



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

**Salisbury Plain Special Protection Area (SPA)
Site Code: UK9011102**



Photo: Hen harrier by Rob Zweers

Date of Publication: 27 October 2017

About this document

This document provides Natural England's supplementary advice for the European Site Conservation Objectives relating to Salisbury Plain 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	Salisbury Plain Special Protection Area (SPA)
Location	Wiltshire
Site Maps	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	November 1993
Qualifying Features	See section below
Designation Area	19,715.99 ha
Designation Changes	None
Feature Condition Status	Details of the feature condition assessments made at this site can be found using Natural England's Designated Sites System
Names of component Sites of Special Scientific Interest (SSSIs)	Salisbury Plain
Relationship with other European or International Site designations	The boundary of this SPA coincides with Salisbury Plain SSSI and part of Salisbury Plain Special Area of Conservation .

Site background and geography

Salisbury Plain SPA is located in central Wiltshire, within the [Salisbury Plain and West Wiltshire Downs National Character Area](#), in southern England.

Salisbury Plain is an extensive and open rolling chalk plateau cut by the Hampshire Avon and tributaries. The soils are generally alkaline and free-draining, apart from places with overlying clay-with flints and long-term rainwater leaching and lessivage, which are more acidic.

The main broad habitat type is chalk grassland, with some plantation and ancient woodland being present. Juniper scrub is significant at the eastern end of Salisbury Plain. Salisbury Plain is part of a wider military training area ('SPTA').

Of particular note is the breeding population of stone-curlew dependent upon the extensive areas of open grassland. Sizeable populations of raptors also overwinter, feeding on small birds and mammals.

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:

- **Stone-curlew *Burhinus oedicanus*.**

At the time of its classification in 1993, the SPA supported 10% of the British breeding population.

The stone-curlew's main supporting habitats in or close to the SPA are lowland calcareous grassland, semi-improved and improved grassland, and arable. The RSPB (Wessex Stone-curlew Project – annual reports) classify breeding sites as either on 'semi-natural habitat' (downland, disturbed ground within semi-natural habitat, and specially created habitat with at least 50% of its perimeter adjacent to semi-natural grassland) or 'farmland' (specially created habitat within arable farmland or within a crop).

Within the SPA, stone-curlews breed mainly on cultivated plots within grassland, also some scrapes and other areas disturbed by military training. Active breeding sites are distributed across a large part of The East, and around the perimeter of The Centre and The West – plus one site in the interior of The West.

Outside of the SPA, there is a wide spread of active breeding sites, both within the wider military training area (SPTA) and beyond, especially to the east and south of Salisbury Plain.

Roosts, in autumn, occur on the designated area and within the wider training area, at locations including Bourne Bottom, Cross Country Driver Training Area, Lidbury, Upavon Down, Down Farm and Enford/Lavington Folly.

During the non-breeding season the SPA regularly supports:

- **Hen harrier *Circus cyaneus***

At the time of its classification in 1993, the SPA supported 1% of the British non-breeding population.

The hen harrier's main supporting habitats in or close to the SPA are lowland calcareous grassland, semi-improved and improved grassland, and arable – all open landscape habitats.

The main focus of the winter roosts are on The Centre, at Ell Barrow, Rushall Down, Charlton Down and Compton Down, at the heads of dry chalk valleys or along ridges separating them. Winter roosts also occur on The West (Knapp Down, New Zealand Farm Camp) and The East (Lower and West Everleigh Downs) (Wiltshire Ornithological Society - records). They tend to forage over a much wider area, over the military training area and adjacent farmland, especially weedy winter stubbles that attract flocks of small birds. They have been recorded as far north as the Marlborough Downs. Analyses of pellets found that the winter diet is small passerines, especially skylarks and linnets, and small mammals, with a switch to rabbit and brown hare young in spring (Wiltshire Ornithological Society, 2007).

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

During the breeding season the SPA regularly supports:

- **Hobby *Falco subbuteo***

At the time of its classification in 1993, the SPA supported 1% of the British breeding population.

The hobby occurs on this SPA as a nationally important breeding population of a regularly occurring migratory species. This small falcon arrives in Britain during April each year to breed and returns to its wintering grounds in Africa during September/October.

Within or close to the SPA, it nests in small woods (e.g. Everleigh Ashes, outside of the SPA) or more isolated copses, with Scots pine and Douglas fir being favoured trees (Wiltshire Ornithological Society - records). They always use the old nests of other species, usually carrion crow and raven. The hobby feeds on insects and small birds, usually caught on the wing.

During the breeding season the SPA regularly supports:

- **Common Quail *Coturnix coturnix***

At the time of its classification in 1993, the SPA supported approximately 20% of the British breeding population.

The common quail occurs as a nationally important breeding population of a regularly occurring migratory species not listed in Annex 1. It is the UK's only migrant gamebird.

Within or close to the SPA, the quail nests and feeds in chalk grassland and arable land, particularly meadow-like wild grasslands and winter cereals, with a vegetation structure that allows good movement with protection from avian predators and with a source of insect food (Wiltshire Ornithological Society, 2007). The quail feeds on seeds and insects on the ground.

References:

ASH D., L. WADE, J. SWAIN AND T. CROUTER., 2014. *A progress report and management plan for stone-curlew, Salisbury Plain Training Area*. Defence Infrastructure Organisation, December 2014.

NATURAL ENGLAND, 2017. *Salisbury Plain SSSI Integrated Site Assessment 2014-15*. Natural England, March 2017.

NATURAL ENGLAND. 2015. *Salisbury Plain SSSI Breeding Bird Survey 2015*. Thomson Ecology for Natural England.

RSPB. *Wessex Stone-curlew Project - annual reports*. Available at <https://www.rspb.org.uk/our-work/conservation/conservation-projects/details/212603-wessex-stonecurlew-project>

STANBURY A. *et al.* 2000. *Breeding bird survey of Salisbury Plain Training Area. 2000*. Defence Estates, RSPB.

STANBURY A. *et al.* 2005. *Breeding Bird Survey of the Army Training Estate of Salisbury Plain 2005*. Defence Estates, RSPB

WILTSHIRE ORNITHOLOGICAL SOCIETY. 2007. *Birds of Wiltshire*. WOS, Devizes.

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
Hen harrier	Non-breeding	Winter													WOS
Hobby	Breeding	Summer													BTO
"	Non-breeding	Passage													
Quail	Breeding	Summer													
"	Non-breeding	Passage													
Stone-curlew	Breeding	Summer													RSPB
"	Non-breeding	Passage													

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 Breeding Qualifying Features: A133 Stone-curlew *Burhinus oedicnemus*; A099 Hobby *Falco subbuteo* and A113 Common Quail *Coturnix coturnix*

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Breeding population	Population abundance	<p>Stone curlew: Maintain the size of the breeding stone-curlew population at or above a mean of 15 pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.</p> <p>Note that two sets of figures for breeding pairs are maintained in other documents, for the SPA area and the wider Salisbury Plain Training Area.</p> <p>Quail: Maintain the size of the breeding quail population at a level which is above 19 individuals (count from 1986, SPA data sheet 2006), whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.</p> <p>Hobby: Maintain the size of the breeding population at six</p>	<p>This will sustain the site's population and ensures it contributes to a viable local, national and bio-geographic population.</p> <p>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 (generally at least 10 years). The values given here may also be updated in future to reflect any strategic objectives which may be set at a national level for this feature.</p> <p>Given the likely fluctuations in numbers over time, any impact-assessments should focus on the current 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.</p> <p>Similarly, where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the ongoing capacity of the site to accommodate the feature at such higher levels in future should also be taken into account.</p> <p>Maintaining or restoring bird abundance depends on the suitability of the site. However, factors affecting suitability can also determine other demographic rates of birds using the site including survival (dependent on factors such as body condition which influences the ability to breed or make foraging and / or migration movements) and breeding productivity.</p> <p>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</p>	<p>RSPB Wessex Stone-curlew Project reports, from 1995 and on-going.</p> <p>STANBURY A. <i>et al.</i> 2000 <i>Breeding bird survey of Salisbury Plain Training Area.</i> Defence Estates, RSPB.</p> <p>STANBURY A. <i>et al.</i> 2005 <i>Breeding Bird Survey of the Army Training Estate of Salisbury Plain 2005,</i> Defence Estates, RSPB</p> <p>NATURAL ENGLAND 2015 <i>Salisbury Plain SSSI Breeding Bird Survey 2015,</i> Thomson Ecology, Natural England.</p> <p>Wiltshire Ornithological Society records.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		breeding pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	<p>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.</p> <p>Whilst we will endeavour to keep these values as up to date as possible, local Natural England staff can advise on whether the figures stated are the best available.</p> <p>There were 36 singing quails recorded by a Breeding Bird Survey 2000, and 86 records, as 'additional bird records', BBS 2005. Population estimate of 74 on the SSSI, BBS 2015. The common quail shows considerable year-to-year fluctuations in population size.</p>	EUROPEAN COMMISSION 2009 <i>European Union Management Plan 2009-11 Common quail Coturnix coturnix</i> Technical Report - 2009 – 032.
Supporting habitat (both within and outside the SPA): extent and distribution	Extent and distribution of supporting breeding habitat	<p>Maintain the extent, distribution and availability of suitable habitat which supports breeding stone-curlew for all necessary stages of its breeding cycle (courtship, nesting, feeding)</p> <p>Maintain the extent, distribution and availability of suitable habitat which supports breeding Quail for all necessary stages of its breeding cycle (courtship, nesting, feeding)</p> <p>Maintain the extent, distribution and</p>	<p>Conserving or restoring the extent of supporting habitats and their range will be key to maintaining the site's ability and capacity to support the SPA population.</p> <p>The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending to the nature, age and accuracy of data collection. This target will apply to any supporting habitat which is known to occur outside the site boundary.</p> <p>The total SPA area is 19,689.91 ha, which includes some site fabric e.g. improved grassland, arable, plantations, training features and hard standings; whilst built-up areas are excluded. Within the SPA, the main habitat used by stone-curlews is chalk grassland which covers:</p> <p>1993: 12,933 ha 1996/7: 13,247.86 ha 2003/4: 14,391.57ha</p> <p>Within the SPA and wider SPTA, stone-curlews use 35 managed plots and scrapes, plus bare ground caused by military training, spring crops and game crops.</p> <p>Objectives in DIO's management plan are to: get more birds breeding on the western part of SPTA to link with eastern colonies; and: increase the number of pairs on SPTA Centre so that a higher percentage breeds in areas where there is less disturbance from training.</p>	<p>PYWELL <i>et al</i> 1998. <i>Ecological survey of Salisbury Plain Training Area 1996-7</i>. NERC contract report to MoD, DEO.</p> <p>PYWELL <i>et al</i>. 2006. <i>Assessing floristic change on Salisbury Plain between 1996 and 2004</i>. Defence Estates, English Nature.</p> <p>RSPB Wessex Stone-curlew Project annual reports.</p> <p>Check Stanbury for</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		availability of suitable habitat which supports breeding Hobby for all necessary stages of its breeding cycle (courtship, nesting, feeding)	<p>The common quail systematically chooses open land, usually without hedges or trees. It prefers cover which, although dense enough to provide protection, allows fluid movement. Quail nest on the ground, in a scrape with grassy material, amongst herbaceous vegetation or grasses. They are omnivorous, eating mainly seeds of grasses, weeds and grain, also other vegetable matter, and ground-dwelling invertebrates e.g. molluscs, arachnids, arthropods. Over the three breeding birds surveys on the Plain, quail have been recorded at a low density across the SPA, with no particular focus on specific areas.</p> <p>There are currently c.1,058 ha hectares of woodland on the SPA, which is 5.4% of the SPA area, and a total of c.2,196 ha on the whole Salisbury Plain Training Area (SPTA), which are widely scattered apart from the more open Central Impact Area. More than half of this is relatively recent, although no further planting took place on the SSSI/SPA area after it was designated in 1993.</p>	<p>distribution map</p> <p>BIRDLIFE INTERNATIONAL 2016 Coturnix coturnix. <i>The IUCN Red List of Threatened Species 2016.</i></p> <p>EUROPEAN COMMISSION 2009 <i>European Union Management Plan 2009-11 Common quail Coturnix coturnix Technical Report - 2009 – 032.</i></p>
Supporting habitat (both within and outside the SPA): function/ supporting process	Conservation measures	Maintain management or other measures (whether within and/or outside the site boundary as appropriate) necessary to maintain the structure, function and/or the supporting processes associated with breeding Stone curlew, Hobby and Quail and their supporting habitats.	<p>Active and ongoing conservation management is often needed to protect, maintain or restore this feature at this site. Other measures may also be required, and in some cases, these measures may apply to areas outside of the designated site boundary in order to achieve this target.</p> <p>Further details about the necessary conservation measures for this site can be provided by Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.</p> <p>See DIO's progress report and management plan from 2014. Conservation measures on this SPA for stone curlew include:</p> <p>Maintaining breeding plots through cultivation and weed control; ensuring grazing takes place around plots; managing and adjusting the distribution of plots as appropriate; maintain ploughing consents, with 50% in spring crops; control predators, especially foxes; and mark vulnerable plots with 'ground-nesting birds' signs. Spraying (alone) is a potential method in areas of ground ordnance.</p>	<p>DEFENCE INFRASTRUCTURE ORGANISATION. <i>Super Unit Management Plans 2010-2015</i>, April 2011</p> <p>ASH D., L. WADE, J. SWAIN AND T. CROUTER. <i>A progress report and management plan for stone-curlew, Salisbury Plain Training Area.</i> Defence</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				<p>Infrastructure Organisation, December 2014.</p> <p>NATURAL ENGLAND, 2014. Site Improvement Plan for Salisbury Plain (SIP209). http://publications.naturalengland.org.uk/publication/5384236060114944</p>
Supporting habitat (both within and outside the SPA): predation	Predation	Reduce predation and disturbance of breeding stone curlews and quail caused by native and non-native predators.	<p>This will ensure that breeding productivity (number of chicks per pair) and survival are sustained at rates that maintain or restore the abundance of the feature. As ground-nesting birds, stone curlews are particularly vulnerable to predation.</p> <p>Impacts to breeding productivity can result directly from predation of eggs, chicks, juveniles and adults, and also from significant disturbance. The presence of predators can influence bird behaviours, such as abandonment of nest sites or reduction of effective feeding.</p> <p>Where evidence suggests predator management is required, measures can include their exclusion through fencing and scaring or by direct control. Any such measures must consider the legal protection of some predators, as well as the likely effects of such control on other qualifying features.</p> <p>On Salisbury Plain, foxes and badgers appear to be the main predators of stone-curlews, probably at night, with Corvids less of a problem. In some cases, managed plots have been re-located in order to reduce predation e.g. away from badger setts. The recent report and management plan includes an objective to control predators, especially foxes, and a small-scale trial in co-operation with the military shoots was undertaken – but it was decided that culling was not an option due to the scale of the Plain. Otherwise no specific measures are in place.</p>	<p>ASH D., L. WADE, J. SWAIN AND T. CROUTER. <i>A progress report and management plan for stone-curlew, Salisbury Plain Training Area.</i> Defence Infrastructure Organisation, December 2014.</p> <p>TAYLOR, A., ADAMS, N, ASH, D. (2009) <i>Report into the causes of stone-curlew and lapwing nest predation on Salisbury Plain April – July 2009</i>, unpublished internal report, RSPB and Defence Estates.</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	Air quality	Maintain concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for the features of the SPA on the Air Pollution Information System (www.apis.ac.uk).	<p>The structure and function of the habitats which support this SPA feature may be sensitive to changes in air quality. 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.</p> <p>It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales.</p>	
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	<p>Stone curlew: Maintain the proportion of short (<5 to 10 cm) vegetation and bare ground within nesting areas (<30% bare or sparsely vegetated).</p> <p>Quail: Maintain areas of medium to tall vegetation (30-100 cm), together with some open ground, as the dominant feature of nesting areas.</p>	<p>The height, cover, variation and composition of vegetation are often important characteristics of habitats supporting this feature which enable successful nesting, rearing, concealment and roosting.</p> <p>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>On Salisbury Plain, stone-curlews nest mainly on cultivated plots, also on bare ground caused by military training activities.</p>	See the list of references on p. 5

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<p>Supporting habitat (both within and outside the SPA): function/ supporting process</p>	<p>Food availability within supporting habitat</p>	<p>Stone curlew: Maintain the distribution, abundance and availability of key prey items (e.g. beetles, grasshoppers, flies, earthworm, snails, slugs) at prey sizes preferred by stone curlew.</p> <p>Quail: Maintain the distribution, abundance and availability of key prey items (e.g. beetles, ants, earwigs, crickets) at prey sizes preferred by quail, and maintain a high cover/abundance of food plants preferred by quail (e.g. chickweeds, sand-spurreys and hemp-nettles)</p> <p>Hobby: Maintain the distribution, abundance and availability of key prey items e.g. small birds, moths, flying ants, beetles and dragonflies are preferred by hobby.</p>	<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>The stone-curlew's preferred feeding habitats are short grassland, both semi-natural and improved, spring tillage, pig fields and manure heaps. Past research has demonstrated the importance of vegetation structure for foraging. On Salisbury Plain SPA, the chalk grassland tends to be relatively long, therefore maintaining grazing close to the breeding plots must be viewed as important. The wider surrounds, still within the wider military training area, are largely semi and improved grassland, and arable, with scattered plantations.</p>	<p>See the list of references on p. 5</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): structure	Landscape	<p>Stone curlew: Maintain the area of open and unobstructed terrain within and around nesting, roosting and feeding sites.</p> <p>Hobby: Maintain a high proportion of open and unobstructed terrain whilst retaining mature trees in woodland, small clumps and as isolated individuals.</p>	<p>This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its nesting, roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within nesting, feeding or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour.</p> <p>An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat.</p> <p>Stone-curlew: on Salisbury Plain, the scrub management programme is prioritising avoidance of encroachment onto chalk grassland and so maintaining the open landscape. The proximity of scrub/woodland cover to nests is important as it can harbour predators and this influences nest site selection; although some low herbaceous cover is desirable for feeding and when chicks have hatched. Breeding plot locations must also avoid steep or even moderate slopes, as this restricts visibility.</p> <p>Hobby: Salisbury Plain, both the SPA and wider military training area, is primarily an open, chalk grassland landscape. There are currently c.1,058 ha hectares of woodland on the SPA, which is 5.4% of the SPA area, and a total of c.2,196 ha on the Salisbury Plain Training Area (SPTA), which are widely scattered apart from the more open Central Impact Area. More than half of this is relatively recent, although no further planting took place on the SSSI/SPA area, after it was designated in 1993. The plantations play an important role in creating a realistic training environment, providing cover, concealment and shelter. They provide nesting sites for hobby and some other birds; however, also fragment the landscape and habitats, with potential ecological consequences.</p>	<p>See the list of references on p. 5</p> <p>JOHNSTON, A (2009) <i>Demographic analysis of the impact of conservation action on Stone Curlew populations</i>. PhD thesis, Cambridge.</p>
Supporting habitat (both within and outside the SPA): function/supporting process	Connectivity with supporting habitats	Maintain the safe passage of stone-curlews moving between nesting, roosting and feeding areas.	<p>The ability of the feature to safely and successfully move to and from feeding and roosting areas is critical to their breeding success and to the adult fitness and survival. This target will apply within the site boundary and where birds regularly move to and from off-site habitat where this is relevant.</p> <p>On Salisbury Plain, a large proportion of the breeding sites lie within the SPA, plus some on the wider military training area and many further afield especially surrounding the eastern end, including two RSPB reserves. Defence Infrastructure Organisation's management plan suggests that stone-curlew sub-populations on the Plain are able to support their corresponding local areas, as follows:</p>	<p>ASH D., L. WADE, J. SWAIN AND T. CROUTER. <i>A progress report and management plan for stone-curlew, Salisbury Plain Training Area</i>. Defence Infrastructure Organisation,</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>SPTA West: an area in an arc south west bordering the Wyllye Valley and on to Martin Down. SPTA Centre (northern edge): this can help in colonisation north to the Marlborough Downs (north of Pewsey Downs NNR), early signs of which have begun to be demonstrated. SPTA Centre (south): the Woodford Valley area. SPTA East: this can support the downs north-east towards Newbury and south east to Porton/ Winterbourne/ Normanton.</p> <p>The East has the largest autumn roosts and highest number of sites, although numbers fluctuate significantly e.g. Cross Country Driver Training Area, Bourne Bottom and Flagpole, Lidbury and Plantations, and Upavon Down. On the Centre, Enford, Far Triangle and Lavington Folly area is the main roost area. On the West, Knook and Breakheart area is the main roost area.</p>	December 2014.
Supporting habitat (both within and outside the SPA): disturbance	Minimising disturbance caused by human activity	<p>Stone-curlew: Restrict the frequency, duration and/or intensity of disturbance affecting nesting, roosting, foraging, feeding, moulting and/or loafing birds so that the breeding stone curlew feature is not significantly disturbed</p>	<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. As ground-nesting birds, stone curlews are particularly vulnerable to human disturbance.</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 the visible presence of people, animals and structures.</p> <p>On Salisbury Plain, increased housing on the surrounds and road development on site are likely to result in more people and their dogs accessing the Plain, which has the potential to disturb stone-curlews. Wiltshire Council produced a mitigation strategy to support their Infrastructure Delivery Plan.</p> <p>Military training – vehicle use, troops on the ground, helicopters - has the potential to influence stone-curlew settlement in spring and destroy or disturb nests. This is avoided or reduced through locating breeding plots away from the main, tactically important military training sites and corridors – and the current DIO management plan stresses an adaptive approach to managing the distribution of breeding plots,</p>	<p>TAYLOR E.C., R.E. GREEN AND J. PERRINS (2007) <i>Stone-curlews Burhinus oediconemus and recreational disturbance: developing a management tool for access</i>. Ibis, 149 (Suppl. 1), 37-44</p> <p>TAYLOR E.C. (2006) <i>Stone-curlews Burhinus oediconemus and human disturbance: effects on behaviour, distribution and breeding success</i>. PhD thesis, Cambridge University.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>with on-going RSPB and DIO monitoring a key part of this. Some plots have signs around them. In practise, the scale of the Plain means that there are likely to be few incidents, as long as the spread and intensity of military training remains the same.</p> <p>Military helicopters have been investigated and shown to have minimal impact, in a small study.</p> <p>On the Plain, disturbance of hobbies by the general public or military training is generally thought to be unlikely due to the size and remoteness of the place, and the species relatively secretive nature.</p>	<p>LILEY, D., PAYNE, K. & PEAT, J. (2007) <i>Access Patterns on Salisbury Plain</i>. Footprint Ecology / Enviro Ltd., Wareham, Dorset.</p> <p>TAYLOR J. (2012) <i>HRA and mitigation strategy for Salisbury Plain SPA in relation to recreational pressure from development</i>. Wiltshire Council.</p> <p>CHARMAN E. AND R.E. GREEN (2009) <i>Response of breeding stone curlews to Apache helicopter training on Salisbury Plain Training Area</i>. Unpublished internal report, DIO.</p>

Version Control

Advice last updated: n/a

Variations from national feature-framework of integrity-guidance:

Removed attribute of 'medium height vegetation patches within roosting areas'.

Table 2: Supplementary Advice for Non-breeding Qualifying Features: A082 Hen harrier *Circus cyaneus*

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Non-breeding population	Population abundance	Maintain the size of the non-breeding Hen Harrier population at a level which is consistently above 5 individuals, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	<p>See the notes for this attribute in table 1 above.</p> <p>This target is derived from the initial count from 1993 (SPA data sheet 2006). Roost counts at the SPA are as follows:</p> <p>Maximum count of 13 in 2010/11 Maximum count of 12 in 2011/12 Maximum count of 20 in 2012/13 Maximum count of 19 in 2013/14 Maximum count of 12 in 2014/15</p>	Winter roosts on the Plain have been monitored since 1977 by MOD conservation groups, then from 1983/4 as part of Hawk & Owl Trust national winter roost survey, now run by BTO/HOT and undertaken by Wiltshire Ornithological Society.
Supporting habitat (both within and outside the SPA): extent and distribution	Extent and distribution of supporting non-breeding habitat	Maintain the extent and distribution of suitable habitat (either within or outside the site boundary) which supports Hen Harrier for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, 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.</p> <p>The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending to the nature, age and accuracy of data collection. This target may apply to supporting habitat which also lies outside the site boundary e.g. the SPA, wider military training area and beyond are known to provide feeding habitat.</p> <p>The hen harrier is a bird of open country that roosts communally.</p> <p>The main roost is on the Centre, at Ell Barrow, Rushall Down, Charlton Down and Compton Down, at the heads of dry chalk valleys or along ridges separating them. Also, roosting occurs on the West (Knapp Down, New Zealand Farm Camp) and East (Lower and West Everleigh Downs)</p>	Winter roosts on the Plain have been monitored since 1977 by MOD conservation groups, then from 1983/4 as part of Hawk & Owl Trust national winter roost survey, now run by BTO/HOT and undertaken by Wiltshire Ornithological Society.
Supporting habitat (both within and outside the SPA): function/	Conservation measures	Maintain management or other measures (whether within and/or outside the site boundary as appropriate) necessary to maintain the	<p>See the notes for this attribute in table 1 above.</p> <p>For roosting on the Plain, hen harriers need > 10 hectares of tall, thick grass free from scrub that has not been burnt, cut or grazed for at least one season – the sheltered heads of valleys are preferred. The year-on-year</p>	DEFENCE INFRASTRUCTURE ORGANISATION. <i>Salisbury Plain Nature Conservation</i>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
supporting process		structure, function and/or the supporting processes associated with non-breeding Hen Harrier and its supporting habitats.	<p>management needs for specific roosting areas are discussed and agreed between DIO and WOS.</p> <p>Grazing requirements and controls are provided by Defence Infrastructure Organisation's (DIO) Farm Management Plans with their tenants. Scrub management is provided by DIO's Super Unit Management Plans.</p>	<p><i>Super Unit Management Plans 2010-2015</i>, DIO, 2010.</p> <p>DEFENCE INFRASTRUCTURE ORGANISATION Farm Management Plans – with their tenant farmers.</p>
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain an optimal mix of vegetation to provide sufficient cover for roosting hen harriers 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 enables successful 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>Hen harriers do not currently nest on the Plain.</p> <p>Their foraging areas in autumn, winter and early spring tend to include the SPA, wider military training area and beyond, where the habitats support their prey, which is primarily small mammals e.g. field voles and small passerine birds e.g. skylarks and meadow pipits. The rotational grazing system on the Plain tends to provide a sequential structure to the grassland that supports such fauna.</p> <p>For roosting, hen harriers require > 10 hectares of tall, thick grass free from scrub that has not been burnt, cut or grazed for at least one season – the sheltered heads of valleys are preferred. The year-on-year management needs for specific roosting areas tend to be discussed and agreed between DIO and WOS.</p> <p>Grazing requirements and controls are provided by Defence Infrastructure Organisation's (DIO) Farm Management Plans with their tenants. Scrub</p>	<p>DEFENCE INFRASTRUCTURE ORGANISATION. <i>Salisbury Plain Nature Conservation Super Unit Management Plans 2010-2015</i>, DIO, 2010.</p> <p>DEFENCE INFRASTRUCTURE ORGANISATION's Farm Management Plans – with their tenant farmers.</p> <p>DEFRA 2016 <i>Joint action plan to increase the English hen harrier population</i>, Defra/Upland Stakeholder Forum, hen harrier sub-</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			management is provided by DIO's Super Unit Management Plans.	group
Supporting habitat (both within and outside the SPA): minimising disturbance	Minimising disturbance caused by human activity	Restrict the frequency, duration and/or intensity of disturbance affecting roosting, foraging or feeding birds so that the non-breeding hen harrier population 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. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, the presence of people, animals and structures.</p> <p>On Salisbury Plain, hen harriers roost at dusk in remote areas and there are currently no known issues due to disturbance from the general public or military training.</p>	
Supporting habitat (both within and outside the SPA): structure	Landscape	Maintain the amount of open and unobstructed terrain within areas used for roosting and hunting.	<p>This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its nesting, roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within nesting, feeding or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour. An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat.</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, conurbations and high mountain tops; but do use pre-thicket stage forestry for nesting and foraging.</p> <p>There are currently c.1,058 ha hectares of woodland on the SPA, which is 5.4% of the SPA area, and a total of c.2,196 ha on the whole Salisbury Plain Training Area (SPTA), which are widely scattered apart from the open Central Impact Area. More than half of this is relatively recent, although no further planting took place on the SSSI/SPA area, after it was designated in</p>	<p>DEFENCE ESTATES <i>DTE SP Integrated Rural Management Plan</i>, DE, 2010</p> <p>DEFENCE INFRASTRUCTURE ORGANISATION. <i>Salisbury Plain Nature Conservation Super Unit Management Plans 2010-2015</i>, DIO, 2010.</p> <p>STANBURY A. <i>et al.</i></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>1993. The plantations play an important role in creating a realistic training environment, providing cover, concealment and shelter; however, also fragment the landscape and habitats, with potential ecological consequences. DIO's Super Unit Management Plan (section 2.6) identifies that plantations appear to inhibit ground-nesting birds – their study found a 50% decrease in numbers of breeding skylark within 1km squares containing plantation(s) presumed due to predation threat - potentially lowering the carrying capacity of hen harrier.</p> <p>The amount of scrub on the Plain, at Integrated Site Assessment in 2014-15, was found to have significantly decreased due to DIO and Natural England programmes; with the bulk of SSSI units meeting scrub cover targets, apart from three units at the far western end and four on Beacon Hill.</p>	<p>2000 <i>Breeding bird survey of Salisbury Plain Training Area</i>. Defence Estates, RSPB, p. 34</p> <p>GRINSTED S. 2017 <i>Salisbury Plain SSSI Integrated Site Assessment 2014-14</i>, Natural England.</p>
Supporting habitat (both within and outside the SPA): function/ supporting process	Connectivity with supporting habitats	Maintain the safe passage of hen harriers moving between feeding and roosting areas when present during the non-breeding period	<p>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.</p> <p>During winter, Hen harriers can gather at coastal sites and form communal roosts at night. These can hold significant numbers of individuals and roosting habitat can include carr woodland, marshes and reed-beds.</p> <p>The SPA, wider military training area (38,000 ha) and the rest of the chalk plateau in central Wiltshire, provide a mostly continuous landscape, apart from where it is dissected by river valleys and the main roads and settlements along these. Across the plateau, the main habitat is grassland, which is unimproved in the interior and on the peripheral SSSIs, and semi-improved grassland more to the edges, both providing potential for hen harrier hunting, if lightly managed and tussocky, and harbouring small mammals and birds. As well as the core SPA, there are surrounding SSSIs and local wildlife site grasslands e.g. Bratton Downs to the north and Parsonage Down NNR to the south.</p> <p>The National Character Area Profile says 'woodlands are generally confined to the valley slopes, with scattered copses and shelterbelts on the high downs'. From the 1960s, the army planted c.1300 ha of plantation,</p>	<p>NATURAL ENGLAND 2013 <i>National Character Area Profile: 132 Salisbury Plain and West Wiltshire Downs (NE479)</i>, Natural England.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>increasing the cover of woodland to c.6% on the military training area, potentially causing a degree of habitat loss and fragmentation – although no planting has taken place on the SPA area, since the designation has been in place.</p>	
<p>Supporting habitat (both within and outside the SPA): function/ supporting process</p>	<p>Food availability within supporting habitat</p>	<p>Maintain the distribution, abundance and availability of key prey items at prey sizes preferred by hen harriers (pipits to gamebirds; voles to young rabbit size).</p>	<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>The hen harrier hunts by flying low over the ground and approaching small mammals and birds whilst avoiding detection.</p> <p>On Salisbury Plain, the grazing regime is key to determining food availability. On the SPA and other 'Schedule 3' areas, DIO's Farm Management Plans with their tenant farmers, set prescriptions for the grazing regime, at three levels: 'without restriction', 'within guidelines' and 'special restrictions'. The first requires long grass margins, otherwise no constraint on timing or stocking levels; the second requires long grass margins and specifies maximum stocking levels; and the third requires long grass margins and sets specific management within mapped polygons e.g. grazing may be restricted to only 30 or 50% of that area per year, which may be for any or all of the species requiring lighter grazing and longer grass.</p> <p>Most of the grazing is done through temporary penning, with relatively high stocking levels for a short time period and variable periods of rest in between, often just once or perhaps two grazing sessions in a year; therefore there is plenty of scope for long, tussocky grass harbouring small birds and mammals; however, the botanical diversity must also be maintained, which requires periods of more intense grazing. Ultimately, grazing is controlled through the number of temporary penning a farmer is allowed and utilizes at any one time.</p>	<p>DEFENCE INFRASTRUCTURE ORGANISATION's Farm Management Plans – with their tenant farmers.</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	Air quality	Maintain concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for the feature's supporting habitat 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.</p> <p>Exceeding critical values for air pollutants may result in changes to the chemical status of its habitat substrate, accelerating or damaging plant growth, altering vegetation structure and composition and thereby affecting the quality and availability of nesting, feeding or roosting habitats. 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 (NOx) and sulphur dioxide (SO2), and critical loads for nutrient nitrogen deposition and acid deposition.</p> <p>It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales.</p>	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).

Version Control

Advice last updated: n/a

Variations from national feature-framework of integrity-guidance:

Removed sub-attribute: water quality/quantity as not relevant to hen harriers on Salisbury Plain.

Combined the two sub-attributes for vegetation characteristics to cover roosting and foraging

Removed 'with short vegetation' from the landscape target, as although this may be relative it conflicts with the other targets.

