



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

**Hestercombe House Special Area of Conservation (SAC)
Site Code: UK0030168**



Hestercombe House © yerffoeg2, Flickr

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About this document

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to Hestercombe House SAC.

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

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	Hestercombe House Special Area of Conservation (SAC)
Location	Somerset
Site Map	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	1 st April 2005
Qualifying Features	See section below
Designation Area	0.08 ha
Designation Changes	N/A
Feature Condition Status	Details of the feature condition assessments made at this site can be found using Natural England's Designated Sites System
Names of component Sites of Special Scientific Interest (SSSIs)	Hestercombe House SSSI. The SAC and SSSI boundary are the same.
Relationship with other European or International Site designations	N/A

Site background and geography

Hestercombe House SAC is a Grade II* listed former country house situated within an estate registered as a Grade I Registered Park and Garden. One mile south of the conurbation of Taunton in Somerset it lies between 35m and 120m AD on the south facing slopes of the foothills of the Quantock Hills Area of Outstanding Natural Beauty (AONB). Skirting the edge of the vale of Taunton Deane, within the *Vale of Taunton and Quantock fringes* National character Area ([NCA 146](#)), it commands extensive views across the vale and beyond to the Blackdowns AONB, c. 8km south. A landscape garden and woodlands occupy south facing combs with pasture occurring on the gentler slopes. Hestercombe's character is greatly influenced by its Geology and soils, with the majority of the site found lying over the Devonian Morte Slate Formation on free-draining, slightly acidic loam soils.

A colony of lesser horseshoe bats *Rhinolophus hipposideros* utilise two roof voids at Hestercombe. One can be found within a former stable block which has been purposefully converted to a roost for lesser horseshoe bats. The other is a domestic outbuilding connected to the main house. These roof voids are utilised as maternity (breeding) roosts during the summer months, with a small number of bats also using the space as hibernation sites during the winter. The maternity colony is the qualifying feature of the SAC. The boundary encompasses the maternity roosts, however supporting habitat, links to the wider countryside and a food source are also essential to sustain the population.

About the qualifying features of the SAC

The following section gives you additional, site-specific information about this SAC's qualifying features. These are the natural habitats and/or species for which this SAC has been designated.

Qualifying Species:

- **S1303 Lesser horseshoe bat, *Rhinolophus hipposideros***

The lesser horseshoe bat is one of the UK's smallest bats and is so named because of its characteristic horseshoe shaped flap of skin around its nose, a noseleaf which they use in echolocation. Its fur is grey-brown on its back and white on its underside and they have a wing span of 19-25cm, half that of a greater horseshoe. It is one of the UK's rarest bats with a total population of approximately 50,000 individuals in the UK. Historic population declines means it is now restricted in its distribution to Wales, the West Midlands and South West England.

Hestercombe House is a large lesser horseshoe bat maternity site in the vale of Taunton. Although this maternity roost represents only a small proportion of the UK's population, it has been selected as it is representative of the species in South West England. Mating typically occurs from September to November and females will form the maternity colony in late spring. Usually a single pup is born in June or July and is weaned and fully independent by the end of August.

Some lesser horseshoe bats also hibernate in the roof void of the building, along with utilising the many buildings and structures found across the wider estate, but the hibernating population is not a designated feature of the SAC. Lesser horseshoe bats are particularly sensitive to disturbance, especially in their maternity and winter roosts, which is why such sites need specific protection. They also rely on the surrounding woodlands and grazed pasture for foraging, commuting between areas using linear features such as hedgerows within the landscape. Lesser horseshoe bats feeding will rarely fly more than five metres above the ground and will forage close to summer roosts (up to 4.2km away). The bats will also spend around half of their peak activity time within a radius of 600m feeding on a variety of insects including dung and crane flies, small moths, caddis flies, lacewings, small beetles, parasitic wasps and spiders.

The Lesser Horseshoe bat is also fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended), making it a 'European Protected Species'. A [licence](#) may therefore be required for any activities likely to harm or disturb lesser horseshoe bats.

Site-specific seasonality of SAC features

The table below highlights in grey those months in which significant numbers of the qualifying feature are most likely to be present at the SAC during a typical calendar year. This table is provided as a general guide only. The presence of the feature may vary depending on weather conditions.

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 SAC 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 features during the principal periods of site usage by the feature. The months which are *not* highlighted in grey are not ones in which the feature is necessarily absent, rather that the feature may be present in less significant numbers in typical years. Furthermore, in any given year, the feature may occur in significant numbers in months in which typically it does not. Thus, applicants should not conclude that projects or plans scheduled in months not highlighted in grey cannot have a significant effect on the feature. 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 feature 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	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Site-specific references where available
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>	Breeding													

Table 1: Supplementary Advice for Qualifying Features: S1303. *Rhinolophus hipposideros*; Lesser horseshoe bat

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Population (of the feature)	Population abundance-maternity colony	Restore the abundance of the breeding population of lesser horseshoe bats to a level which is above the baseline population-size of 200 individuals, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	<p>This will ensure there is a viable population of the feature which is being maintained at or increased to a level that contributes as appropriate to its Favourable Conservation Status across its natural range in the UK. Due to the dynamic nature of population change, the target-value given for the population size or presence 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 or presence 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 size 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 designated, and seeks to avoid plans or projects that may affect the site giving rise to the risk of deterioration. Similarly, where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the ongoing capacity of the site to accommodate the feature at such higher levels in future should also be taken into account in any assessment.</p> <p>Unless otherwise stated, the population size or presence will be that measured using standard methods, such as peak mean counts or breeding surveys. This value is also provided recognising there will be inherent variability as a result of natural fluctuations and margins of error during data collection. Whilst we will endeavour to keep these values as up to date as</p>	<p>Hestercombe House SSSI Favourable Condition Table (FCT), available from Natural England on request.</p> <p>DUVERGE, L. 2009. <i>A Report on Bat Surveys carried out at Hestercombe Site of Special Scientific Interest, Taunton, Somerset in 2007 and 2008.</i> Kestrel Wildlife Consultants Ltd.</p> <p>COOKSON & TICKNER, 2018. <i>Hestercombe Parkland Management Plan Feasibility Study.</i> Available from the national archive of parkland management plans.</p> <p>NATURAL ENGLAND, 2015. <i>Hestercombe House SAC Site Improvement Plan (SIP).</i> Available from: http://publications.naturalengland.org.uk/publication/5973745436983296</p> <p>Monitoring data is held by the Natural England Somerset Team and Taunton Deane Borough Council. Available on request.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>possible, local Natural England staff can advise whether the figures stated are the best available.</p> <p>One of the largest reported maternity colonies in Somerset with 200 bats using the site at the time of notification in 2005.</p> <p>Volunteers from the Somerset Bat Group have made annual summer counts of Lesser horseshoe bats from the two roost sites since 1987. Counts are made from the same locations each year but are not likely to record all of the bats existing the roosts, as radio tracking studies have shown that some bats leave from the main house in directions that are not counted.</p> <p>Total Lesser horseshoe bat counts for May/June recorded between 1987 and 2018 show a range of between 90 bats in June 2010 and 264 bats in June 1995. Lesser horseshoe bat numbers increased significantly after 1991, with 200+ bats counted annually between 1993 and 2002. The bat population has appeared to be declining since notification in 2005, with a significant drop to a low of 90 bats in 2010 thought to be a response to large scale habitat clearance which took place close to the roost in this year. Numbers have been gradually increasing year on year since 2010 and have reached an average count of 132 in 2018 still below that at notification.</p> <p>The definitive causes of the general decline in population abundance are unknown but likely to involve habitat change (to forage areas & flightlines), and may include human disturbance and the physical condition of the roost sites. A maternity roost site has also been identified at West Monkton which is less than 2km away. The possibility of re-location to this roost site at West Monkton also needs investigating.</p>	
Supporting habitat: extent and distribution	Extent of supporting habitat	Maintain the total extent of the lesser horseshoe bat colony and the habitats which support the lesser horseshoe bats during the breeding period.	In order to contribute towards the objective of achieving an overall favourable conservation status of the feature at a UK level, it is important to maintain or if appropriate restore the extent of supporting habitats and their range within this SAC. The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending on the nature, age and accuracy of data collection,	DUVERGE, L. 2009. <i>A Report on Bat Surveys carried out at Hestercombe Site of Special Scientific Interest, Taunton, Somerset in 2007 and 2008.</i> Kestrel Wildlife Consultants Ltd.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>and may be subject to periodic review in light of improvements in data.</p> <p>The two roosts at Hestercombe play a major role as both a breeding roost, and an important night roost for this colony, accounting for 62% of all logged night time roosting of radio-tagged bats in August 2007, and 56% in May 2008.</p> <p>Outside of the boundary of the SAC, but also potentially of some importance to the colony, due to its proximity to the roof of the main maternity roost (outbuilding connected to the main house) is a connected building with a large interconnected roof space linked to the roost. A building inspection in 2018 identified two large and discrete piles of lesser horseshoe bat droppings, though no bats were present at the time of survey. The roof space is relatively light-filled in places which could be contributing to its more limited use.</p> <p>Evidence of lesser horseshoe night roosting has also been identified across the wider estate, with droppings found in four buildings and structures that include Combe House Stables, Combe house dogs kennels, the restored rustic seat and Charcoal burners hut.</p> <p>12 additional temporary night roosts, which were used extensively, were located during 2007 and 2008 surveys (Duverge, 2009). There does not appear to be any other significant day roosts used by the colony within the vicinity of the SAC.</p> <p>A subsidiary maternity roost also occurs at West Monkton, less than 2km from Hestercombe.</p>	<p>COOKSON & TICKNER, 2018. <i>Hestercombe Parkland Management Plan Feasibility Study</i>. Available from the national archive of parkland management plans.</p> <p>BURROWS, L. 2018. <i>Hestercombe House Special Area of Conservation (SAC) Guidance on Development</i>. Somerset Ecology Services, Planning Control, Somerset County Council.</p>
Supporting habitat: extent and distribution	Distribution of supporting habitat	Maintain the distribution and continuity of the lesser horseshoe bat colony and its supporting habitat.	A contraction in the range, or geographic spread, of the feature (and its component vegetation) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. Contraction may also reduce and break up the continuity of a habitat within a site and how well the species feature is able to occupy and use habitat within	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>the site. Such fragmentation may have a greater amount of open edge habitat which will differ in the amount of light, temperature, wind, and even noise that it receives compared to its interior. These conditions may not be suitable for this feature and this may affect its viability.</p> <p>See 'Supporting and Explanatory Notes' for the 'Extent of supporting habitat' attribute, above.</p>	
Supporting habitat: structure/function	External condition of building - maternity colony	Maintain the structural integrity and weatherproofing of the roof, walls and rainwater goods, with no significant shading of the main roost area by trees/vegetation or manmade structures.	<p>Damp, draught and increases in light levels are likely to have a negative effect on the temperature and humidity of the roost.</p> <p>There are plans to re-roof the main house in the future.</p>	<p>NATURAL ENGLAND, 2015. <i>Hestercombe House SAC Site Improvement Plan (SIP)</i>. Available from: http://publications.naturalengland.org.uk/publication/5973745436983296</p>
Supporting habitat: structure/function	Supporting off-site habitat (flightlines)	Restore the presence, structure and quality of any linear landscape features which function as flightlines. Flightlines should remain unlit, functioning as dark corridors.	<p>Lesser horseshoes tend to forage within 2.5km of their roost, though they can travel up to 4km from their roosts to suitable foraging grounds (Schofield, 2008). Lesser horseshoes commute and forage along linear features over wet grassland and woodland. Permanent pasture and ancient woodland linked with an abundance of tall bushy hedgerows is ideal supporting habitat for this species. Flightlines will extend beyond the designated site boundary into the wider local landscape.</p> <p>A number of flightlines have been recorded for the Hestercombe bat colony, linking distant regions of the colony's range and providing good foraging opportunities for commuting bats. The data shows that they fly along well-developed vegetated boundaries when commuting. These have been mapped for reference in the Hestercombe 2007-8 Lesser horseshoe bat survey report (Duverge, 2009).</p> <p>Earlier surveys suggest that individuals at the main house roost exit the roost and disperse to the formal landscape garden to access woodland to the east such as Gotten Wood. More recent observations suggest that the bats cross a driveway into</p>	<p>DUVERGE, L. 2009 <i>A Report on Bat Surveys carried out at Hestercombe Site of Special Scientific Interest, Taunton, Somerset in 2007 and 2008</i>. Kestrel Wildlife Consultants Ltd.</p> <p>MOTTE, G & LIBOIS, R 2002. <i>Conservation of the Lesser Horseshoe Bat (Rhinolophus hipposideros Bechstein, 1800) (Mammalia Chiroptera) in Belgium. A case study in feeding requirements</i>. <i>Belgium Journey of Zoology</i> 132: 47-52</p> <p>SCHOFIELD, H. 2008. <i>The Lesser Horseshoe Bat Conservation Handbook</i>. Vincent Wildlife Trust.</p> <p>SMITH, 2014. <i>Hestercombe</i></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>shrubbery and commute along a series of ponds and cascades to the north of the site. This involves crossing an open area along the lower edge and weir of the 'Pear Pond'. This area has been opened up to restore a 'treasured viewpoint', from the gateway of the Dutch garden up across the Pear Pond to the Temple Arbour, which is part of the historic Lutyen garden design. Linking features are highly important to the survival of Lesser Horseshoe bats in a landscape of fragmented woodlands (Motte & Libois, 2002). Lesser Horseshoe bats wherever possible will avoid crossing open areas and are vulnerable to the loss of these corridors. A study in Belgium showed that bats were not recorded further than 1m from a feature (Motte & Libois, 2002). Lesser horseshoe bat numbers may be negatively affected by changes in emergence and flight patterns as a result of the loss of linking features.</p> <p>Hestercombe Gardens is a public access site and artificial lighting is in use but usually before bats emerge, with the occasional occurrence of special evening events. Lesser horseshoe bat numbers may be negatively affected by this disturbance.</p>	<p><i>Gardens Environmental Review, Appendix VI, Ecology & biodiversity – III, Conserving Hestercombe's Lesser horseshoe bats: an update.</i> Unpublished report for Hestercombe Gardens Trust by Farm & Countryside Liaison Services.</p>
Supporting habitat: structure/function	Supporting off-site habitat (foraging areas)	<p>Maintain any core areas of feeding habitat outside of the SAC boundary that are critical to lesser horseshoe bats during their breeding period</p> <p>Consideration to be given to foraging habitat such as woodland, ponds, watercourses, hedgerows, woodland edges, tree lines, rough grass and pasture within a 6km Zone around the SAC.</p>	<p>Roost choice, and the presence of bats within the SAC, is likely to be influenced by the site's ability to provide bats with food and shelter. Key feeding areas around a roost, and the commuting routes (or flightlines) between them, will be an important element of sustaining the SAC population.</p> <p>Lesser horseshoes tend to forage within 2.5km of their summer roost, though they can travel up to 4km from these roosts to suitable foraging grounds (Schofield, 2008). Within the winter, their foraging range is reduced, with a mean foraging radius of 1.2 km around hibernation sites reported. Lesser horseshoes commute and forage along linear features over wet grassland and woodland. Permanent pasture and ancient woodland linked with an abundance of tall bushy hedgerows is ideal supporting habitat for this species (Billington, 2005). Flightlines should remain as unlit, dark corridors.</p> <p>Flightlines will extend beyond the designated site boundary into</p>	<p>BURROWS, L. 2018 <i>Hestercombe House Special Area of Conservation (SAC) Guidance on Development.</i> Somerset Ecology Services, Planning Control, Somerset County Council.</p> <p>BILLINGTON, G. 2005 <i>Radio Tracking Study of Lesser horseshoe bats at Hestercombe House Site of Special Scientific Interest.</i> Report to English Nature</p> <p>DUVERGE, L. 2009 <i>A Report on Bat Surveys carried out at Hestercombe Site of Special Scientific Interest, Taunton,</i></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>the wider local landscape.</p> <p>The SAC designation encompasses maternity roosts and entrances, however to sustain the population, the provision of links to the wider countryside with supporting foraging habitat has to be sufficient.</p> <p>The lesser horseshoe bats at Hestercombe exhibit a broad diet and largely forage unselectively. They feed on a variety of insects including dung and crane flies, small moths, caddis flies, lacewings, small beetles, parasitic wasps and spiders.</p> <p>Early radio tracking studies of the lesser horseshoe bat population at Hestercombe have shown that the bats range up to 6km from the roost and utilise a variety of habitats for foraging, with bats recorded in open pasture, woodland, over arable fields, along woodland tracks, field edges, road verges, allotments, amenity grassland, marshy fields, ditches and lakes. Further studies in 2007 and 2008 found the majority of bats foraged within 1-4km of the roost, with the majority remaining within 2km.</p> <p>The current understanding of key roosts and supporting habitat associated with the SAC have been used to identify a 6km sustenance zone where Lesser horseshoe bats are likely to be present centred around the maternity roost at Hestercombe House. Bands within the zone reflect the likely importance of the habitat for bats and proximity to the maternity and other roost sites. Any development activity taking place within this Zone has the potential to impact on the Hestercombe House SAC. Special consideration is also to be given to habitat within 600m of the roost site, within the juvenile sustenance Zone. Feeding areas within this 600m zone are vitally important during spring and summer months for pregnant and lactating females, as well as their young, with bats spending about half their peak activity time within this zone.</p>	<p><i>Somerset in 2007 and 2008.</i> Kestrel Wildlife Consultants Ltd.</p> <p>SCHOFIELD, H. 2008. <i>The Lesser Horseshoe Bat Conservation Handbook.</i> Vincent Wildlife Trust.</p> <p>SOMERSET COUNTY COUNCIL, 2008. <i>Lesser Horseshoe Bat Diet Analysis, Hestercombe House, Taunton, Somerset.</i> Knight Ecology Ltd.</p>
Supporting habitat: structure/fun	Internal condition of building -	Restore humidity, temperature and ventilation. Maintain appropriate light levels.	The preferred internal temperature within a maternity roost for lesser horseshoe bats is approximately 34°C (Schofield, 2008).	COOKSON & TICKNER, 2018. <i>Hestercombe Parkland Management Plan Feasibility</i>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
ction	maternity		<p>Data logger temperature recordings taken from the two maternity roost sites over the May-August 2017 maternity period showed an average temperature in the stable roost of 24.5°C (range 14.5-50.5°C), with an average of 21.1°C in the main roost (range 13.0°C-27.5°C).</p> <p>It is likely that the main house roost is more susceptible to draughts due to its open rectangular internal shape and open loft hatch. It also does not benefit from passive building heat unlike the stable roost which is within an occupied heated building.</p>	<p><i>Study</i>. Available from the national archive of parkland management plans.</p> <p>SCHOFIELD, H. 2008. <i>The Lesser Horseshoe Bat Conservation Handbook</i>. Vincent Wildlife Trust.</p>
Supporting habitat: structure/function	Roost access	Maintain the number of access points to the roost at an optimal size and in an unlit and unobstructed state. Restore surrounding vegetation to provide sheltered flyways without obstructing accesses.	<p>This will prevent any negative internal climatic changes within the roost and maintain the ability of bats to freely enter and leave the roost as necessary. Normal minimum dimensions for lesser horseshoe access points: 300 x 200mm.</p> <p>Lesser horseshoe bat access to and from the roost in the domestic outbuilding appears to be via an open loft hatch. From the stable roost, bats access to and from the roost, via a purpose built louvered air vent on the north facing roof pitch which is the sole exit/entry point.</p> <p>Trees and shrubs close to roost exit points, have been removed over recent years. This includes extensive bush clearance immediately across the driveway from the emergence point at the main house. Lesser horseshoe bat numbers may be negatively affected by these changes and/or emergence and flight patterns may have changed as a result.</p> <p>Courtyard lighting is in place which has potential to inhibit the roost exit from the domestic outbuilding connected to the Main House.</p> <p>Security lighting is in place near the Stable block, this is a passive infrared sensor-triggered LED system which was approved through the planning process.</p>	<p>COOKSON & TICKNER, 2018. <i>Hestercombe Parkland Management Plan Feasibility Study</i>. Available from the national archive of parkland management plans.</p> <p>SMITH, 2014. <i>Hestercombe Gardens Environmental Review, Appendix VI, Ecology & biodiversity – III, Conserving Hestercombe’s Lesser horseshoe bats: an update</i>. Unpublished report for Hestercombe Gardens Trust by Farm & Countryside Liaison Services.</p>
Supporting processes (on which the	Adaptation and resilience	Maintain the lesser horseshoe bat’s ability, and that of its supporting habitat, to adapt or	This recognises the increasing likelihood of supporting habitat features to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological	NATURAL ENGLAND. 2015. <i>Climate Change Theme Plan and supporting National Biodiversity</i>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
feature and/or its supporting habitat relies)		evolve to wider environmental change, either within or external to the site	<p>system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning. Such environmental changes may include changes in sea levels, precipitation and temperature for example, which are likely to affect the extent, distribution, composition and functioning of a feature within a site. The vulnerability and response of features to such changes will vary. Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability.</p> <p>The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being low, taking into account the sensitivity, fragmentation, topography and management of its supporting habitats. This means that this site is considered to be vulnerable overall but is a lower priority for further assessment and action. Individual species may be more or less vulnerable than their supporting habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable.</p> <p>With reference to actual or expected climate change any increase in winter temperatures potentially could result in less time spent in torpor/hibernation e.g. more frequent awakening or earlier spring emergence. This would dictate the need for an earlier food source combined with frequent winter feeding. An increase in wet weather may also see a decrease in hunting ability, as bats avoid hunting in heavy rain due to increased energy costs.</p> <p>Changing vegetation around roost sites could potentially affect the humidity of sites and food availability during winter emergence. Wider landscape changes in vegetation may also affect food availability and flightlines between foraging areas. Climate change resilience will be aided by the protection, maintenance and restoration of quality foraging habitat close to the roost site to enable sufficient feeding to be undertaken in</p>	<p><i>Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England.</i> Available at: http://publications.naturalengland.org.uk/publication/4954594591375360</p> <p>SHERWIN, H.A., MONTGOMERY, W.I. & LUNDY, M.G. 2013. <i>The Impact and Implications of Climate Change for Bats.</i> Mammal Review 43: 171-182.</p> <p>VOIGT, C.C., SCHNEEBERGER, K., VOIGT-HEUCKE, S. & LEWANZIK, D. 2011. <i>Rain Increases the Energy Cost of Bat Flight.</i> Biology Letters 7: 793-795.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			sub-optimal weather conditions.	
Supporting processes (on which the feature and/or its supporting habitat relies)	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 supporting habitat of this feature is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition (including food-plants) and reducing supporting habitat quality and population viability of this feature. Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant 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. 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. 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>Mixed woodland occupies West Combe, Middle Combe and Hestercombe, with also a number of outlier woodlands providing key foraging habitat close to the maternity roosts. Target set to Restore because the current levels of nitrogen deposition (APIS accessed on 10 January 2019) exceed the critical loads for this supporting foraging habitat of broadleaved, mixed and yew woodland. Exceedance impacts can include changes in soil processes, nutrient imbalance, altered composition of mycorrhiza and ground vegetation. Deposition of other measured pollutants such as Ammonia, Nitrogen Oxides, Sulphur Dioxide and Acid deposition are within the limits given for this habitat type.</p>	More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).
Supporting processes (on which the	Conservation measures	Maintain the management measures (either within and/or outside the site boundary as	Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. Further details about the necessary conservation measures for this site	BURROWS, L. 2018 <i>Hestercombe House Special Area of Conservation (SAC)</i>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
feature and/or its supporting habitat relies)		appropriate) which are necessary to Maintain the structure, functions and supporting processes associated with lesser horseshoe bats and/or its supporting habitats.	<p>can be provided by contacting 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>To maintain appropriate conditions for this maternity roost site consideration needs to be given to temperature and humidity regimes, access points, lighting and vegetation links where bats emerge. Lesser horseshoe bats also utilise different foraging areas at different times of year, the security of the colony at Hestercombe depends on the continued maintenance of supporting habitat and interconnecting links.</p> <p>Surrounding the SAC maternity roost, the series of wooded coombes and a wildflower meadow which has been created are being managed through a Countryside Stewardship agreement with appropriate management in place to maintain this important foraging habitat. A decoy pond is also to be restored which will support a good population of aquatic insects, a favoured food source of lesser horseshoe bats.</p> <p>Hestercombe Gardens Trust in October 2018 purchased an additional 129ha of parkland surrounding the SAC. Adopting sensitive management of the land with the assistance of Agri-Environment funding will help promote the sustainability of the lesser horseshoe bat population at Hestercombe. The current land use is primarily improved pasture supporting dairy cattle. There is scope to increase connectivity in the landscape whilst managing the existing network of hedgerow and trees for lesser horseshoe bats. The introduction of a sympathetic grazing regime with minimal use of insecticides should also be considered. There are also plans to create further areas of species-rich grassland which will attract higher densities of insects.</p>	<p><i>Guidance on Development</i>. Somerset Ecology Services, Planning Control, Somerset County Council.</p> <p>ENGLISH NATURE, 2004 <i>A statement of English Nature's views about the management of Hestercombe House Site of Special Scientific Interest (SSSI)</i>. Available from: https://designatedsites.naturalengland.org.uk/PDFsForWeb/VAM/2000424.pdf</p> <p>NATURAL ENGLAND, 2015. <i>Hestercombe House SAC Site Improvement Plan (SIP)</i>. Available from: http://publications.naturalengland.org.uk/publication/5973745436983296</p>
Supporting processes (on which the	Disturbance from human activity	Control and minimise human access to roost sites	Site should be secured against unauthorised access, which can result in disturbance to bats at critical times of year and which can affect their population viability and use of the site.	Bats: Protection and Licences, available from https://www.gov.uk/guidance/bats

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
feature and/or its supporting habitat relies)			<p>The roosts occupy roof spaces within the Main House and Stable Block, the only risk of disturbance is when either routine maintenance or the need for more substantial building works arises. This type of work would need to be completed under a Natural England Licence and Consented.</p> <p>An infra-red camera has been installed in the Stable Block roof void to provide visitors to Hestercombe with a view of the maternity colony. The camera requires ongoing maintenance repairs.</p>	-protection-surveys-and-licences
Supporting processes (on which the feature and/or its supporting habitat relies)	Water quantity/ quality	Maintain water quality and quantity of supporting habitats to a standard which provides the necessary conditions to support lesser horseshoe bat.	<p>For many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year. Poor water quality and inadequate quantities of water can adversely affect the structure and function of this habitat type. Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the achievement of SAC Conservation Objectives but in some cases more stringent standards may be needed to reflect the ecological needs of the species feature. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.</p> <p>Bontadina <i>et al.</i> (2002) found that woodland associated with water was the most preferred habitat by lesser Horseshoe bats. A food supply is provided by mosquitoes, caddis fly larvae, gnat larvae and gnats and midges. There are a number of streams and ponds on the Hestercombe Estate which are associated with wooded combs close to the SAC roost.</p> <p>An assessment of tree cover along water courses and standing water bodies has been recommended by Knight Ecology Ltd (2008), to determine whether opportunities for foraging and planting exist.</p>	<p>BONTADINA, F. SCHOFIELD, H & NAEF-DAENZER, B. 2002. <i>Radio-tracking reveals that Lesser Horseshoe bats (Rhinolophus hipposideros) forage in woodland.</i> Journal of Ecology 252: 281-290.</p> <p>KNIGHT ECOLOGY LTD., 2008. <i>Lesser Horseshoe Bat Diet Analysis, Hestercombe House, Taunton, Somerset.</i> Report to Somerset County Council.</p>
Version Control				
Advice last updated: N/A				

Attributes	Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<p>Variations from national feature-framework of integrity-guidance:</p> <ul style="list-style-type: none"> Removed the attribute 'External condition of underground site - maternity and hibernation'. The lesser horseshoe bats occupy roof void spaces and whilst they utilise underground sites for hibernation across the wider estate this is not part of the SAC designation. The attribute 'Disturbance from human activity': removed 'Grilles on site access points should be maintained where present' from 'Supporting and Explanatory notes' column as not applicable in this instance as bats occupy roof voids. Deleted 'Soils' attribute as a tenuous link to SAC feature through supporting habitat types and no specific evidence available. 			