The Vincent Wildlife Trust

Horseshoe Bats

What is a horseshoe bat?

Worldwide there are over 85 species of horseshoe bats. Five are found in Europe, but only two, the greater and lesser horseshoe bat, are native to the British Isles.

Horseshoe bats have a circular flap of skin surrounding their nostrils and the horseshoe shape of this 'nose-leaf' gives these bats their name.

The greater horseshoe, weighing between 13-34g, is one of our largest bat species. It has buff-brown fur, except in animals of less than one year old which are dark grey.

Lesser horseshoe bats have a similar fur colour and weigh between 4-9g, making them one of the smallest mammals found in the British Isles. At rest, both species hang free and often wrap their wings around their body.

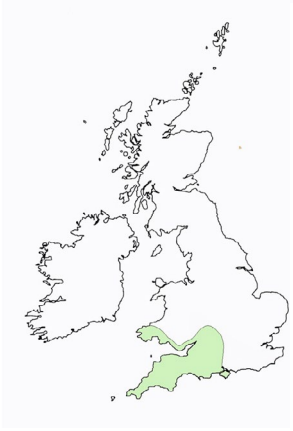
Photo (top): *Lesser horseshoe bat*
© Frank Greenaway

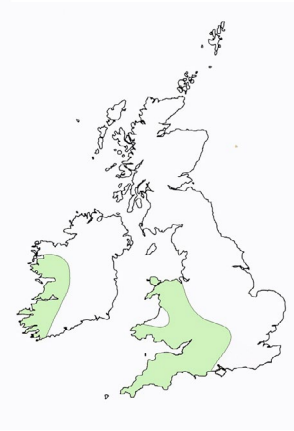
Photo (bottom): *Greater horseshoe bat*
© Colin Morris

The history of horseshoe bats in Britain and Ireland

In 1900, the northern limit of the range of greater horseshoe bats spanned from London to Aberystwyth, when it is estimated they numbered some 300,000 individuals. Today, the core population of some 9,000 greater horseshoe bats is centred on south Wales and south-west England, although in recent years increasing numbers have been recorded as far away as north Wales and Surrey.

Nowadays, the lesser horseshoe bat is restricted to Wales, the west midlands and south-west England, but in the early 1900s it was found as far north as Yorkshire and east along the south coast of England to Kent. The size of the British population at that time is unknown, but it is certain to have been much higher than today's estimate of about 56,000 individuals.





Map (left):
Current distribution of greater horseshoe bats

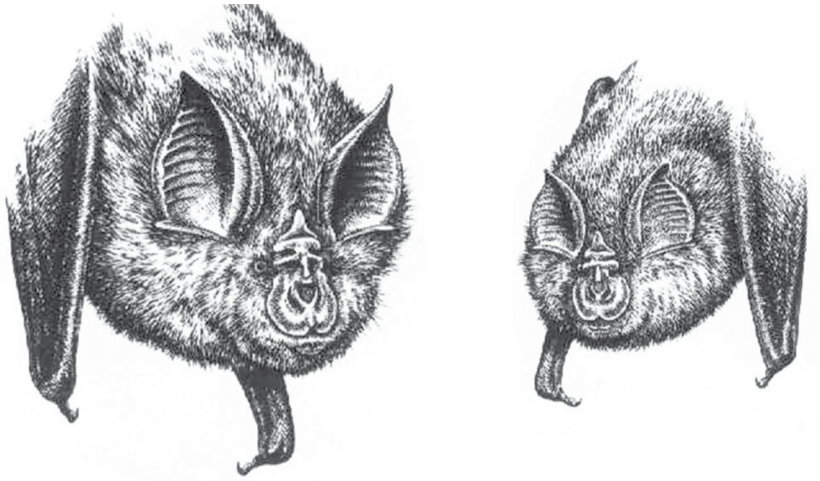
Map (right):
Current distribution of lesser horseshoe bats

Of the two species, only the lesser horseshoe bat is found in Ireland where a population of 12,500 individuals is restricted to the mid-west and south-west of the country.

The decline of the populations of horseshoe bats is thought to have been caused by loss of suitable summer and winter roosts, as well as a reduction in the availability of their insect prey caused by changes in land use and agricultural practices, such as the increased use of pesticides.

Where horseshoe bats live

Historically horseshoe bats roosted throughout the year in caves, but it is believed that changes in climate and the influence of expanding human populations caused a change in roosting behaviour. Today, the bats use buildings as their summer breeding roosts but are highly selective in the type of buildings they choose.



Illustrations (left): *Greater horseshoe bat,* **(right):** *Lesser horseshoe bat*

Roosts are generally buildings constructed before 1900, built of stone with slate roofs. They are usually relatively undisturbed and often uninhabited by people, for example coach houses or other outbuildings. In these buildings they usually roost in warm roof spaces, although some colonies are found in heated cellars. Horseshoe bats prefer to enter and leave buildings through large apertures such as open doorways or windows.

Hibernation still takes place in underground sites such as caves, disused mines, ice houses or unheated cellars. Usually these sites are undisturbed and have high humidity levels and stable, cool temperatures.

The lifecycle of horseshoe bats

Potentially horseshoe bats are long-lived animals. Greater horseshoe bats have been known to live for over thirty years and lesser horseshoe for over twenty, but it is likely that the average life spans are considerably less than in these exceptional cases.

Horseshoe bats feed on insects, which from late autumn to spring are either in short supply or unavailable. The animals survive this period by hibernating. Lowering their body temperature saves energy and allows them to live on the fat accumulated during the late summer and early autumn. However, hibernation is not a completely static time and the bats will emerge to drink and feed if the weather conditions are favourable. Late autumn and early winter are also the times when most mating takes place.

As horseshoe bats emerge from hibernation at the end of April, the females group together in buildings to form maternity colonies. They may be joined by small numbers of males and immature animals, although these often roost in different parts of the building. Females give birth from late June through to the end of July. The single young, which at birth weighs between 25 and 33% of its mother's body mass, grows rapidly and is weaned at around 42-45 days of age. After this time the summer colonies break up as the bats start to prepare for winter.

Photo: *Roosting lesser horseshoe bats with an albino individual* © Henry Schofield

Foraging and habitat use by horseshoe bats

In spring, greater horseshoe bats feed over cattle-grazed pastures and in ancient semi-natural woodlands. Meadows kept for hay and silage are also chosen for foraging in summer. Lesser horseshoe bats forage in woodlands, hedgerows and trees along river banks and are rarely found over pasture or open water. Both horseshoe bats commute to their main foraging areas along well-developed hedgerows or lines of trees.

The favoured prey of greater horseshoe bats includes beetles, moths and crane-flies. Lesser horseshoe bats also take moths and crane-flies, but the bulk of the diet is made up of smaller prey such as gnats. Both species catch these insects either on the wing or by gleaning prey from the surface of vegetation. Greater horseshoe bats also frequently use a 'sit and wait' tactic whilst hanging from twigs and small branches within the vegetation.

Photo: *Lesser horseshoe bat* © Frank Greenaway

Conservation effort

In common with other bat species, horseshoe bats and their roosts are fully protected under UK law, which makes it an offence to disturb or kill bats, and to destroy or alter their roosts in any way without first having consulted the Statutory Nature Conservation Organisation. Similar legislation exists in the Republic of Ireland. Wider protection to feeding habitat is given to horseshoe bats in both the UK and the Irish Republic under European legislation.

Direct efforts to conserve horseshoe bats have centred on the protection of their winter and summer roosts. The grilling of underground sites used by these species has prevented unwanted disturbance to over-wintering bats. The condition of some summer roosts has been improved by careful restoration of the buildings or the installation of heaters.

The Vincent Wildlife Trust has sought to conserve horseshoe bats through:

- The establishment of reserves in both Britain and Ireland that are home to some of the largest breeding colonies of these species to be found in Europe.
- Monitoring the populations of horseshoe bats in key roosts.
- Carrying out work to secure, maintain and improve both hibernation and summer roosts.
- Major studies of the roosting and foraging ecology of both species.
- Undertaking a major assessment of the foraging areas and commuting routes surrounding key greater and lesser horseshoe bat breeding roosts.
- Surveys of buildings in south-west England, the west midlands, Wales and Ireland for undiscovered horseshoe bat roosts.
- A study of the effects of Ivermectin, a chemical cattle treatment, which reduces the number of insects in cow pats on which greater horseshoe bats are known to feed.

Further information

The Vincent Wildlife Trust

The Vincent Wildlife Trust is a registered charity and has been involved in wildlife research and conservation since 1975. It has focused particularly on the needs of British mammals and has concentrated on species such as the otter, pine marten, polecat, stoat, weasel, water vole, dormouse and the bats. Currently the VWT's work is centred on the bats, polecat and pine marten.

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