

Greater horseshoe bat

1. A Definition

The greater horseshoe bat (*Rhinolophus ferrumequinum*) is a rare species in Britain, now confined to South-West England and South Wales.

It is so-named from the curiously shaped external nose membrane. This species, and its close relative the lesser horseshoe bat, are also known collectively as the "leaf-nosed" bats.

It has a wingspan of 30-35 cm, and measures about 9cm when it is hanging at roost. Horseshoe bats can be easily identified at roost without the need for too close an inspection as they sleep with their wings wrapped tightly around the body.

In Devon it breeds in disused farm buildings and caves, and over-winters underground, mostly in caves, mines or cellars, but increasingly, in buildings. The feeding habitat requirements of the greater horseshoe are permanent pasture (unimproved and semi-improved, preferably grazed by cattle), tall hedgerows with mature trees, and mixed deciduous woodland, wetland and scrub.

2. Why an Action Plan?

The greater horseshoe bat population has experienced a drastic decline over the last century, and, although in recent years there are encouraging signs of the start of a recovery, the species requires a good deal of conservation attention for it to once more become a familiar feature of our mammal fauna.

Devon is now the most important county in England and Wales for the greater horseshoe bat, and as such we have a national responsibility to ensure that this rare and beautiful mammal thrives in the county.

3. Relevant ecology

During the summer, female bats form maternity colonies where reproductively active individuals gather to rear their young. Bats are strongly attached to traditional maternity sites, which are often in disused farm buildings or in caves, and will return time and time again to the same site. Bats choose buildings with large entrance holes with access to large roof spaces warmed by the sun.

Mating occurs during the autumn, but can take place in late winter or even in spring. Maternity colonies begin to gather in May and reach peak numbers in June and July. The young can open their eyes at nine days, and at first they are fed on their mother's milk, but after about five weeks they can fly and hunt for insects themselves. They are fully weaned at seven weeks old, when the adults usually leave the colony, but juveniles and some immature individuals may stay until October or even later.

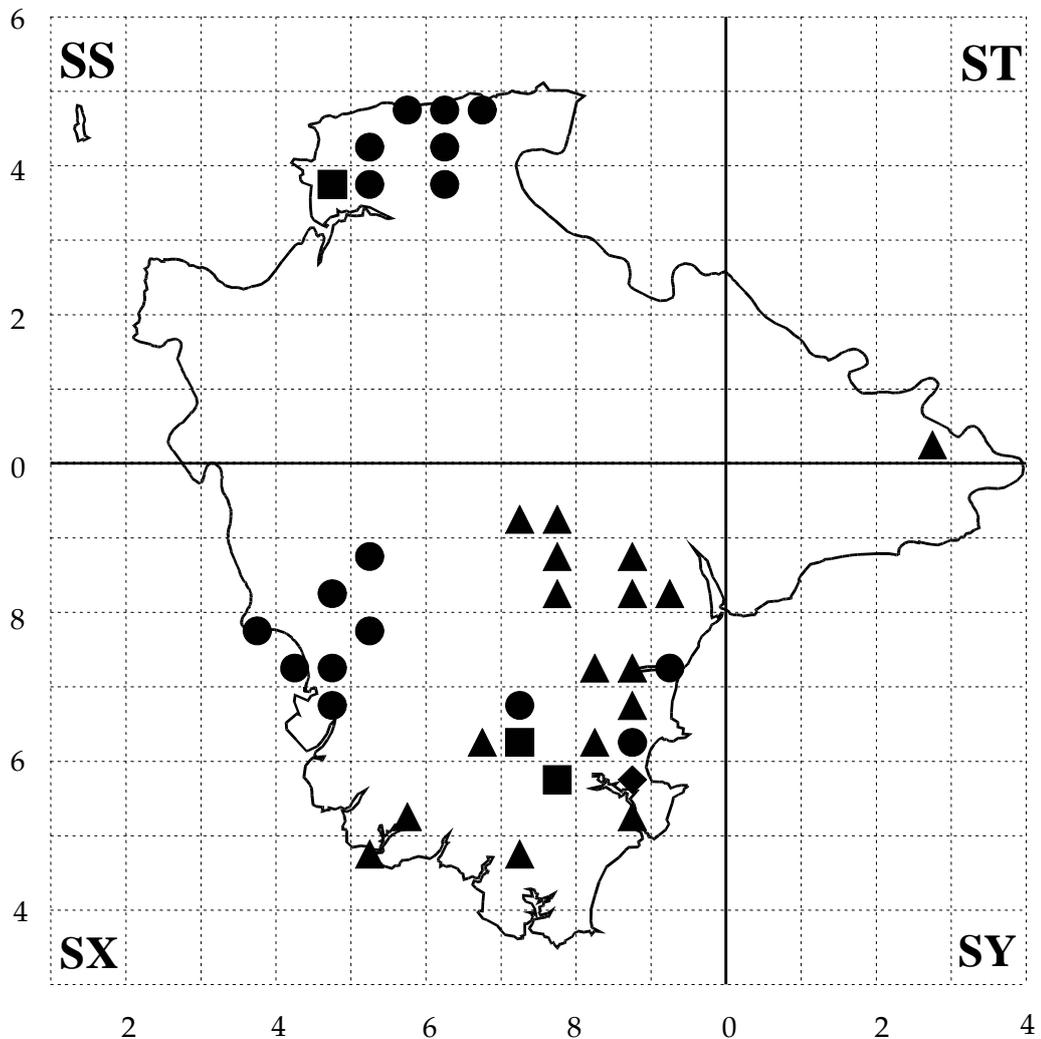
During the winter, greater horseshoe bats hibernate in caves or mines, cellars, disused railway tunnels, and, increasingly, in buildings. These sites can be up to 50 km from the maternity roosts used in summer. Greater horseshoe bats may hibernate from late September to mid May, depending on weather conditions and food availability. They will wake from hibernation at intervals through the winter in search of suitable temperatures (movements of 30 km between sites are not unknown) and will feed in mild winter weather.

The quality of feeding areas is of great importance to bats, and feeding areas around maternity roosts must be considered as of the highest priority to them, as bats have greatest nutritional requirements during pregnancy and lactation. These areas are also vital to juvenile bats when they are learning to hunt.

Most feeding activity is concentrated in an area within 3 km of the roost, and the most important types of habitat for feeding have been shown to be hay meadows, permanent pasture grazed by cattle, and wetlands features such as stream lines and wet woodland. These habitats support the high densities of insects that bats need to survive. Features such as hedgerows and tree lines are important as commuting routes between feeding areas and the roost, and are themselves a useful source of food.

Greater horseshoe bats are rather selective in their diet; favourite items are larger beetles (especially cockchafers, dor beetles and dung beetles), noctuid moths, craneflies and caddisflies.

4. Distribution of greater horseshoe bat in Devon



Greater Horseshoe Bat roost presence in 5 Km squares (1997)

■ Breeding ● Hibernating ◆ Transitory ○ Unknown

(Data supplied by Devon Bat Group, Tamar Valley Bat Project and J. Breeds)
2004 update: Also maternity sites at Tamar Valley, Berry Head and Chudleigh

5. Current population

In 1998, Devon was estimated to hold from 1400 to 2800 greater horseshoe bats, with the total for Britain estimated at between 4000 and 6600 (JNCC 1995).

A Natural England contract with the Bat Conservation Trust resulted in 2502 adults being counted leaving 7 maternity roosts at dusk in July 2007 (or 2006 if no 2007 data was available). This is an increase from the 2143 adults counted leaving 7 maternity roosts at dusk in July 2005 (or 2004 if no 2005 data was available).

6. Current problems for greater horseshoe bat in Devon (1998)

Factors affecting roosts:

- Disturbance of roosts in buildings and underground sites due to human activities.
- Loss of roost sites in buildings through development/barn conversions, repairs such as re-roofing, or by wholesale destruction of a building.
- Loss of hedgerows and interruption to their continuity, particularly in the vicinity of important roosts, which provide travel routes along which bats fly between roosts and feeding sites.
- Loss of underground roost sites, especially mines, by infilling or capping.
- Use of remedial timber treatments in roofs at inappropriate times can disturb or poison bats.

Factors affecting foraging habitat:

- Reductions in insect prey abundance and diversity of feeding habitats due to intensive agricultural systems (conversion of permanent pasture to arable, regime of temporary leys which are ploughed and reseeded every few years, loss of wetlands, woodlands and hedgerows).
- Use of avermectins to control internal parasites of livestock leads to a reduction in the number of insects that breed on dung, since the drug is excreted in the dung.
- Loss and over-management of hedgerows: appropriately managed hedgerows provide the bats with insect food and sheltered commuting routes while overhanging trees in hedges provide perches from which the bats make feeding sorties. Annual flail cutting reduces the availability of insect prey, sheltered commuting routes and feeding perches.

7. Recent changes in population

Nationally, the decline of the greater horseshoe bat is said to have been about 99% over the last century, although in the last few decades a slight increase in numbers has occurred. In Devon, the greater horseshoe bat appears to be on the increase, although the species is still relatively scarce.

2004 update: Largely as a result of the Greater Horseshoe Bat Project, numbers have increased by 58% since 1995.

8. Current protection

- Appendix II of the Bern Convention (and Recommendation 36 on the Conservation of Underground Habitats).
- Appendix II of the Bonn Convention (and in the Convention's Agreement on the Conservation of Bats in Europe).
- Annexe II and Annex IV (a) of the EC Habitats Directive.
- Schedule 2 of the Conservation (Natural Habitats, *etc.*) Regulations, 1994 (Regulation 38). This legislation (Regulation 37) also states the requirement to conserve linear features in the wider countryside (a key feature in the ecology of greater horseshoe bat).
- Schedule 5 of the Wildlife and Countryside Act (WCA) 1981 (as amended), which prohibits killing, taking and disturbance of this species.
- In Devon seven SSSIs (notified under section 28 WCA 1981 as amended) contain winter and summer roosts used by greater horseshoe bats as notified features of interest.
- In Devon two Special Areas of Conservation (SAC) are designated under the EC Habitats Directive: South Devon and Beer Quarry & Caves. The component SSSIs of the former are: Berry Head to Sharkham Point, Buckfastleigh Caves, Bulkamore Iron Mine, Chudleigh Caves and Woods and Haytor and Smallacombe Iron Mines.

9. Current positive initiatives for greater horseshoe bat in Devon

2004 update: since the publication of the 1998 BAP the following positive initiatives have been undertaken:

- Notified Caen Valley Bats SSSI, the second largest maternity roost in UK.
- Carried out radio-tracking studies at four maternity roosts (published as English Nature Research Reports; ENRRs) to identify foraging and

commuting areas, to assist with agri-environment scheme targeting and development control casework.

- English Nature employed a GHB Project Officer 1998-2003. Visited 161 farms in Devon in landscapes around roosts, securing over 50 management agreements for GHBs. Carried out formal and informal training for at least 12 partner organisations. Published 'Managing landscapes for greater horseshoe bats' leaflet. Published ENRR 532 on Project achievements.
- Published articles about GHB conservation in 24 local and national publications, five TV outlets and presented papers at eight conferences/seminars.
- Currently part-funding GHB farm advisor posts in Dartmoor Biodiversity Project and Tamar Valley AONB.
- Secured identification of roost sustenance zones as planning alert zones in all district local plans containing GHB maternity roosts.
- Worked with DEFRA on implementing DEFRA licensing system for disturbance to roosts.

10. Biodiversity planning context

The Devon Biodiversity Action Plan forms a key link in the chain of biodiversity planning running from the National Plan, through regional guidance, to local delivery.

National BAP Context

Species of principal importance in England (NERC Act, S.41):

- Greater horseshoe bat

Current national BAP targets can be viewed on the [Biodiversity Action Reporting System](#) (BARS).

Associated Action Plans within the Devon BAP:

- Grazing marsh
- Caves, karst and limestone habitats
- Pits, quarries and cuttings

- Mines and mineral waste tips
- Rivers, streams, floodplain and fluvial processes

- Flower-rich meadows and pastures
- Oak woodland
- Cirl bunting

English Nature's Natural Area Biodiversity Profiles contain key objectives for the conservation of nature and earth science. Natural Areas within Devon which are of primary importance for greater horseshoe bats are:

- Dartmoor
- South Devon
- Exmoor and the Quantocks
- Lyme Bay

Those of secondary importance are:

- Blackdowns
- The Culm
- Devon Redlands
- Land's End to Minehead

11. Biodiversity objectives and targets for greater horseshoe bat in Devon

Objective 1

Maintain and where necessary enhance all existing maternity roosts and associated hibernation sites in Devon.

Target: Ongoing.

Objective 2

Improve management of foraging areas in the vicinity of maternity roosts.

Target: 50% of suitable foraging areas within 4km of all maternity roosts to be in appropriate management by 2010.

Objective 3

Achieve an increase in the population of greater horseshoe bats in Devon.

Target: 25% increase by 2010.

12. Wider benefits from pursuing these objectives

The pursuit of the objectives and targets set out above will not only benefit the greater horseshoe bat. Conservation has wider benefits and advantages for society, by providing a resource that is the basis of many aspects of the local economy, and by adding to the quality of life of the people of Devon in ways that are beyond financial measure. Thus enhancing the interests of biodiversity will also enhance the interests of society as a whole. Some of these wider benefits are as follows:

- The use of buildings as a roost site by bats provides the human inhabitants with a great deal of pleasure and interest. In the case of greater horseshoe, this is all the more acute, and owners of roost sites can feel justly proud that these scarce and fascinating mammals have chosen to roost with them.
- Many other forms of farmland wildlife will benefit from the results of the measures outlined in this Action Plan. Pursuing these objectives will contribute to making the agricultural environment of Devon rich in wildlife of all kinds, as well as economically sustainable.

13. Priority or indicative actions for greater horseshoe bat in Devon

Action	Key Partners
1. Ensure that local authorities implement PPG9 (and revisions) in respect of bats, their roosts and associated habitat requirements (e.g. linear features) to include adopting and implementing appropriate policies to protect and enhance populations through local plans and nature conservation strategies.	LAs; NE; DWT; DBG; VWT
2. Seek to ensure that agri-environment schemes contain appropriate management prescriptions, particularly for pastures, hedgerows and deciduous woodlands and are targeted at key areas.	DEFRA; NE; FWAG; DWT, LAs
3. Ensure that all major roosts are under sympathetic management and protection, including enhancement work, especially to those sites that once held large clusters of bats.	DBG; NE; Site owners
4. Promote the sympathetic management of pasture, hedgerows and deciduous woodlands and wetland and riparian habitats within 4 km of major breeding roosts through targeted agri-environment schemes and advisory work. Target areas,	DEFRA; NE; DWT; FWAG; DBG; FC

Action	Key Partners
especially Dartmoor, South Devon, Exmoor and the Quantocks and Lyme Bay.	
5. Monitor roosts according to national protocols ensuring information gathered is passed on to JNCC for incorporation into the national database. Species data should also be held by DBRC. Provide data to NBN. Seek radio-tracking flight maps for all important maternity roosts.	DBG; NE; VWT; DWT; Site owners
6. Produce and revise yearly a distribution map of Greater Horseshoe Bats in Devon including summer and winter distribution.	DBG; DBRC; VWT
7. Promote the co-operation of local groups and individuals with knowledge of bats (e.g. bat groups, cavers, mine history groups, mineralogists) to increase recording.	DWT; VWT; NE; DBG; BCT; Site owners
8. Continue to raise awareness and promote bat-friendly habitat and building management to landowners, householders and farmers through articles, journals, newspapers, information leaflets and training.	NE; BCT; DWT; DBG; NFU; FWAG

Greater Horseshoe Bat Action Plan Champion: Natural England

Abbreviations used in text and table

BAP	Biodiversity Action Plan
BCT	Bat Conservation Trust
DEFRA	Department of Environment, Food and Rural Affairs
DBG	Devon Bat Group
DBRC	Devon Biodiversity Records Centre
DWT	Devon Wildlife Trust
NE	Natural England
FC	Forestry Commission
FWAG	Farming and Wildlife Advisory Group
JNCC	Joint Nature Conservation Committee
LAs	Local Authorities
NFU	National Farmers Union
PPG	Planning Policy Guidance
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
VWT	Vincent Wildlife Trust
WCA	Wildlife and Countryside Act

Discontinued bodies referred to in text:

DOE	Department of the Environment (now Defra)
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