



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

**Dorset Heathlands
Special Protection Area (SPA)
Site Code: UK9010101**



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About this document

This document provides Natural England's supplementary advice for the European Site Conservation Objectives relating to Dorset Heathlands SPA.

This advice should therefore be read together with the SPA Conservation Objectives available [here](#).

Where this site overlaps with other European Sites, 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	Dorset Heathlands Special Protection Area (SPA)
Location	Dorset, Hampshire
Site Map	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	1 October 1998
Qualifying Features	See section below
Designation Area	8184.96ha
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)	<p>Arne SSSI, Black Hill Heath SSSI, Blue Pool and Norden Heaths SSSI, Bourne Valley SSSI, Brenscombe Heath SSSI, Canford Heath SSSI, Christchurch Harbour SSSI, Corfe & Barrow Hills SSSI, Cranborne Common SSSI, Ebblake Bog SSSI, Ferndown Common SSSI, Ham Common SSSI, Hartland Moor SSSI, Holt and West Moors Heaths SSSI, Holton and Sandford Heaths SSSI, Horton Common SSSI, Hurn Common SSSI, Lions Hill SSSI, Morden Bog and Hyde Heath SSSI, Oakers Bog SSSI, Parley Common SSSI, Poole Harbour SSSI, Povington and Grange Heaths SSSI, Rempstone Heaths SSSI, Slop Bog and Uddens Heath SSSI, Stoborough & Creech Heaths SSSI, Stokeford Heaths SSSI, Studland & Godlingston Heaths SSSI, The Moors SSSI, Thrasher's Heath SSSI, Town Common SSSI, Turbary and Kinson Commons SSSI, Turners Puddle Heath SSSI, Upton Heath SSSI, Verwood Heaths SSSI, Warmwell Heath SSSI, Winfrith Heath SSSI, Worgret Heath SSSI</p> <p>The boundary of the SPA is coincident with the SSSIs listed in bold above. For the remaining SSSIs, only parts of their area fall within the SPA boundary (see SPA map for further clarification); activities on this wider SSSI land may impact on the SPA features.</p>
Relationship with other European or International Site designations	<p>The Dorset Heathlands SPA overlaps with both the Dorset Heaths (Purbeck and Wareham) and Studland Dunes SAC and Dorset Heaths SAC as well as the Dorset Heathlands Ramsar site. At Town Common the Dorset Heathlands SPA is adjacent to part of the Avon Valley SPA and Ramsar site.</p> <p>In the areas around Poole Harbour the SPA also adjoins Poole Harbour SPA and Ramsar site.</p> <p>Separate European Site Conservation Objectives for the nearby sites can be found at:</p> <ul style="list-style-type: none">• Dorset Heaths SAC

- [Dorset Heathlands \(Purbeck and Wareham\) and Studland Dunes SAC](#)
- [Poole Harbour SPA](#)
- [Avon Valley SPA](#)

Site background and geography

The site falls within the Dorset Heaths Natural Character Area ([NCA Profile 135](#)), cover an extensive complex of heaths that form one of the best developed and most significant tracts of heathland in the lowlands of the UK. There are fine transitions between dry heath, wet heath and acid mire vegetation types, as well as a high diversity of associated habitats such as acid grassland, sand dune, acid oak woods, bog woodland, base-rich mires, fen-meadow, reedswamp and small water bodies.

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:

- A302 Dartford Warbler (*Sylvia undata*) – 418 - 606 pairs representing at least 37.9 % of the breeding population in Great Britain
- A224 Nightjar (*Caprimulgus europaeus*) – 436+ pairs representing at least 12.8% of the breeding population in Great Britain
- A246 Woodlark (*Lullula arborea*) – 41-56 pairs representing at least 9.3% of the breeding population in Great Britain

During the non-breeding season the SPA regularly supports:

- A082 Hen Harrier (*Circus cyaneus*) - 20 individuals representing at least 3.2% of the wintering population in Great Britain
- A098 Merlin (*Falco columbarius*) – 15 individuals representing at least 1.2% of the wintering population in Great Britain,
- **Qualifying individual species not listed in Annex I of the Wild Birds Directive (Article 4.2)**

N/A

- **Qualifying assemblage of species (Article 4.2)**

N/A

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
Dartford Warbler	Breeding	Summer													
	Non-breeding	Winter													
Hen Harrier	Non-breeding	Winter													
Merlin	Non-breeding	Winter													
Nightjar	Breeding														
Woodlark	Breeding														
	Non-breeding														
<i>Other Annex 1 breeding bird species present but not an SPA feature</i>															
Hobby	Breeding	Summer													

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: A082. *Circus cyaneus*; Hen harrier (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 20 individual birds whilst avoiding deterioration from its current level as indicated by the latest count of roosting birds	<p>This objective concerns the contribution of the site's population to wider local, national and bio-geographic populations. The target-value given for the abundance of this feature is considered to be the minimum standard for conservation/restoration measures to achieve although it is recognised that factors in other parts of the species range, particularly breeding sites, are likely to influence the number of wintering birds.</p> <p>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.</p> <p>Given the likely fluctuations in numbers between years, any impact-assessments should take into account both the current abundance of the population in the areas of the site affected (as derived from the latest known or estimated level established using the best available data) and previous records. Thus where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the capacity of the site to support a larger population should also be taken into account.</p> <p>Refer to Dobson and Carrington-Cotton (2012) and Clarke and Watson (1997) for count methodology.</p>	<p>Dobson A & Carrington-Cotton A 2012. Hen Harrier and Merlin Survey of southern SPAs/SSSIs. BTO Research Report No. 623</p> <p>Clarke, R. & Watson D. (1997) The Hen Harrier Winter Roost Survey. Thirteen winters' data reveal serious declines. <i>The Raptor</i>, 1996/97, 41-45.</p>
Supporting habitat (both within and outside the SPA): extent and distribution	Extent and distribution of supporting non-breeding habitat	Restore the extent and distribution of suitable habitat to correspond with the historical distribution (either within or outside the site boundary) of these habitats, supporting the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, 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 SPA population. Restoration of open heathland is required on those areas where it has declined compared with the historic open heathland extent (usually through invasion by trees and scrub) and where this restoration is readily achievable.	1946, 1972 aerial photographs and OS 2 nd edition 6 inch maps both available on https://explorer.geowessex.com/

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 concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	<p>The 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.</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. 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>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.</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 (www.apis.ac.uk).</p> <p>NATURAL ENGLAND, 2014. Site Improvement Plan – Dorset Heaths</p>
Supporting habitat (both within and outside the SPA): function/supporting process	Connectivity with supporting habitats	Maintain the safe passage of birds moving between nesting, feeding and/or roosting areas	<p>The ability of birds to safely and successfully move to and from feeding and roosting areas is critical to adult fitness and survival. This target will apply within the site boundary and where birds regularly move to and from off-site habitat, for example hen harriers regularly forage around of Poole Harbour. During winter, Hen Harriers form communal roosts at night. These can hold significant numbers of individuals and in the Dorset Heaths roosts are generally found in heathland or mire.</p> <p>Hen harriers are birds of open landscapes, hunting low over the ground, circling areas several times and surprising and flushing their prey. They usually avoid closed-canopy woodland and conurbations.</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	Restore management or other measures (whether within and/or outside the site boundary as appropriate) necessary to Restore the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	<p>Active and ongoing conservation management is needed to protect, maintain or restore the habitats that support hen harrier at this site. Further details about the necessary conservation measures for this site can be found within supporting documents such as Natura 2000 Site Improvement Plan (SIP), Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.</p> <p>Whilst most of the area of the SPA enjoys active conservation management there remain a few areas where this does not take place.</p>	<p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p> <p>NATURAL ENGLAND, 2014. Site Improvement Plan – Dorset Heaths</p>
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 at preferred prey sizes (pipits to gamebirds; voles to young rabbit size).	The availability of an abundant food supply is critically important for 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.	
Supporting habitat (both within and outside the SPA): minimising disturbance	Minimising disturbance caused by human activity	Reduce where necessary the frequency, duration and/or intensity of disturbance affecting roosting, foraging and feeding birds so that the feature 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 result in changes to feeding or roosting behaviour, (both within or outside the designated site boundary). This may undermine, feeding and/or roosting, and may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts.</p> <p>The location and size of hen harrier roosts is changeable. Old roosts can be abandoned and new ones established. Different roosts will vary in their vulnerability to disturbance depending on number of factors associated with their location.</p> <p>Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, and presence of people, animals and structures. Disturbance to hen harrier winter roosts was reported as a threat to 31% of these</p>	<p>R. Clarke & D. Watson (1990) The Hen Harrier <i>Circus cyaneus</i> Winter Roost Survey in Britain and Ireland, Bird Study, 37:2, 84-100.</p> <p>Underhill-Day, J. C. (2005). A literature review of urban effects on lowland heaths and their wildlife. English Nature Research Report no. 623.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>roosts (Clarke and Watson 1990) and there has been an incident in Dorset where a roost was abandoned after disturbance was observed although whether this was the cause is not known.</p> <p>Without avoidance measures, the cumulative effect of new housing would be likely to lead to an increase in urban pressures (e.g. an increase in wildfires, damaging recreational uses, introduction of incompatible plants and animals, loss of vegetation and soil erosion and disturbance by humans and their pets) on parts of the SPA with possible harmful effects to hen harrier roosts. A strategic approach to avoiding and mitigating these potential impacts arising as a result of new residential development has been developed for the Dorset Heathlands in response to the significant levels of housing growth. The mitigation strategy for the Dorset Heathlands has now been in place since 2006,</p> <p>The Dorset Heathlands Planning Framework Supplementary Planning Document 2015 – 2020 (SPD) sets out the detailed approach to this issue.</p>	
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain an optimal mix of vegetation (flat or gently sloping areas with wet rush, heather, cotton grass, <i>Juncus</i> or other wetland vegetation) in areas used for roosting.	The height, cover, variation and composition of vegetation are often important characteristics of habitats supporting this feature which enable successful roosting. 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: The attribute relating to Water quality / quantity has been removed as it is considered not relevant for this feature on this site.				

Table 2: Supplementary Advice for Qualifying Features: A098. *Falco columbarius*; Merlin (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 15 individuals whilst avoiding deterioration from its current level as indicated by the latest count of roosting birds.	<p>This objective concerns the contribution of the site's population to wider local, national and bio-geographic populations. The target-value given for the abundance of this feature is considered to be the minimum standard for conservation/restoration measures to achieve although it is recognised that factors in other parts of the species range, particularly breeding sites, are likely to influence the number of wintering birds.</p> <p>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.</p> <p>Given the likely fluctuations in numbers between years, any impact-assessments should take into account both the current abundance of the population in the areas of the site affected (as derived from the latest known or estimated level established using the best available data) and previous records. Thus where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the capacity of the site to support a larger population should also be taken into account.</p> <p>Refer to Dobson and Carrington-Cotton (2012) for count methodology.</p>	Dobson A & Carrington-Cotton A 2012. Hen Harrier and Merlin Survey of southern SPAs/SSSIs. BTO Research Report No. 623
Supporting habitat (both within and outside the SPA): disturbance	Minimising disturbance caused by human activity	Reduce where necessary the frequency, duration and/or intensity of disturbance affecting roosting, foraging and feeding birds so that the feature 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 result in changes to feeding or roosting behaviour, (both within or outside the designated site boundary). This may undermine, feeding and/or roosting, and may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts.</p> <p>The location of merlin roosts is changeable. Old roosts can be abandoned and new ones established. Different roosts will vary</p>	Underhill-Day, J. C. (2005). A literature review of urban effects on lowland heaths and their wildlife. English Nature Research Report no. 623.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>in their vulnerability to disturbance depending on number of factors associated with their location. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, and presence of people, animals and structures.</p> <p>Without avoidance measures, the cumulative effect of new housing would be likely to lead to an increase in urban pressures (e.g. an increase in wildfires, damaging recreational uses, introduction of incompatible plants and animals, loss of vegetation and soil erosion and disturbance by humans and their pets) on parts of the SPA with possible harmful effects to merlin roosts. A strategic approach to avoiding and mitigating these potential impacts arising as a result of new residential development has been developed for the Dorset Heathlands in response to the significant levels of housing growth. The mitigation strategy for the Dorset Heathlands has now been in place since 2006,</p> <p>The Dorset Heathlands Planning Framework Supplementary Planning Document 2015 – 2020 (SPD) sets out the detailed approach to this issue.</p>	
Supporting habitat (both within and outside the SPA): extent and distribution	Extent and distribution of supporting non-breeding habitat	Restore the extent and distribution of suitable habitat to correspond with the historical distribution (either within or outside the site boundary) of these habitats, supporting the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, 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 SPA population. Restoration of open heathland is required on those areas where it has declined compared with the historic open heathland extent (usually through invasion by trees and scrub) and where this restoration is readily achievable.	1946, 1972 aerial photographs and OS 2 nd edition 6 inch maps both available on https://explorer.geowessex.com/
Supporting habitat (both within and outside the SPA): function/ supporting	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 of the site on the Air Pollution Information System (www.apis.ac.uk).	See explanatory notes for this attribute in Table 1.	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)
process				
Supporting habitat (both within and outside the SPA): function/supporting process	Conservation measures	Restore management or other measures (whether within and/or outside the site boundary as appropriate) necessary to Restore the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	Active and ongoing conservation management is needed to protect, maintain or restore the habitats that support merlin at this site. 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 (SIP), Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements. Whilst most of the area of the SPA enjoys active conservation management there remain a few areas where this does not take place.	This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments NATURAL ENGLAND, 2014. Site Improvement Plan – Dorset Heaths
Supporting habitat (both within and outside the SPA): function/supporting process	Food availability within supporting habitat	Maintain overall availability of small birds.	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.	
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: The attribute relating to Water quality / quantity has been removed as it is considered not relevant for this feature on this site.				

Table 3: Supplementary Advice for Qualifying Features: A224. *Caprimulgus europaeus*; European nightjar (Breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Breeding population	Population abundance	Restore the size of the breeding population above 436 churring males whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	<p>This objective concerns the contribution of the site's population to wider local, national and bio-geographic populations. The nightjar population is smaller than it might be because of a number of factors. Some parts of the site remain unmanaged and open heathland has been invaded by trees and scrub. In other areas the presence of nearby urban areas is linked to a lower population density of breeding birds (Liley and Clarke 2003, Liley et al 2006).</p> <p>Restoration of open heathland is required on those areas that have deteriorated (usually through tree and scrub invasion) and where heathland (or associated habitats such as acid grassland) restoration is readily achievable (taking into account geology, soils and land use history). Aerial photographic coverage of the site from 1946 and 1972, together with old maps (particularly 2nd edition ordnance survey 1888-1913), provide a good reference in this respect showing the extent, distribution and pattern of dry and wet heathland, mire/fen and grassland and its relationship to woodland.</p> <p>In these circumstances 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.</p> <p>Nightjar numbers rose steadily in the early 1990s, peaking in 1996. Numbers remained relatively stable through to 2000, after which a general decline (with some marked fluctuations) is evident, with numbers dropping to a similar level to 1991. Since 2010 numbers have risen steadily. Overall the trends indicate no significant increase or decrease since 1991. Data suggests considerable variation between sites in the urban conurbation and significant differences between sites in Purbeck compared to those further east. Sites in Purbeck have increased in the period 2008-2013 whereas sites to the east have seen little</p>	<p>Conway G J, Kirby J, Henderson I G, & Frith R. (2010). Breeding Nightjar <i>Caprimulgus europaeus</i> surveys of selected SSSIs in Southern England 2010 BTO Research Report no 570 for Natural England</p> <p>LILEY, D., & CLARKE, R.T. 2003. The impact of urban development and human disturbance on the numbers of nightjar <i>Caprimulgus europaeus</i> on heathlands in Dorset, England. <i>Biological Conservation</i>, 114, 219-230.</p> <p>Liley, D., Clarke, R.T., Mallord, J.W. & Bullock, J.M. (2006) <i>The effect of urban development and human disturbance on the distribution and abundance of nightjars on the Thames Basin and Dorset Heaths</i>. Natural England / Footprint Ecology.</p> <p>Liley D and Fearnley, H. (2014) Trends in Nightjar, Woodlark and Dartford Warbler on the Dorset Heaths, 1991-2013. Footprint Ecology</p> <p>Conway, G., Wotton, S., Henderson, I., Langston, R., Drewitt, A. & Currie, F. (2007) The status and distribution of</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			change.	breeding European Nightjars <i>Caprimulgus europaeus</i> in the UK in 2004. <i>Bird Study</i> , 54, 98-111. C. J. Cadbury (1981) Nightjar census methods, <i>Bird Study</i> , 28:1, 1-4
Supporting habitat (both within and outside the SPA): extent and distribution	Extent and distribution of supporting breeding habitat	Restore the extent, distribution and availability of suitable breeding habitat, to correspond with the historical distribution, supporting the feature for all necessary stages of its breeding cycle (courtship, nesting, 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 SPA population. Restoration of open heathland is required on those areas where it has declined compared with the historic open heathland extent (usually through invasion by trees and scrub) and where this restoration is readily achievable. Aerial photographic coverage of the site from 1946 and 1972, together with old maps (particularly 2 nd edition ordnance survey 1888-1913), provide a good reference in this respect showing the extent, distribution and pattern of dry and wet heathland, mire/fen and grassland and its relationship to woodland. A large number of nightjar territories occur outside the SPA, mainly in areas of forestry plantation on former heathland where the SPA picks out only the areas of permanent open heathland.	1946, 1972 aerial photographs and OS 2 nd edition 6 inch maps both available on https://explorer.geowessex.com/
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 of the site on the Air Pollution Information System (www.apis.ac.uk).	See explanatory notes for this attribute in Table 1.	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).
Supporting habitat (both within and outside the SPA): function/ supporting	Connectivity with supporting habitats	Maintain the safe passage of birds moving between nesting, feeding and/or roosting areas	The ability of nightjar to safely and successfully move to and from nesting, feeding and roosting areas is critical to their breeding success and to the adult fitness and survival. Nightjars are insectivorous, feeding primarily on moths and beetles. Nightjar regularly fly away from their nesting sites (up to 7km, Alexander and Cresswell 1990) using a variety of	Alexander, I., Cresswell, B., 1990. Foraging by Nightjars <i>Caprimulgus europaeus</i> away from their nesting areas. <i>Ibis</i> 132, 568–574.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
process			habitats other than heathland to forage although woodland and woodland edges are a preferred foraging habitat (Cresswell 1996). In urban areas undeveloped corridors may be important in maintaining connectivity between nesting and foraging areas since nightjar and not known to forage over urban areas. Development that might curtail this connectivity, such as urbanisation of an undeveloped corridor, must be assessed for their impact on the part of the SPA affected.	Cresswell, B., 1996. Nightjars—some aspects of their behaviour and conservation. <i>British Wildlife</i> 7, 297–304.
Supporting habitat (both within and outside the SPA): function/ supporting process	Conservation measures	Restore management or other measures (whether within and/or outside the site boundary as appropriate) necessary to restore the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	<p>Active and ongoing conservation management is needed to protect, maintain or restore the habitats that support hen harrier at this site. Further details about the necessary conservation measures for this site can be found within 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>Whilst most of the area of the SPA enjoys active conservation management there remain a few areas where this does not take place. Habitat management should retain the open, mosaic structure of lowland wet and dry heath Active habitat management occurs on most of the area of the SPA; a few relatively small areas remain unmanaged and here restoration of management is required.</p>	<p>Liley, D., Richardson, D. & Davis, M. (2003) <i>Heathland Management by The Dorset Heathland Project, 1989 - 2001: The effectiveness of heathland management for key bird species</i>. RSPB.</p> <p>Dorset Heaths Site Improvement Plan, Natural England</p>
Supporting habitat (both within and outside the SPA): function/ supporting process	Extent and quality of supporting foraging habitats	Maintain the extent and quality of key non heathland foraging habitats	The foraging range of nightjar is known to extend up to several kilometres from their nest sites and birds typically forage in non-heathland habitats (Alexander and Cresswell 1990) with a preference for deciduous woodland (Cresswell 1996). The density of nightjar in a heathland patch was positively correlated to the amount of surrounding woodland (Liley and Clarke 2003). Much of the woodland or associated habitat likely to be critical for foraging will occur outside the SPA. The objective is to maintain the foraging resource available to each breeding nightjar so full assessment of any proposals that may affect the extent of quality of foraging habitat is required.	<p>Alexander, I., Cresswell, B., 1990. Foraging by Nightjars <i>Caprimulgus europaeus</i> away from their nesting areas. <i>Ibis</i> 132, 568–574.</p> <p>Cresswell, B., 1996. Nightjars—some aspects of their behaviour and conservation. <i>British Wildlife</i> 7, 297–304.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				LILEY, D., & CLARKE, R.T. 2003. The impact of urban development and human disturbance on the numbers of nightjar <i>Caprimulgus europaeus</i> on heathlands in Dorset, England. <i>Biological Conservation</i> , 114, 219-230.
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 (moths, beetles) at preferred prey sizes	<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>Nightjar are insectivorous, feeding primarily on moths and beetles. Aspects which might affect prey availability will include lighting, pest control, changes in land use and habitat management</p>	
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 nesting, roosting, foraging, feeding, moulting and/or loafing birds so that the feature 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.</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 human activity may take a variety of forms including noise, light, sound, vibration, trampling, and presence of people, animals and structures.</p>	<p>Murison, G. (2002). The impact of human disturbance on the breeding success of nightjar <i>Caprimulgus europaeus</i> on heathlands in south Dorset, England. English Nature Research Report 483. English Nature, Peterborough.</p> <p>Liley, D., Clarke, R. T., Mallord, J. W., & Bullock, J. M. (2006) The effect of urban development and human disturbance on the distribution and abundance of nightjars on the Thames Basin and Dorset Heaths. Unpublished report, Footprint Ecology / Natural England. © Natural England / Footprint Ecology Ltd.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>Nightjar is a bird known to be sensitive to disturbance (Murison 2002, Liley et al 2006) Disturbance caused by human activity is particularly significant within parts of the Dorset Heathlands SPA because of its proximity to large urban areas.</p> <p>Without avoidance measures, the cumulative effect of new housing would be likely to lead to an increase in visitor numbers as well as urban pressures (e.g. an increase in wildfires, damaging recreational uses, introduction of incompatible plants and animals, loss of vegetation and soil erosion and disturbance by humans and their pets – Underhill-Day 2005) on parts of the SPA with negative effects on nightjar likely. A strategic approach to avoiding and mitigating these potential impacts arising as a result of new residential development has been developed for the Dorset Heathlands in response to the significant levels of housing growth. The mitigation strategy for the Dorset Heathlands has now been in place since 2006,</p> <p>The Dorset Heathlands Planning Framework Supplementary Planning Document 2015 – 2020 (SPD) sets out the detailed approach to this issue.</p>	
Supporting habitat (both within and outside the SPA): predation	Predation	Reduce predation and disturbance caused by native and non-native predators.	<p>Breeding productivity (number of chicks per pair) and survival should be sustained at rates that maintain or restore the population density in each part of its range. 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>Both avian and mammalian predation of nightjar eggs has been recorded (Murison 2002, Dolman 2010). Urban development in the vicinity of heathland is likely to lead to changes in the density of some predators, (for example some urban areas have extremely high densities of foxes) and disturbance may also increase the vulnerability of eggs to predation (Murison 2002). Thus development that results in, for example, an increase the density of foxes, the number of domestic cats or avian egg predators such as carrion crows, on a part of the</p>	<p>Murison, G. (2002). The impact of human disturbance on the breeding success of nightjar <i>Caprimulgus europaeus</i> on heathlands in south Dorset, England. English Nature Research Report 483. English Nature, Peterborough.</p> <p>Dolman, P. (2010) <i>Woodlark and Nightjar Recreational Disturbance and Nest Predator Study 2008 and 2009. Final Report.</i> UEA.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			SPA may have an adverse effect on this feature and in this respect, without avoidance measures, the cumulative effect of new housing can be significant. A strategic approach to avoiding and mitigating this and other impacts arising as a result of new residential development has been developed for the Dorset Heathlands in response to the significant levels of housing growth. The mitigation strategy for the Dorset Heathlands has now been in place since 2006,	
Supporting habitat (both within and outside the SPA): structure	Landscape	Restore the amount of open and unobstructed terrain, with short vegetation, within areas used for nesting and hunting.	<p>Nightjar will also utilise areas of permanent open space and temporary clear-fell within rotationally managed plantation woodland and sparsely vegetated areas such as disused quarries.</p> <p>An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat particularly foraging habitat.</p>	.
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain an optimal mix of vegetation to provide sufficient cover for nesting	<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.</p> <p>Nightjar show a preference for bare patches or areas of short vegetation with widely scattered tree where they are able to see predators approaching. These patches may be on open heathland and within open areas of plantation woodland.</p> <p>Activities that may directly or indirectly affect the vegetation of supporting habitats and modify these characteristics may adversely affect the feature.</p>	
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain the mix of vegetation (optimal conditions normally with some taller dwarf shrub vegetation mostly (20-60 cm) with frequent bare patches of >2 m ² , and <50% tree/scrub cover overall; trees <2 m in height) throughout the nesting area.	<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>	
Version Control				

Attributes	Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Advice last updated: N/A			
Variations from national feature-framework of integrity-guidance: The attribute relating to Water quality / quantity has been removed as it is considered not relevant for this feature on this site.			

Table 4: Supplementary Advice for Qualifying Features: A246. *Lullula arborea*; Woodlark (Breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Breeding population	Population abundance	Restore the size of the breeding population to a level which is above 56 pairs, whilst avoiding deterioration from its current level.	<p>This objective concerns the contribution of the site’s population to wider local, national and bio-geographic populations. The target-value given for the abundance of this feature is considered to be the minimum standard for conservation/ restoration measures to achieve.</p> <p>Woodlark numbers appear to have fluctuated markedly over the period 1991-2013 although the overall trend from 1991-2013 for woodlark shows no significant increase or decrease. In general the woodlark data involve low counts from many sites, the occurrence of woodlark on particular heathland sites seems to be linked to tree clearance, forestry management or other habitat management on those sites and is also probably linked to forestry management and amount of clear fell in the wider area, particularly nearby forest blocks.</p> <p>The objective is both to ensure that the overall population is maintained above the minimum population size (subject to natural population variations in response to climatic factors) and to seek to ensure that new developments or activities do not negatively affect the population on any part of the SPA.</p> <p>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. Given the likely fluctuations in numbers between years, any impact-assessments should take into account both the current abundance of the population in the areas of the site affected (as derived from the latest known or estimated level established using the best available data) and previous records. Thus where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the capacity of the site to support a larger population should also be taken into account.</p>	<u>Liley D and Fearnley, H. (2014) Trends in Nightjar, Woodlark and Dartford Warbler on the Dorset Heaths, 1991-2013. Footprint Ecology.</u>

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	Restore the extent, distribution and availability of suitable breeding habitat, to correspond with the historical distribution, supporting the feature 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. Restoration of open heathland is required on those areas where it has declined compared with the historic open heathland extent (usually through invasion by trees and scrub) and where this restoration is readily achievable. Aerial photographic coverage of the site from 1946 and 1972, together with old maps (particularly 2nd edition ordnance survey 1888-1913), provide a good reference in this respect showing the extent, distribution and pattern of dry and wet heathland, mire/fen and grassland and its relationship to woodland.</p> <p>Within the heathland mosaic the extent and distribution of the more specialised supporting habitat used by woodlark will vary over time as a result of 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.</p> <p>There should at all times be sufficient extent of the habitat in order to support the population despite the variations in habitat cover over the year. Bare ground should be adjacent to structurally diverse vegetation, favouring very short heather areas.</p>	
Supporting habitat (both within and outside the SPA): function/ supporting process	Connectivity with supporting habitats	Maintain the safe passage of birds moving between nesting, feeding and/or roosting areas	The ability of the feature to safely and successfully move to and from nesting, 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. A significant number of woodlark territories occur outside the SPA, mostly on areas of rotational forestry or areas associated with sand and gravel quarries.	

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 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).	See explanatory notes for this attribute in Table 1.	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).
Supporting habitat (both within and outside the SPA): function/supporting process	Conservation measures	Restore management or other measures (whether within and/or outside the site boundary as appropriate) necessary to restore the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	<p>Active and ongoing conservation management is needed to protect, maintain or restore the habitats that support hen harrier at this site. Further details about the necessary conservation measures for this site can be found within 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. Whilst most of the area of the SPA enjoys active conservation management there remain a few areas where this does not take place.</p> <p>At this site management should retain the open, mosaic structure of lowland wet and dry heath, Areas of bare or sparsely vegetated ground, sometimes maintained or created as a result of management, are an essential component of the habitat on a number of sites. .</p> <p>Habitat management should seek to ensure that the overall extent and continuity of supporting habitat is at least maintained. Some areas of plantation forestry outside the SPA should continue to be managed by providing rotational clear-fell, which can temporarily create suitable breeding habitat for up to 10 years.</p>	<p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p> <p>NATURAL ENGLAND, 2014. Site Improvement Plan – Dorset Heaths</p>
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. spiders, weevils, caterpillars) at preferred prey sizes.	<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>Woodlarks need areas of short sparse, naturally developed turf with a high abundance of invertebrate prey on bare ground.</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			This needs to be interspersed with tussocky vegetation for nesting.	
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 nesting, roosting, foraging, feeding, moulting and/or loafing birds so that the feature 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.</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).</p> <p>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, and presence of people, animals and structures.</p> <p>Woodlark is a bird known to be sensitive to disturbance (Mallord et al 2007).with the precise effects being complex. Disturbance caused by human activity is particularly significant within parts of the Dorset Heathlands SPA because of its proximity to large urban areas.</p> <p>Without avoidance measures, the cumulative effect of new housing would be likely to lead to an increase in urban pressures (e.g. an increase in wildfires, damaging recreational uses, introduction of incompatible plants and animals, loss of vegetation and soil erosion and disturbance by humans and their pets – Underhill-Day 2005) on parts of the SPA with negative effects on woodlark likely. A strategic approach to avoiding and mitigating these potential impacts arising as a result of new residential development has been developed for the Dorset Heathlands in response to the significant levels of housing growth. The mitigation strategy for the Dorset Heathlands has now been in place since 2006,</p>	<p>Mallord, J.W., Dolman, P., Brown, A. & Sutherland, W.J. (2007) Quantifying density dependence in a bird population using human disturbance. <i>Oecologia</i>, 153, 49-56.</p> <p>Underhill-Day, J. C. (2005). A literature review of urban effects on lowland heaths and their wildlife. English Nature Research Report no. 623.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			The Dorset Heathlands Planning Framework Supplementary Planning Document 2015 – 2020 (SPD) sets out the detailed approach to this issue.	
Supporting habitat (both within and outside the SPA): predation	Predation	Reduce predation and disturbance caused by native and non-native predators.	<p>Breeding productivity (number of chicks per pair) and survival should be sustained at rates that maintain or restore the population density in each part of its range. 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>Significant predation of woodlark eggs and chicks by foxes has been recorded by Dolman (2010) and in an unpublished study on the Thames Basin Heaths by J.Eyre. Urban development in the vicinity of heathland is likely to lead to changes in the density of some predators, (for example some urban areas have extremely high densities of foxes). Predation by a cat was also recorded by Dolman. Post fledgling losses of woodlark were high although causes were not identified.</p> <p>Thus development that results in an increase the density of foxes or the number of domestic cats on a part of the SPA may have an adverse effect on this feature and in this respect, without avoidance measures, the cumulative effect of new housing can be significant. A strategic approach to avoiding and mitigating this and other impacts arising as a result of new residential development has been developed for the Dorset Heathlands in response to the significant levels of housing growth. The mitigation strategy for the Dorset Heathlands has now been in place since 2006,</p>	Dolman, P. (2010) <i>Woodlark and Nightjar Recreational Disturbance and Nest Predator Study 2008 and 2009. Final Report.</i> UEA.
Supporting habitat (both within and outside the SPA):	Landscape	Restore open and unobstructed terrain, typically within at least 0.2 km of nesting areas, with no increase in tall (>0.2 m) vegetation cover to >50% of the	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	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
structure		site overall.	<p>displaying behaviour. An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat.</p> <p>An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat. Woodlark often utilise land adjacent to heathland which is outside the SPA boundary for feeding, including areas of grassland, arable fields and golf courses. Woodlark will also utilise open areas, wide rides and fire breaks within plantations. Habitat connectivity is important for this species and measures – heathland restoration, mainly outside the SPA - are needed that reverse the past fragmentation of the Dorset heathlands.</p>	
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain optimal mix of vegetation to provide sufficient cover for nesting and more open, prey rich, areas for hunting.	<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.</p> <p>The short and sparse heath vegetation favoured by woodlark occurs patchily within the SPA and may change location as a result of management measures or heath fires. Activities that may directly or indirectly affect the vegetation of supporting habitats and modify these characteristics may adversely affect the feature.</p>	
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain the mix of trees, ground vegetation and bare ground (including frequency of bare patches of <0.5 ha within mosaic of short (<5 cm) to medium (10-20 cm) ground vegetation, and small clumps of shrubs or trees scattered throughout nesting and feeding areas.	<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 and/or displaying. Many bird species will have specific requirements that conservation measures will aim to maintain, for others such requirements will be less clear.</p> <p>Activities that may directly or indirectly affect the vegetation of supporting habitats and modify these characteristics may adversely affect the feature.</p>	

Attributes	Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Version Control Advice last updated: N/A			
Variations from national feature-framework of integrity-guidance: The attribute relating to Water quality / quantity has been removed as it is considered not relevant for this feature on this site.			

Table 5: Supplementary Advice for Qualifying Features: A302. *Sylvia undata*; Dartford Warbler (Breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Breeding population	Population abundance	Restore the size of the breeding population to a level which is above 606 pairs, whilst avoiding deterioration from its current level.	<p>This objective concerns the contribution of the site's population to wider local, national and bio-geographic populations. The target-value given for the abundance of this feature is considered to be the minimum standard for conservation/restoration measures to achieve although it is recognised that populations can decline after severe winter weather (Bibby 1977, 1979); it can take several years for recovery to take place and these fluctuations need to be taken into account. Dartford warbler numbers rose in the late 1990s, peaking in 2000 and then they remained relatively high until there was a marked decline from 2009, following a series of particularly harsh winters. (Liley and Fearnley 2014).</p> <p>The objective is therefore both to ensure that the overall population is maintained above the minimum population size (subject to natural population variations in response to climatic factors) and to seek to ensure that new developments or activities do not negatively affect the population on any part of the SPA.</p> <p>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.</p> <p>Given the likely fluctuations in numbers between years, any impact-assessments should take into account both the current abundance of the population in the areas of the site affected (as derived from the latest known or estimated level established using the best available data) and previous records. Thus where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the capacity of the site to support a larger population should also be taken into account.</p>	<p>[Bibby, C.J. (1977) <i>Ecology of the Dartford Warbler <i>Sylvia Undata</i> (Boddaert) in Relation to Its Conservation in Britain</i>. PhD thesis, Council for national Academic Awards.</p> <p>Bibby, C.J. (1979) Conservation of the Dartford Warbler on English Lowland heaths: a review. <i>Biological Conservation</i>, 13, 299 – 307.</p> <p>Liley D and Fearnley, H. (2014) Trends in Nightjar, Woodlark and Dartford Warbler on the Dorset Heaths, 1991-2013. Footprint Ecology</p>
Supporting habitat (both within	Minimising disturbance caused by	Reduce the frequency, duration and/or intensity of disturbance affecting nesting, roosting,	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	Murison, G. (2007) <i>The Impact of Human Disturbance, Urbanisation</i>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
and outside the SPA): disturbance	human activity	foraging, feeding, moulting and/or loafing birds so that the feature is not significantly disturbed	<p>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 human activity may take a variety of forms including noise, light, sound, vibration, trampling, and presence of people, animals and structures.</p> <p>Dartford Warbler is a bird known to be sensitive to disturbance. Disturbance caused by human activity is particularly significant within parts of the Dorset Heathlands SPA because of its proximity to urban areas (Murison 2007). Disturbance was found to delay breeding in some Dartford territories resulting in reduced breeding productivity (Murison et al 2007).</p> <p>Without avoidance measures, the cumulative effect of new housing would be likely to lead to an increase in urban pressures (e.g. an increase in wildfires, damaging recreational uses, introduction of incompatible plants and animals, loss of vegetation and soil erosion and disturbance by humans and their pets – Underhill-Day 2005) on parts of the SPA with negative effects on Dartford Warbler likely. A strategic approach to avoiding and mitigating these potential impacts arising as a result of new residential development has been developed for the Dorset Heathlands in response to the significant levels of housing growth. The mitigation strategy for the Dorset Heathlands has now been in place since 2006,</p> <p>The Dorset Heathlands Planning Framework Supplementary Planning Document 2015 – 2020 (SPD) sets out the detailed approach to this issue.</p>	<p><i>and Habitat Type on a Dartford Warbler Sylvia Undata Population</i>. University of East Anglia, School of Biological Sciences, Norwich.</p> <p>Murison, G., Bullock, J.M., Underhill-Day, J., Langston, R., Brown, A.F. & Sutherland, W.J. (2007). Habitat type determines the effects of disturbance on the breeding productivity of the Dartford Warbler <i>Sylvia undata</i>. <i>Ibis</i>, 149, 16-26.</p> <p>Underhill-Day, J. C. (2005). A literature review of urban effects on lowland heaths and their wildlife. English Nature Research Report no. 623.</p>
Supporting	Extent and	Restore the extent, distribution	Conserving or restoring the extent of supporting habitats and	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
habitat (both within and outside the SPA): extent and distribution	distribution of supporting breeding habitat	and availability of suitable breeding habitat, to correspond with the historical distribution, supporting the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding):	<p>their range will be key to maintaining the site's ability and capacity to support the SPA population. Restoration of open heathland is required on those areas where it has declined compared with the historic open heathland extent (usually through invasion by trees and scrub) and where this restoration is readily achievable. Aerial photographic coverage of the site from 1946 and 1972, together with old maps (particularly 2nd edition ordnance survey 1888-1913), provide a good reference in this respect showing the extent, distribution and pattern of dry and wet heathland, mire/fen and grassland and its relationship to woodland.</p> <p>The distribution of Dartford Warbler territories generally correlates well with that of areas of dry heathland</p>	1946, 1972 aerial photographs and OS 2 nd edition 6 inch maps both available on https://explorer.geowessex.com/
Supporting habitat (both within and outside the SPA): function/ supporting process	Conservation measures	Restore management or other measures (whether within and/or outside the site boundary as appropriate) necessary to restore the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	<p>Active and ongoing conservation management is needed to protect, maintain or restore the habitats that support hen harrier at this site. Further details about the necessary conservation measures for this site can be found within 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. Whilst most of the area of the SPA enjoys active conservation management there remain a few areas where this does not take place.</p> <p>The site should have areas of structurally diverse heather and gorse. Dartford Warbler particularly favour areas of dense gorse and tall mature heather for nesting. Survival in winter appears to be enhanced when patches of dense gorse are available to provide protection from bad weather, particularly snow cover.</p>	<p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p> <p>NATURAL ENGLAND, 2014. Site Improvement Plan – Dorset Heaths</p> <p>Bibby, C.J. (1977) <i>Ecology of the Dartford Warbler Sylvia undata (Boddaert) in Relation to Its Conservation in Britain</i>. PhD thesis, Council for national Academic Awards.</p>
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) at preferred prey sizes.	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.	

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 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).	See explanatory notes for this attribute in Table 1.	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).
Supporting habitat (both within and outside the SPA): predation	Predation	Reduce predation and disturbance caused by native and non-native predators.	<p>Breeding productivity (number of chicks per pair) and survival should be sustained at rates that maintain or restore the population density in each part of its range. 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>Predation and disturbance has been identified as an issue on urban heaths (Murison et al 2007) where predation of young Dartford Warblers by domestic cats was recorded (Murison 2007). Thus development that results in an increase in domestic cats on a part of the SPA may have an adverse effect on this feature and in this respect, without avoidance measures, the cumulative effect of new housing can be significant. A strategic approach to avoiding and mitigating this and other impacts arising as a result of new residential development has been developed for the Dorset Heathlands in response to the significant levels of housing growth. The mitigation strategy for the Dorset Heathlands has now been in place since 2006,</p>	<p>Murison, G. (2007) <i>The Impact of Human Disturbance, Urbanisation and Habitat Type on a Dartford Warbler <i>Sylvia undata</i> Population</i>. University of East Anglia, School of Biological Sciences, Norwich.</p> <p>Murison, G., Bullock, J.M., Underhill-Day, J., Langston, R., Brown, A.F. & Sutherland, W.J. (2007). Habitat type determines the effects of disturbance on the breeding productivity of the Dartford Warbler <i>Sylvia undata</i>. <i>Ibis</i>, 149, 16-26.</p>
Supporting habitat (both within and outside the SPA): structure	Landscape	Restore the connectivity of heathland patches across the SPA	Local populations of Dartford Warbler are subject to large variation in numbers in response to changing weather patterns and habitat structure. It is important that birds are able to move across the landscape and between patches of suitable habitat so they can re-colonise readily from strongholds. Thus habitat connectivity is important for this species and measures – heathland restoration, mainly outside the SPA - are needed that reverse the past fragmentation of the Dorset heathlands.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Restore optimal mix of vegetation (>80% heather, <25 trees/ha and gorse with a dense structure	<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>Dartford Warbler have species requirements that conservation measures should seek to maintain. Stands of gorse are closely associated with Dartford Warblers due in part to its high invertebrate biomass. Its dense and spikey structure may also provide protection from both the weather and predators but mature heather is also important. Management should aim to prevent gorse from becoming old and leggy and to maintain mature heather stands.</p>	
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: The attribute relating to Water quality / quantity has been removed as it is considered not relevant for this feature on this site.				