



Explore the world of bat conservation through the national curriculum

Teachers' notes

2. BRITISH BATS – THE DIFFERENT SPECIES

Relevant areas of learning and experience:

Science and Technology, Maths and Numeracy, Humanities – Geography

The table on the British Bats Factsheet lists resident species in the UK, and summarises information about each of them. More information about UK bats can be found on many web sites including www.bats.org.uk

Identification features:

Heads

The shape and size of the ears, the shape of the **tragus** (the structure inside the pinna or outer ear), the shape of the face, the amount of fur on the face—all help us to identify which bat is which.

Tails

All our British bats have tails, some longer than others; only one has a small section of tail free of the tail membrane. A spur of cartilage from the ankle, called the **calcar**, helps support the tail membrane. The shape of this can help us identify the bat.

Measurements

One of the most surprising things about bats is their size. Many people think they are huge, but the truth for UK bat species is quite different. UK bats are small compared with most mammals—their wings make them look larger than they really are. How do you measure a bat?

Wingspan, the distance from wing tip to wing tip, gives the best impression of size, but exact measurement depends on how far the wings are stretched.

Weight. Comparing bats by weight can be difficult too. A bat's weight after a good meal will be very much greater than at the end of hibernation.

Forearm length, the distance between the elbow and wrist, is the most accurate measure to compare the size of bats

- Cut out life-size shapes of the different bats for comparison. Measure and estimate the wing areas. Calculate the wing ratio; – to do this, divide the wingspan² by the wing area. (b²/s). This is the aspect ratio and it is a mathematical way of describing wing ratio. Long narrow wings have a high aspect ratio, short broad wings a low one.
- Find out sizes of other bats, both in the UK and abroad. Make life size cut-outs of different bat species. Make graphs and bar charts to show comparative forearm sizes/weights. Compare with other mammals.

Where do they feed and roost?

Teachers' notes **2. BRITISH BATS – THE DIFFERENT SPECIES**

- From the table, look at local maps and the surrounding area itself to forecast where
- pipistrelle/ brown long-eared, lesser horseshoe/Daubenton's bats are most likely to find their preferred food?
- Where are pipistrelles/long-eared/noctules likely to find safe places to roost in summer?
- Can you suggest suitable places on the map where Myotis bats might hibernate
- From the table, look at local maps and the surrounding area itself to forecast where other species might feed and roost.

- Discuss the way in which the distribution of bats varies geographically, and how it relates to different habitats and climatic changes.
- Find out the population sizes of the main cities and towns in Wales. Compare and contrast these to the estimated numbers of bats of a selected species. If you were to take a comparable town and its population, and that represented the population of Wales, what do you think would be chances of any two people meeting up?

Bats in Wales

Wales is an important area for horseshoe bats. Both species are important within a European context. The lesser horseshoe bat is the third most common bat in Wales which occurs across much of the lowland areas. There is a significant population on the Gower which is thought to be genetically distinct from the rest of Wales. The greater horseshoe bat on the other hand is restricted to parts of south Wales where the main population is in Pembrokeshire with other breeding sites around Cardiff and Monmouthshire.

Status of bats in Wales

This table gives an idea of Wales' bats, their numbers and distribution.

English name	Scientific name	Status	Estimated numbers taken from the Joint Nature Conservation Committee 2016, 3rd report to the European Union on the assessment of conservation status
common pipistrelle	<i>Pipistrellus pipistrellus</i>	The two most common bats found in Wales. Very dependent on buildings. These are the bats	Estimated 128,000
soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	most people see as these bats emerge at sunset.	Estimated 72,000
Nathusius pipistrelle	<i>Pipistrellus nathusii</i>	Unknown but there are a few records. Being recorded more frequently.	Unknown

Teachers' notes 2. BRITISH BATS – THE DIFFERENT SPECIES

brown long-eared bat	<i>Plecotus auritus</i>	Often associated with old churches, barns and houses with large roofs.	Estimated 17,500
Grey long-eared bat	<i>Plecotus austriacus</i>	Not present in Wales	Not present
noctule	<i>Nyctalus noctula</i>	Found throughout Wales. Mainly roosts in tree-holes. Quite common	Estimated 4,750
serotine	<i>Eptesicus serotinus</i>	Unknown and only a handful of maternity sites are known.	Unknown
Leisler's bat	<i>Nyctalus leisleri</i>	Uncommon and rarely reported	Unknown
whiskered bat	<i>Myotis mystacinus</i>	This is a closely related group and found throughout Wales. Probably locally common. Alcathe bat has yet to be confirmed for Wales	Estimated 8,000
Brandt's bat	<i>Myotis brandtii</i>		Estimated 7,000
Alcathe	<i>Myotis alcathe</i>		Not yet recorded
Daubenton's bat	<i>Myotis daubentoni</i>		Estimated 15,000
Natterer's bat	<i>Myotis nattereri</i>		Estimated 12,500
Bechstein's bat	<i>Myotis bechsteinii</i>	Just three records although this bat is recorded on the Wales-England border at Chepstow	Unknown
greater horseshoe	<i>Rhinolophus ferrumequinum</i>	Critically endangered with nationally important populations in Wales especially Pembrokeshire and Gwent	Estimated 2,220 from accurate summer roost counts
lesser horseshoe	<i>Rhinolophus hipposideros</i>	Critically endangered with nationally important summer roost counts populations in lowland Wales	Estimated 26,600 from accurate summer roost counts
Barbastelle	<i>Barbastellus barbastellus</i>	A very rare species with just a few records in Wales	Estimated 500