



## Explore the world of bat conservation through the national curriculum

### Teachers' notes

# 8. SURVEYING AND MONITORING

### Relevant areas of learning and experience:

*Environmental Science, Mathematics, Language, Literacy and Communication*

### Surveying

Carry out your own bat survey

1. Plan a basic survey near your home. You are most likely to see bats on warm summer evenings, especially near water. Some bat watching tips:
  - Never survey alone. Bring a family member or friend to help you.
  - Wear suitable clothing. It can be cold after dark.
  - Take a map, notebook and pencil.
  - If possible take a bat detector or go with someone who has one.
  - Don't disturb the bats. Avoid shining a torch at them or their roost.
  - Take care and stay safe.
2. Take part in BCT's sunrise /sunset survey. You can download a form at:  
[http://www.bats.org.uk/pages/sunset\\_sunrise\\_survey.html](http://www.bats.org.uk/pages/sunset_sunrise_survey.html)

In order to survey an area and record what bats you see and hear, you need to be familiar with your local Ordnance Survey maps. **Ordnance Survey (OS)** is the national mapping agency in the United Kingdom which covers the whole of Great Britain. It is one of the world's largest producers of maps.

### What can you find out about its history and origins?

What is the scale of a) OS Explorer Maps – (orange covers)?

b) OS Landranger Maps – (pink covers)?

What is the number and name of the map covering your area in each of these scales?

When you carry out a survey it is important to make a note of your observations, including four **W's**.

**Who** you are (your name)

**What** you saw (describe the bat's size and flight if you don't know the species. If you have a bat detector include the frequency of the bat's echolocation)

**When** you saw it (date and time)

**Where** you saw it (address or nearest town) and OS *grid map reference*.

Records should be sent to your local biological record centre and bat group with these details.

What other evidence gives clues to the presence of bats?

**National Grid references** are used to accurately pinpoint a location on an Ordnance Survey map.

Encourage students to visit <https://getoutside.ordnancesurvey.co.uk/guides/beginners-guide-to-grid-references/> and follow it carefully. Worksheets and other map reading resources are available at these sites:

<https://www.ordnancesurvey.co.uk/docs/leaflets/map-reading-made-easy.pdf>

<https://www.tes.com/teaching-resource/4-and-6-figure-grid-references-6373196>

**Pupils can create similar worksheets based on the map of their local area and test each other.**

## Discussion

- Why do we need to survey for bats? Refer to the fact sheet Surveying, then think of more specific examples.
- Why is it important to record the grid reference of bats seen?
- There is a network of biological record centres. Where is your nearest one? Does it have a web site? How is information submitted and accessed?
- How can records be used when planning permission is sought, eg for development?

## Monitoring

To conserve bats we need to establish the size of current bat populations, working out which bats are where and how they are responding to the threats and pressures they face.

- Explain the difference between surveying and monitoring. **Refer to the Fact Sheet.**
- What important information does monitoring give in addition to that gained by basic surveying?
- What is meant by a population trend?

Find the National Bat Monitoring Programme (NBMP) section on the Bat Conservation Trust website: [www.bats.org.uk](http://www.bats.org.uk)

- What are the three survey methods used by the NBMP to collect data?
- Why do you think two methods are used for each species monitored?
- What two methods are used
  - for pipistrelles
  - for Daubenton's bats
  - for lesser horseshoe bats?

**Discuss.** What are the advantages of regular monitoring in this way for a number of years, over the same number of 'spot' surveys in different places?

- Which species are counted as they emerge from their summer maternity roosts?
- What is the protocol for surveyors making these counts?
- Why is it important that the protocol is adhered to all over the UK?
- Why is it important to continue monitoring the same sites for a number of years?

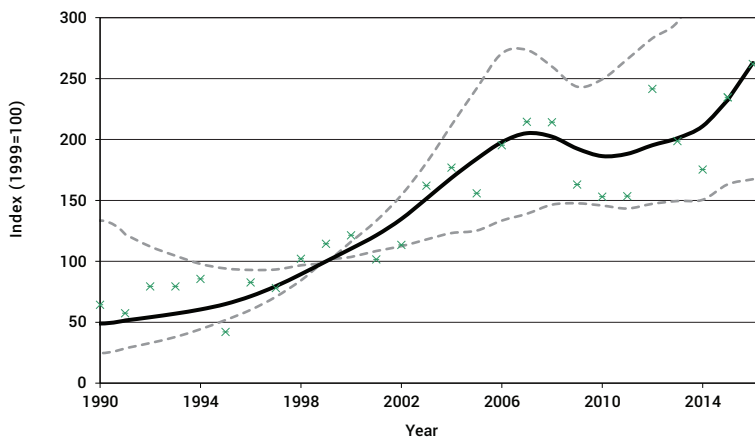
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Look at the most recent annual report - *The state of the UK's bats*.

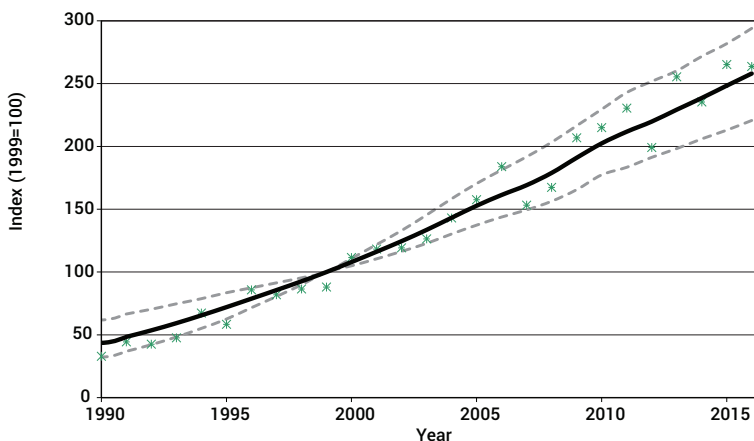
How are the data collected by the programme used and by whom?

Horseshoe bats are largely restricted to the South West of England and Wales, with lesser horseshoe bats also present in western Ireland. Both Roost and Hibernation Surveys show significant population increases since 1999 for both species, although it is very unlikely they have yet reached their pre-decline population levels.

### Greater horseshoe bat



### Lesser horseshoe bat



GB trends (with confidence intervals) from the NBMP Hibernation Survey reveal statistically significant increases in population sizes for both greater and lesser horseshoe bats.

### Use the report to help you answer these questions.

- What are believed to be the drivers of population changes in horseshoe bats?
- How are pipistrelles faring in the UK?
- What is thought to be driving changes in populations of common and soprano pipistrelles?
- What effect of urbanisation on the two species of pipistrelles is revealed by the latest NBMP data?
- Compare Daubenton's bat trends from the Waterway Surveys.
- Discuss the possible reason for the difference between the three countries.
- Reading through the report what other queries does it raise in your mind? Discuss these.