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

Thursley, Hankley and Frensham Commons (Wealden Heaths Phase 1) Special Protection Area (SPA) Site code: UK9012131

Part of the Thursley, Ockley and Elstead Commons complex. This area regularly supports nesting nightjar and Dartford warbler. Photo: Graham Steven@Natural England.

Date of Publication: 6 January 2017

About this document

This document provides Natural England's supplementary advice for the European Site Conservation Objectives relating to Thursley, Hankley and Frensham Commons (Wealden Heaths Phase 1) SPA. This advice should therefore be read together with the SPA Conservation Objectives available here.

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

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

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	Thursley, Hankley and Frensham Commons (Wealden Heaths Phase 1) Special Protection Area (SPA)
Location	Surrey
Site Maps	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	February 1994
Qualifying Features	See section below
Designation Area	1879.83 ha
Designation Changes	n/a
Feature Condition Status	Details of the feature condition assessments made at this site can be found using Natural England's Designated Sites System
Names of component Sites of Special Scientific Interest (SSSIs)	Thursley, Hankley and Frensham Commons SSSI
Relationship with other European or International Site designations	The SPA boundary overlaps with Thursley, and Ockley Bogs Ramsar site, and coincides with part of Thursley, Ash, Pirbright and Chobham SAC.
Other information	Natura 2000 Standard Data Form for Thursley, Hankley and Frensham Commons (Wealden Heaths Phase 1) SPA

Site background and geography

The Thursley, Hankley and Frensham Commons SPA forms a large complex of lowland heaths situated in Surrey close to the Hampshire border. The complex is set in a largely rural setting with an unspoilt character despite its close proximity to large population centres such as London and Guildford. The surrounding landscape includes oak woodlands, conifer woods and small pastures intersected by narrow, sunken lanes.

The underlying geology of the commons is predominantly made up by sandstones and ironstone belonging to the group known as Wealden Greensand of Cretaceous age. These form low hills and broad valleys, dissected by small streams. The deposits give rise to mostly free-draining sandy soils, but layers of less permeable deposits give rise locally to wetlands including mires, flushes and wet woodlands.

The complex is situated in the Surrey Hills Area of Outstanding Natural Beauty (AONB) and is in the Wealden Greensand National Character Area (NCA). Several parts of the site are used for military training and these areas have controlled public access. Part of the site is managed as a golf course. Most of the remainder has open public access and some of the sites are very popular destinations for a range of recreational activities including walking, birdwatching, horse riding, cycling and orienteering.

Part of the site, Thursley Common, is declared as a National Nature Reserve managed by Natural England.

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:

- Internationally important numbers of **Dartford warbler *Sylvia undata***

  When classified, the SPA supported 20 pairs (which represented 4% of the British breeding population in 1984).

  The Thursley, Hankley and Frensham Commons SPA regularly supports internationally important numbers of Dartford warbler. The SPA is close to the northern limit of the range of this species in Europe and numbers fluctuate depending upon winter and spring weather conditions. The species does not migrate and winter survival and breeding success can be badly affected by very cold winters or prolonged periods of snow cover. Cold, damp spring weather can also have damaging effects. Dartford warblers are strongly associated with lowland heaths with extensive patches of mature gorse with an abundance of favoured invertebrate prey items such as spiders. However, they will also nest in areas of mature heather, clearings in forestry plantations and patches of bracken.

  Dartford warblers are widely distributed across the SPA and the site provides extensive areas of suitable habitat. Particularly large numbers of birds are regularly recorded at Hankley Common and Frensham Common but they are widely distributed across the complex.

- Internationally important numbers of **Nightjar *Caprimulgus europaeus***

  When classified, the SPA supported 20 pairs (which represented 1% of the British breeding population in 1984).

  The Thursley, Hankley and Frensham Commons SPA regularly supports internationally important numbers of nightjar. The European population of this species is thought to have undergone a significant decline in the past as a result of loss of suitable habitat. However, data suggests that there has been a trend of increasing numbers in recent years, which may be due to better protection of core breeding areas and improved management of lowland heathland.

  Nightjars are nocturnal birds and can often be seen hawking for food at dusk and dawn. With pointed wings and a long tails their shape is similar to a kestrel or cuckoo. Their cryptic, grey-brown, mottled, streaked and barred plumage provides ideal camouflage in the daytime.

  Nightjars are migratory, spending the winter months feeding in parts of Africa. The species is considered to be vulnerable to the effects of long-term climate change on drought-prone areas of Africa.

  Nightjar regularly utilise areas across the SPA for nesting and feeding. Favoured areas of habitat are areas of heath with high structural diversity including bare patches or short vegetation, but they will also utilise clearings in woods, broad rides in conifer plantations and sparsely vegetated areas. Particularly large numbers of nightjar are regularly recorded in the SPA at Thursley, Hankley, Frensham and Elstead Commons but they occur widely across the complex.

- Internationally important numbers of **Woodlark *Lullula arborea***-

  When classified, the SPA supported 27 pairs (which represented 12% of the British breeding population in 1984).

  Woodlark regularly utilise the Thursley, Hankley and Frensham Commons SPA in internationally important numbers. This species suffered a serious population decline and contraction in range in the UK up until the latter part of the 20th century. The population is now recovering and colonising new areas as a result of protection and expansion of lowland heaths. The woodlark has also benefited from rotational management of conifer plantations where it can utilise recently felled areas and areas of young re-growth for nesting. Woodlarks favour areas of short vegetation or sparsely-vegetated areas on heaths with scattered trees for use as song-posts. They feed on seeds and small invertebrates. Numbers of woodlarks tend to fluctuate over time in relation to successional development of heaths and plantations, with large numbers often present following heath fires or tree clearance.

  Woodlarks are regularly recorded across most of the SPA with particularly large numbers often present at Thursley and Frensham Commons.

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.

Feature	Season	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Site-specific references where available
Dartford Warbler	Breeding													Dartford warblers generally start breeding in April or May. They are resident and may be present on sites all year round but individual birds appear to be far more mobile outside the breeding season and may travel some distance to locate good quality habitat.
Nightjar	Breeding													Nightjar are migratory and usually arrive in southern England in May or early June but birds arriving later may still be sensitive to disturbance well into September. Most birds will have left the UK by late September.
Woodlark	Breeding													Woodlark are often observed beginning to seek out breeding territories as early as February at this site and so will be sensitive to disturbance over a longer period of the year than Dartford warbler and nightjar. Woodlark will often have 2 broods in a season and so may have dependent young in late June. Birds may remain on site all year round but they are much less sensitive to disturbance outside the breeding period.

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
Winter - the period generally from November to February inclusive.

Table 1: Supplementary Advice for Qualifying Features: A224. *Caprimulgus europaeus* European nightjar (Breeding) and A246. *Lullula arborea* Woodlark (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	Conservation measures	Maintain 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 Nightjar, Woodlark and their supporting habitats.	Active and ongoing habitat management is usually required to protect, maintain or restore populations of breeding nightjar in lowland heathland situations. 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. 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 SSSIs and/or management agreements. Habitat management should aim to maintain structural diversity, ensuring that all life cycle stages of heather are present, and with scattered patches of bare ground or very short vegetation. It may, in certain areas be appropriate to maintain/retain scrubby vegetation and open woodland. It is also useful to ensure the availability of scattered mature trees from which birds can 'churr'. Where habitat conditions are currently unsuitable and there is good potential to create suitable habitat for nightjar, management should seek to increase the availability and continuity of lowland heath or other similar habitat. Opportunities to provide temporary or permanent habitat may arise through the long-term management of conifer woodlands as clearings, re-stocking areas and broad rides can be valuable nesting habitat for nightjar and woodlark.	NATURAL ENGLAND (2015) Site Improvement Plan – Wealden Heaths & Woolmer Forest. Available at http://publications.naturalengland.org.uk/publication/5431913779036160?category=6149691318206464
Supporting habitat (both within and outside the SPA): predation	Predation	Reduce or restrict predation and disturbance of Nightjar and Woodlark caused by native and non-native predators.	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. The presence of predators can influence bird behaviours, such as abandonment of nest sites or reduction of effective feeding. 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.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): function/ supporting process	Air quality	Restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for the supporting habitats of these features of the site on the Air Pollution Information System (http://www.apis.ac.uk).	The structure and function of the habitats which support these SPA features are 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. Some of the effects that might be attributable to aerial pollution could include accelerated and more vigorous growth of bramble, birch and coarse grasses and consequent loss of bare ground and/or heather. Critical Loads and Levels are thresholds below which such harmful effects on sensitive UK habitats will not occur to a detectable 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.	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
Breeding population	Population abundance	Nightjar: Maintain the size of the breeding population consistently at or above 20 'churring' males, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent. Woodlark: Maintain the size of the breeding population consistently at or above 27 pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or	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. Given the likely fluctuations in numbers over time, any impact assessments	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		equivalent.	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 measured or 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. Regular monitoring is carried out by volunteers on parts of the SPA.	
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 Nightjar and Woodlark for all necessary stages of its breeding cycle (courtship, nesting, feeding and roosting).	Conserving or restoring the extent of supporting habitats and their range will be key to maintaining the ability and capacity of the SPA to support internationally important numbers of nightjar. The extent and distribution of supporting habitat used by nightjar and woodlark will vary over time in relation to habitat management, succession, and *ad hoc* events such as heath fires. The objective is to seek to ensure that there is no overall reduction in habitat availability whilst taking this variability into account.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Bare ground is particularly important, especially within and adjacent to structurally diverse vegetation and short heather. Nightjars are known to forage several kilometres away from their nesting territory so this objective may also apply to any supporting foraging habitat which is known to occur outside the site boundary and which is important to the breeding SPA population.	
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Nightjar: Maintain a mix of ground vegetation throughout nesting areas (optimal conditions normally with vegetation 20-60cm high with frequent bare patches of >2 m^2, 10-20% bare ground and <50% tree/scrub cover overall, trees <2 m in height). Woodlark: Maintain or restore the mix of trees, ground vegetation and bare ground throughout nesting and feeding areas (including frequency of bare patches of <0.5 ha within a mosaic of short (<5 cm) to medium (10-20 cm) ground vegetation, and small scattered clumps of shrubs or trees.	The height, cover, variation and composition of vegetation are often important characteristics of habitats which support breeding nightjar and enable successful nesting, rearing, concealment and roosting. Given their grey-brown plumage provides ideal camouflage in the daytime, Nightjar show a preference for bare patches or areas of very short or sparse vegetation with widely scattered trees where they are able to see predators approaching. These patches may be on open heath, in patchy scrub and in the interface between heath and woodland, as well as in clearings in woodland. Woodlarks have specific requirements that conservation measures should aim to maintain, particularly the availability of bare ground or sparsely vegetated areas. They may utilise scattered trees or large bushes to act as song posts. Activities that may directly or indirectly affect the vegetation of supporting habitats and modify these characteristics may adversely affect the feature.	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Supporting habitat (both within and outside the SPA): disturbance	Disturbance caused by human activity	Restrict and reduce the frequency, duration and/or intensity of disturbance affecting nesting, roosting, and/or foraging birds so that the nightjar and woodlark populations are not significantly disturbed during the breeding period.	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). This may undermine successful nesting, rearing, feeding and/or roosting, and/or may reduce the availability of suitable habitat as	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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 (including dogs) and structures.	
Supporting habitat (both within and outside the SPA): structure	Landscape	Maintain or restore the amount of open and unobstructed patches in nesting and foraging areas, including areas of clear-fell, windfall, wide tracks, open forest and heath.	Nightjar in particular favour large areas of open terrain, largely free of obstructions, in and around its nesting, roosting and feeding areas. They seek out places where there is an unobstructed line of sight in nesting, feeding or roosting habitat so that they are able to detect approaching predators and to ensure visibility of displaying behaviour. Woodlark will often utilise areas adjacent to heathland for feeding, including areas of short grassland, stubble fields or weedy margins of arable fields, golf courses and bare areas in quarry sites. Such areas may be of critical importance in sustaining populations, particularly during winter months. An open landscape may also facilitate movement of birds between the SPA and any off-site supporting habitat ('functionally-linked land').	
Supporting habitat (both within and outside the SPA): function/ supporting process	Connectivity with supporting habitats	Maintain the safe passage of birds moving between nesting and feeding areas	The ability of the features to safely and successfully move between feeding and nesting areas using flight-lines and movement routes is critical to their breeding success and to adult fitness and survival. This will apply within the site boundary and where birds regularly move to and from off-site habitat where this is relevant. The foraging range of nightjar is known to extend up to several kilometres from their nest sites.	
Supporting habitat (both within and outside the SPA): function/ supporting process	Food availability	Maintain the distribution, abundance and availability of key prey items preferred by Nightjar. Maintain or restore the distribution, abundance and availability of key prey items (e.g. spiders, weevils, caterpillars) preferred by Woodlark.	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. Nightjars are insectivorous, feeding primarily on moths and flying beetles. Management or other activities which might adversely affect the abundance of prey items could include widespread use of pesticides, habitat clearance, excessive mowing of vegetation and heath fires.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Woodlark primarily feed on small invertebrates in bare and sparsely-vegetated areas, but will also take seeds. Availability of food items may be adversely affected by activities such as widespread pesticide application, habitat clearance, and heath fires. This applies in key feeding areas, both within and outside the SPA, where relevant.	
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: Water quality targets removed as not relevant				

Table 2: Supplementary Advice for Qualifying Features: A302. *Sylvia undata*; Dartford warbler (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	Conservation measures	Maintain or restore where necessary 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 Dartford warbler population and its supporting habitats.	Active and ongoing conservation management is required to protect, maintain or restore the breeding Dartford warbler population. 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. The site should have areas of structurally diverse heather and gorse. Dartford warbler particularly favours areas of tall, dense gorse and tall, mature heather for nesting. The availability of areas of shorter but structurally diverse vegetation nearby is important in providing invertebrate prey such as spiders and weevils.	NATURAL ENGLAND (2015). Site Improvement Plan – Wealden Heaths & Woolmer Forest http://publications.naturalengland.org.uk/publication/5431913779036160?category=6149691318206464
Supporting habitat (both within and outside the SPA): predation	Predation	Reduce or restrict predation and disturbance of Dartford Warbler caused by native and non-native predators.	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. The presence of predators can influence bird behaviours, such as abandonment of nest sites or reduction of effective feeding. 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.	
Supporting habitat (both within and outside the SPA): function/ supporting process	Air quality	Maintain or restore as necessary 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 of the site on the Air Pollution Information System (http://www.apis.ac.uk).	See the explanatory notes for this attribute in Table 1 above.	More information about site-relevant Critical Loads and Levels for this SPA is available by using the 'search by site'

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				tool on the Air Pollution Information System (http://www.apis.ac.uk).
Breeding population	Population abundance	Maintain or restore the size of the breeding Dartford Warbler population consistently at or above 20 pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See the supporting/explanatory notes for this attribute in Table 1 above. Achieving this objective will be subject to natural factors, as monitoring has demonstrated that numbers of breeding Dartford warbler at this site are significantly affected by winter and spring weather conditions. Factors including the frequency and duration of snow cover and occurrence of cold, damp spring weather are particularly influential and the population may take many years to recover after such events. However, survival and productivity can be improved when patches of dense, mature gorse are available to provide protection from bad weather.	
Supporting habitat (both within and outside the SPA): extent and distribution	Extent and distribution of supporting breeding habitat	Maintain or restore the extent, distribution and availability of suitable breeding habitat which supports the breeding Dartford warbler population for all necessary stages of its breeding cycle (courtship, nesting and feeding).	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 capacity of the SPA to support internationally important numbers of Dartford warbler. The extent and distribution of supporting habitat used by Dartford warblers will vary over time given the dynamic nature of the habitat and will be influenced by factors such as habitat management and ad hoc events such as heath fires. The objective is to seek to ensure that there is no overall reduction in availability of suitable habitat whilst taking this variability into account. The target may also apply to any supporting foraging habitat which is known to occur outside the site boundary.	
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain or restore an optimal mix of structurally diverse vegetation in nesting areas comprising >50% heather cover, <25 trees/ha and <10% scrub.	The height, cover, variation and composition of vegetation are important characteristics of habitats supporting Dartford warbler which enable successful nesting/rearing/concealment/roosting. Dartford warblers have specific requirements that conservation measures should aim to maintain. Of particular importance is the availability of stands of structurally diverse gorse and/or tall, mature heather in a predominantly open landscape. Activities that may directly or indirectly affect the vegetation of supporting habitats and modify these characteristics may adversely affect the Dartford warbler population.	
Supporting habitat	Minimising disturbance	Restrict and reduce the frequency, duration and/or	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	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(both within and outside the SPA): disturbance	caused by human activity	intensity of disturbance affecting nesting, roosting and foraging birds so that the Dartford warbler population is not significantly disturbed	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. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, presence of people, animals (including dogs) and structures.	
Supporting habitat (both within and outside the SPA): structure	Landscape	Maintain or restore the amount of open and unobstructed terrain within and around the site	Although they will utilise enclosed features such as clearings in conifer plantations, Dartford warbler favour large areas of open terrain, largely free of obstructions, in and around nesting, roosting and feeding areas. They will benefit from availability of an unobstructed line of sight within nesting, feeding or roosting to enable birds to detect approaching predators, or to ensure visibility of displaying behaviour. It will also be beneficial to maintain or restore habitat links between the SPA and off-site supporting habitat, or to alternative areas of nesting habitat.	
Supporting habitat (both within and outside the SPA): function/ supporting process	Food availability within supporting habitat	Maintain the distribution, abundance and availability of key prey items (e.g. beetles, spiders, caterpillars, bugs) preferred by Dartford Warblers.	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. Dartford warblers are particularly dependent upon invertebrates which live on gorse and heather and management which reduces invertebrate abundance such as pesticide application or activities which reduce structural diversity may be damaging.	
Version Control Advice last updated:				
Variations from national feature-framework of integrity-guidance: Water quality targets removed as not relevant				

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