

# Bats at Wakehurst Place

The gardens, lakes and open woodlands of Wakehurst Place coupled with the Loder Valley Reserve provide a perfect habitat for bats. As many as eight species have been sighted here.

## Bats - a success story

With almost 1000 species, bats represent one of the most successful groups of mammals. For their size, bats are amazingly long lived with life-spans of around 30 years not unknown.

They are found throughout the world, although the majority live in the tropics. Thirty species are found in Europe and of these sixteen occur in Britain. Unfortunately nearly all species are now in steady decline due to human pressures on the environment.

## Flying at night

Bats are the only mammals capable of sustained flight and most fly and hunt between dusk and dawn. Contrary to popular belief, bats are not blind although in complete darkness eyesight is useless. To overcome this problem bats have developed a form of sonar which enables them to hunt for prey and avoid obstacles at night. Bats achieve this by emitting a series of high-pitched squeaks which bounce off obstacles. By listening to the returning echoes they piece together an image of their surroundings.

Stephen Dalton/NHPA



## Kew information sheet W10



## Food for bats

Three-quarters of the world's bats are insectivores and it is estimated a single bat can consume over 3000 insects each night. About 5 per cent of species are carnivorous, eating mice, lizards, fish, frogs and even other bats. Three species confined to South America feed on blood; these are the infamous vampire bats. The remaining species are vegetarian, feeding on fruits and flowers. These species play a vital role in maintaining the rich ecosystems of tropical rainforests with many trees dependent on bats for pollination and seed dispersal.

The great success of bats globally is in part due to their diversity of

Above: **Daubenton's Bat (*Myotis daubentonii*)** in flight, low over water

feeding strategies. This is readily observed at Wakehurst Place. The noctule flies high above Horsebridge Wood hunting for large insects such as the armour-plated cockchafer. The brown long-eared bat can be found foraging amongst the trees of the birch collections in Bethlehem Woods. The abundance of insects around the lake in Westwood Valley attracts the highest concentration of bats, including the Daubenton's bat that hunts for prey just above the water surface.

## Hibernation

As autumn approaches bats concentrate on increasing body weight to provide crucial fat reserves required for their winter hibernation. To help conserve energy at this time they lower their body temperature and reduce their heart rate to just a few beats per minute.

In this state of torpor bats are very vulnerable and any disturbance will reduce their chances of survival. Within the gardens most bats hibernate in trees but there are recordings of some species hibernating in the deep crevices of sandstone rocks along Rock Walk.

## The decline in bat populations

Over the last hundred years, the number of bats found in Britain has decreased at an alarming rate; some species have declined by over 50 per cent. As a result the greater horseshoe bat, once distributed across southern England, is now very rare, while sightings of the elusive Bechstein's and barbastelle bats are uncommon and sadly the mouse-eared bat was officially declared extinct in Britain in 1992.

A combination of factors is responsible for these dramatic declines. The destruction of woodlands has reduced the availability of natural roosting sites and established roosts are continually destroyed when old buildings are renovated or demolished. Many more colonies are poisoned by the toxic chemicals used in timber treatments. The use of agricultural pesticides and insecticides has not only depleted the food supply but also contaminated the food chain.

## Roosting sites

Bats lead very complex social lives and for most of the year roost in colonies. Roosting sites are chosen very carefully and, whether in a tree, building or cave, are always kept very clean. It is rare for colonies to occupy the same roost all year round. Usually a number of sites are used at the same time each year. During the summer months female bats gather together in special nursery roosts to give birth and raise their young. At this time the males roost separately, only rejoining the females in the autumn mating season.

Most species found at Wakehurst Place roost in trees. Some, like the common pipistrelle and serotine, prefer to live in buildings and are found in the Mansion and surrounding outhouses. Occasionally two species will share the same site. At Wakehurst Place, a colony of noctule and Daubenton's bats occupy the same beech tree overlooking Westwood Valley.

## Artificial roost sites

The Great Storm in 1987 caused untold damage to the gardens and woods at Wakehurst Place with the loss of thousands of trees. As a result, many potential roosting sites were destroyed. This has increased competition between hole-dwelling animals. Consequently many bats are killed or driven from their roosts each year by competing squirrels and starlings.

To help alleviate this problem, staff at Wakehurst Place have begun to construct artificial roost sites. These recreate, as accurately as possible, the natural conditions of a tree cavity which are essential for the establishment of large breeding colonies. By inspecting the roosts each

year we hope to increase our knowledge of bat populations at Wakehurst Place and ensure that our management of the estate helps conserve these fascinating creatures.

## Bats of Britain

There are sixteen species of British bats, all insectivores, which belong to two families, the vesper or evening bats and the horseshoe bats. There are fourteen vesper bats including the noctule, a large and powerful flyer, and the Bechstein's bat, one of Britain's rarest mammals. The two remaining species are the greater and lesser horseshoe bats, both of which are very rare and confined to the south west of Britain.



Above: Inspecting bat boxes at Wakehurst Place

## British Bats

Species	Size	Occurrence in the U.K.
<b>Pipistrelle 45Kh</b>	Small	Very common
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<b>Brown long-eared bat</b>	Medium	Very common
<b>Noctule</b>	Large	Common
<b>Daubenton's bat</b>	Medium	Widespread
<b>Whiskered bat</b>	Small	Widespread
<b>Brandt's bat</b>	Small	Widespread
<b>Serotine</b>	Large	Confined to South
<b>Natterer's bat</b>	Medium	Uncommon
Leisler's bat	Medium	Uncommon
Nathusius pipistrelle	Small	Regular migrant
Lesser horseshoe bat	Small	Rare
Barbastelle	Medium	Rare
Grey long-eared bat	Medium	Very rare
Greater horseshoe bat	Large	Very rare
Bechstein's bat	Medium	Very rare
Mouse-eared bat	Large	Extinct in Britain

Species in bold print are seen at Wakehurst.

## Bats and the law

To help prevent any further declines in populations all bats are protected under the Wildlife and Countryside Act 1981. This law states it is an offence to intentionally:

- kill, injure or handle bats
- possess a bat whether dead or alive
- disturb a bat when roosting
- destroy or obstruct a roost
- sell, barter or exchange bats

If any work is planned that might affect a colony of bats or a roost site, English Nature must first be consulted. They will advise on the best course of action to minimise disturbance. The law does, however, allow bats to be caught and then released if found in the living area of a house and for the treatment of sick bats.