and also form large stands on lower lying areas of Danby Low Moor. These areas are often dominated by purple moor-grass *Molinia caerulea* with frequent tormentil *Potentilla erecta* and cross-leaved heath.

Wetter mires support the richest bog vegetation and include species such as bog asphodel *Narthecium ossifragum*, bog mosses *Sphagnum* spp., cloudberry *Rubus chamaemorus* and bog rosemary *Andromeda polifolia*. The latter two species are found only on the raised bog at May Moss.

Moorland edge:

Much of the moorland edge is dominated by bracken *Pteridium aquilinum*. These areas are generally species-poor, but in places support scarcer species such as chickweed wintergreen *Trientalis europaea* and dwarf cornel *Cornus suecica*.

Small areas of acid grassland occur on the periphery of the moorland. These grasslands are dominated by mat grass *Nardus stricta* and heath bedstraw *Galium saxatile* on the wetter areas and sheep's fescue *Festuca ovina* and common bent *Agrostis capillaris* on better drained soils. On unenclosed moorland these grasslands grade into heath with the presence of bilberry and heather.

Valley sides and streams:

Flushes occur along seepage lines and stream courses across the moors. Soft rush *Juncus effusus* and sharp-flowered rush *Juncus acutiflorus* dominate over a field layer of mosses such as *Sphagnum*

recurvum, *S. auriculatum* and *Polytrichum commune*. These flushes tend to be species-poor, but the nationally scarce creeping forget-me-not *Myosotis stolonifera* can be found in acid moorland streams and shallow pools.

There are also occasional base-rich flushes which support a variety of short sedges *Carex* spp., herbs and mosses and plants such as common butterwort *Pinguicula vulgaris*. These flushes tend to be restricted to small areas on steep valley sides where beds of limestone lie close the surface.

The flush communities make up only a small area of the site, but are an essential part of the moorland habitat particularly because they support rich invertebrate populations which are an important food source for moorland birds.

Woodland:

Woodland is restricted to small areas along gills and the moorland edge is mostly dominated by oaks *Quercus* Spp., and birches *Betula* spp. These woods have a ground flora of bilberry and wavy hair-grass and occasionally common cow-wheat *Melampyrum pratense*. Along streams, narrow bands of alder *Alnus glutinosa* woodland occur with ash *Fraxinus excelsior* and herbs such as yellow pimpernel *Lysimachia nemorum*. The margins of lower moors support scrub in which common gorse *Ulex europaeus* and brambles *Rubus fruticosus* are present.

Natural regeneration on some of the peripheral moors, where grazing and burning pressures are low, has resulted in the presence of scattered trees including oak *Quercus* sp., birch *Betula* spp. and, in places, Scots pine *Pinus sylvestris* over an understorey of dry heath. Juniper *Juniperus communis* is locally rare and exists only as single shrubs or small clusters in a few remote gills and moor edges where burning is absent.

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 breeding season the SPA regularly supports:

- **Golden Plover *Pluvialis apricaria***

This site supports internationally important numbers of breeding Golden Plover, and when the SPA was designated in 2000 around 526 pairs were estimated to be present, representing at least 2.3% of the breeding population in Great Britain. The population has increased since the time of designation with a nesting density increasing from 1.82 to 2.22 pairs/km² during the period 2000-2014.

Found across the SPA, managed moorland provides a favourable habitat for Golden Plover. Golden Plover nest in a diversity of upland habitats (from heather moorland and blanket bog to damp acidic grasslands), where they prefer to nest on high, flat or gently sloping plateaux, away from the moorland edge. However they favour a vegetation mosaic to provide nesting cover and foraging areas, particularly for chicks and wet flush and bog areas for invertebrate richness.

Golden plover typically nest in a shallow scrape on the ground often hidden by moorland vegetation. Eggs are typically laid between April-mid-May and one brood is raised per year. Their diet consists of invertebrates (mainly beetles, crane-fly larvae and earthworms), and so marginal or low-intensity grassland and marshy areas rich in invertebrate food, adjacent to or nearby moorland nesting habitat, are important feeding grounds in the summer.

- **Merlin *Falco columbarius***

This site supports internationally important numbers of breeding Merlin, the UK's smallest raptor, and when the SPA was designated in 2000 around 40 pairs were estimated to be present, representing at least 3.1% of the breeding population in Great Britain. Population trends since 2000 are hard to ascertain since the annual monitoring has not been undertaken using a constant effort methodology.

Found across the SPA, Merlins nest amongst mature or degenerate heather. A majority of merlin in the UK nest in a shallow scrape on the ground, lined with small twigs, pieces of heather, bracken and other material and concealed by heather. Territories are traditional, and are used repeatedly from year to year by successive generations of birds.

Eggs are laid between May and early June and the young in a ground nest will often leave the nest at 18-20 days and scatter into the surrounding undergrowth. They fledge at 25-32 days, and are independent about a month later. One brood a year is raised. Replacement clutches are laid after early egg loss. They feed mostly on small birds such as pipits, larks and wheatears

Qualifying individual species not listed in Annex I of the Wild Birds Directive (Article 4.2)

Not applicable.

Qualifying assemblage of species (Article 4.2)

Not applicable.

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.

Feature	Season	Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Site-specific references where available
Golden Plover	Breeding	Spring/Summer													
Merlin	Breeding	Spring/Summer													Breeding Ecology of the Merlin within the North York Moors National Park 2000-2005: Marchant, G 2005

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: A6.61a Golden Plover *Pluvialis apricaria* (breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Breeding population	Population abundance	Maintain the size of the breeding Golden Plover population at a level which is above 526 pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	<p>This will sustain the site's population and ensures it contributes 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 size 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. 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 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.</p> <p>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 measured/estimated to inform judgements of likely impacts on abundance targets.</p> <p>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.</p>	<p>CHARLTON, T. & ARCHER, R (1996). North York Moors National Park breeding wader survey 1996. RSPB.</p> <p>North York Moors Wader Surveys, 2000, 2008 and 2014 – North York Moors National Park, unpublished</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): extent and distribution	Extent and distribution of supporting breeding habitat	Maintain the extent, distribution and availability of suitable breeding habitat which supports breeding Golden Plover for all necessary stages of its breeding cycle (courtship, nesting, feeding)	<p>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.</p> <p>This target will apply to any supporting habitat which is known to occur outside the site boundary, although exact locations would need to be identified through careful survey work and/or tracking.</p>	JERRAM, R. (1996) <i>North York Moors National Park Upland Vegetation Survey</i> , English Nature & North York Moors National Park. Unpublished report;
Supporting habitat (both within and outside the SPA): function/ supporting process	Air quality	Restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature's supporting habitats on the Air Pollution Information System (www.apis.ac.uk).	<p>The structure and function of the habitats which support this SPA feature may be sensitive to changes in air quality.</p> <p>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. At this SPA, critical levels and loads are currently being exceeded.</p> <p>Critical Loads and Levels are thresholds below which such harmful effects on sensitive UK habitats will not occur to a noteworthy 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.</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>	<p>NATURAL ENGLAND, 2015. Site categorization for nitrogen measures - Case Study F: Atmospheric nitrogen profile for North York Moors SAC. Improvement Programme for England's Natura 2000 Sites (IPENS) – Planning for the Future IPENS049</p> <p>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</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
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 breeding Golden Plover feature and its supporting habitats.	<p>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 can be provided by Natural England.</p> <p>This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.</p>	<p>(www.apis.ac.uk).</p> <p>NATURAL ENGLAND, 2014. Site Improvement Plan: North York Moors (SIP156)</p> <p>ENGLISH NATURE, 2005. A statement of English Nature's views about the management of North York Moors Site of Special Scientific Interest (SSSI).</p>
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, maintain water quality and quantity at a standard which provides the necessary conditions to support breeding Golden Plover, i.e. sufficient to maintain/restore wetland habitats (blanket bog, flushes, wet heath and calcareous fens) in favourable condition	<p>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.</p> <p>Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the SPA Conservation Objectives but in some cases more stringent standards may be needed to support the SPA feature.</p> <p>Further site-specific investigations may be required to establish appropriate standards for the SPA. Wetland feature condition is likely to be a significant factor in the breeding success of Golden Plover, but unlikely to be do relevant for breeding Merlin. At the time of publication, the Golden Plover breeding feature is considered to be in good condition, whereas blanket bog is most often unfavourable where present. Blanket Bog should not allowed to decline in condition, but is not necessarily required to be in Favourable Condition to support Golden Plover.</p>	No specific site data held.
Supporting habitat	Minimising disturbance	Restrict the frequency, duration and/or intensity	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	No site specific data held.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(both within and outside the SPA): minimising disturbance	caused by human activity	of disturbance affecting nesting, roosting, foraging, feeding, moulting and/or loafing birds so that the breeding Golden Plover population is not significantly disturbed	<p>consequently affect the long-term viability of the population.</p> <p>Such disturbing effects can for example result in changes to feeding or roosting behaviour, increases in energy expenditure due to increased flight, abandonment of nest sites and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful nesting, rearing, feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts.</p> <p>Disturbance associated with or caused by human activity may take a variety of forms including noise, light, sound, vibration, trampling, the presence of people, animals and structures.</p>	
Supporting habitat (both within and outside the SPA): predation	Predation	Restrict the predation of and disturbance to breeding Golden Plover by native and non-native predators.	<p>This will ensure that breeding productivity (number of chicks per pair) and survival are sustained at rates that maintain or restore the abundance of the feature.</p> <p>Impacts to breeding productivity can result directly from predation of eggs, chicks, juveniles and adults, and also from significant disturbance. The presence of predators can influence bird behaviours, such as abandonment of nest sites or reduction of effective feeding.</p> <p>Where evidence suggests predator management is required, measures can include their exclusion through fencing and scaring or by direct control. Any such measures must consider the legal protection of some predators, as well as the likely effects of such control on other qualifying features.</p>	No specific site data held.
Supporting habitat (both within and outside the SPA): structure	Landscape	Maintain the amount of suitable grassland feeding habitat within 4 km of moorland nesting areas.	<p>This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its nesting, roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within nesting, feeding or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour.</p> <p>An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat.</p>	No site specific data held other than OS datasets.
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain a mosaic [1:3 ratio] of short (<5 cm) to medium height (10-15 cm) vegetation within core breeding areas.	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 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	No site specific data held

Attributes	Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		affect the feature.	
<p>Version Control; Advice Updated – 25th February 2019 following stakeholders comments - Water quality/quantity attribute, wetland feature condition explanation added to supporting and explanatory notes; Vegetation characteristics attribute, 'tall' target removed and replaced with medium height (CSM guidance for lowland heath – pioneer heather phase: 10-15cm; building phase heather: up to 40cm; mature phase heather: 60-100cm)</p>			
<p>Variations from national feature-framework of integrity-guidance: Not applicable</p>			

Table 2: Supplementary Advice for Qualifying Features: A6.50a Merlin *Falco columbarius* (breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
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, maintain water quality and quantity a standard which provides the necessary conditions to support Merlin breeding within the SPA.	<p>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 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.</p> <p>Note: while Merlin do not directly require wetland areas, but their insectivorous prey are likely to be present at greater density when wetland habitat components are in favourable condition.</p>	<p>MARCHANT, G 2005. Breeding Ecology of the Merlin within the North York Moors National Park 2000-2005, unpublished report</p> <p>NATURAL ENGLAND, 2014. Site Improvement Plan: North York Moors (SIP156)</p>
Supporting habitat (both within and outside the SPA): function/supporting process	Conservation measures	Maintain or restore management or other measures (whether within and/or outside the site boundary as appropriate) necessary to maintain or restore] the structure, function and/or the supporting processes associated with the supporting habitats of breeding Merlin.	<p>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 can be provided by Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.</p> <p>Maintenance of stands of mature/degenerate heather on shallow slopes are required as nesting habitat for Merlin.</p>	<p>ENGLISH NATURE, 2005. A statement of English Nature's views about the management of North York Moors Site of Special Scientific Interest (SSSI).</p>
Supporting habitat (both within and outside the SPA): predation	Predation	Restrict the predation of and disturbance to breeding Merlin caused by native and non-native predators.	<p>This will ensure that breeding productivity (number of chicks per pair) and survival are sustained at rates that maintain or restore the abundance of the feature. Impacts to breeding productivity can result directly from predation of eggs, chicks, juveniles and adults, and also from significant disturbance.</p> <p>The presence of predators can influence bird behaviours, such as abandonment of nest sites or reduction of effective feeding. Where evidence</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>suggests predator management is required, measures can include their exclusion through fencing and scaring or by direct control.</p> <p>Any such measures must consider the legal protection of some predators, as well as the likely effects of such control on other qualifying features.</p>	
Supporting habitat (both within and outside the SPA): function/ supporting process	Air quality	<p>Restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for the supporting habitats of this feature on the Air Pollution Information System (www.apis.ac.uk).</p>	<p>See notes for this attribute in table 1 above.</p>	<p>NATURAL ENGLAND 2015.Planning for the Future IPENS049 Case Study F: Atmospheric nitrogen profile for North York Moors SAC.</p> <p>More information about site-relevant Critical Loads and Levels for this SPA is available at www.apis.ac.uk.</p>
Breeding population	Population abundance	<p>Maintain or restore the size of the breeding Merlin population at/to a level which is above 35 pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.</p>	<p>See notes for this attribute in Table 1 above.</p>	<p>NORTH YORK MOORS MERLIN STUDY GROUP, unpublished data</p>
Supporting habitat (both within and outside the SPA): extent and distribution	Extent and distribution of supporting breeding habitat	<p>Maintain the extent, distribution and availability of suitable breeding habitat which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding).</p>	<p>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.</p> <p>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.</p>	<p>JERRAM, R. (1996) <i>North York Moors National Park Upland Vegetation Survey</i>, English Nature & North York Moors</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>This target will apply to any supporting habitat which is known to occur outside the site boundary, although exact locations would need to be identified through careful survey work and/or tracking.</p> <p>Within HLS agreements, 'merlin zones' are currently used within the area (these are areas where merlin are likely to nest and the owners agree to retain certain sized blocks of tall heather to provide nesting habitat).</p>	National Park. Unpublished report;
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain or restore a high proportion of tall (>50 cm) ground vegetation within nesting habitat.	<p>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 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.</p> <p>Ground nests of Merlin are strongly associated with stands of mature, tall heather <i>Calluna vulgaris</i>.</p>	MARCHANT, G 2005. Breeding Ecology of the Merlin within the North York Moors National Park 2000-2005. Unpublished
Supporting habitat (both within and outside the SPA): disturbance	Minimising disturbance caused by human activity	Restrict the frequency, duration and/or intensity of disturbance affecting nesting, roosting, foraging and/or feeding birds so that the breeding Merlin population is not significantly disturbed	<p>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, abandonment of nest sites and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful nesting, rearing, feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts.</p> <p>Disturbance associated with or caused by human activity may take a variety of forms including noise, light, sound, vibration, trampling, presence of people, animals and structures.</p>	No site specific data held.
Supporting habitat (both within and outside the SPA):	Landscape	Maintain a high proportion of open and unobstructed terrain within and around nesting and feeding areas.	This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its nesting, roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within nesting, feeding or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour.	No site specific data held other than OS datasets.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
structure			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): function/supporting process	Food availability within supporting habitat	Maintain or restore the overall availability of small birds throughout the year and day flying moths in the breeding season.	<p>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.</p> <p>Merlin are generally known to feed on small birds, in particular meadow pipit and other moorland and woodland-edge species such as skylark, wheatear and chaffinch. The merlin will also regularly take moths and nestling birds.</p>	No site specific data held.
<p>Version Control Advice Updated - 25th February 2019 following stakeholder comments - Extent and distribution of supporting breeding habitat, merlin zones and explanation added to supporting and explanatory notes; Vegetation characteristics attribute, medium height removed (CSM guidance for lowland heath – pioneer heather phase: 10-15cm; building phase heather: up to 40cm; mature phase heather: 60-100cm).</p>				
<p>Variations from national feature-framework of integrity-guidance: Not applicable</p>				