



The three essentials

Different species of bat live in different places, but they all need three things in their locality:

- plenty of food to give them energy – in the UK this means lots of insects
- a wide choice of places to roost or shelter, usually somewhere warm in summer but cool in winter
- good links like hedges, lines of trees, or rivers to help them travel safely between feeding places and their roosts.

A healthy ecosystem will provide all three which is why bats are one of the UK's national Indicators of environmental quality. Anything that impacts on any of these three elements will have an adverse impact on bats and will indicate an unhealthy environment.

Good bat habitat.



© Mike Symes/Devon Greater Horseshoe Bat Project

In this photograph there is plenty of food for insects which can in turn be food for bats.

There are trees where bats might roost for part of the year, and hedges which make safe corridors for travelling. But even tiny pipistrelles must have a large area to supply all the food and roosts they need through the year, and big bats need even more.

Look at Ordnance Survey maps of your area, and map websites like Google earth. Try to predict where bats are most likely to feed in summer.

Buildings are often used as roosts by bats too, but they mustn't be too far from good feeding sites.

Bats often return to the same roost year after year, but changes to the environment, or even unusual weather, sometimes force them to go somewhere different, so they need to have lots of places to choose from.



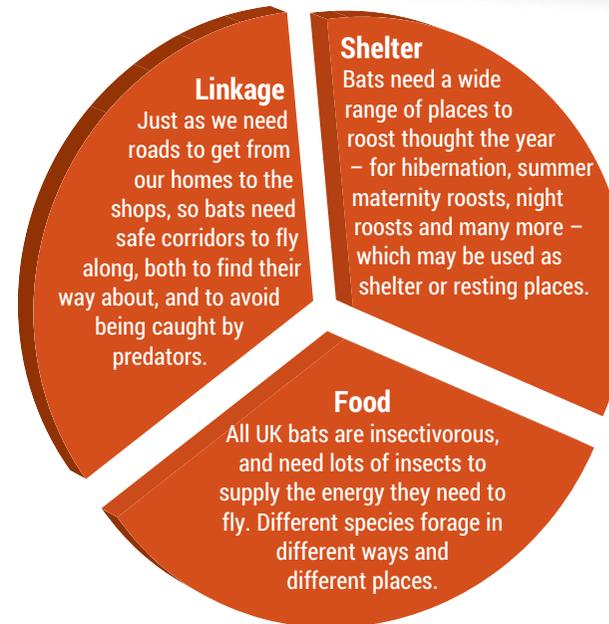
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A maternity roost of brown long-eared bats in a loft.

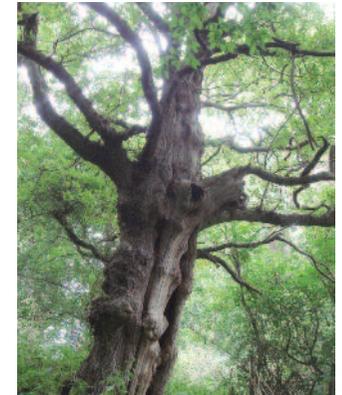
Note river valleys, lakes and woodland edges that might be suitable.

Gardens, school grounds and parks will also be visited if the plants grown there attract enough insects.

Use a bat detector to test your predictions.



Each of these places is used by bats in different ways



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Threats and challenges

Bat populations are seriously threatened by changes to the environment resulting from human actions. Bats and people have lived together for many thousands of years but as the human population increases exponentially, more land is needed for housing, roads, and food production. Right now, our population is continuing to get bigger, not just with natural growth but also with movement of people. Census returns show the human population of Wales was 2,903,085 in 2001 but by 2011 had reached 3,063,456.

Population growth

With the spread of the built environment, the growth of towns and the infrastructure needed to support them, there is an increasing demand for land. Houses, shops, offices, hospitals and factories are essential for urban development. The need for more homes has also led to the conversion of many redundant industrial and agricultural buildings. A network of roads and railways has resulted in fragmentation of the landscape, destroying the natural corridors needed by bats to link habitats.



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Stretches of woodland which had provided roosts for bats and food for insects, have been cleared for development. Wales is now one of the least wooded countries in Europe with just 13% woodland cover (Forestry Commission 2011) compared to around 37% for European Union (EU) countries (Forestry Commission, 2010). Other habitats have also been lost.

Changes in agricultural practice

The growing demand for food has led to efforts to use the land more intensively – by adding chemicals as nutrients to the soil, and using chemical weed killers and pesticides. Insecticides not only reduce the bats' prey, but when retained in insects that survive, may be taken in by bats with unknown effects on their breeding ability and longevity.

Nutrients added to the soil leach through into rivers and waterway, upsetting their natural balance by affecting aquatic insects and vegetation.

Our environment has changed and continues to change.

We need to understand how these changes impact on the three basic needs of bats, and plan ways of maintaining the balance of nature and working towards a more sustainable future. Consider:

- How are roosts lost?
- What causes loss of insect numbers and diversity?
- How are flight routes severed or obstructed?

Energy efficiency and renewable power

Accelerated climate change due to atmospheric carbon pollution (and other gases) has led governments to encourage better insulation of our homes; this has the potential to both restrict access to roof space, and to make lofts less suitable for summer roosts unless carried out carefully. Generation of 'clean' electricity from wind and solar sources is good, but the building of turbines in flight paths has killed many bats through collision and barotrauma as a result of inappropriate siting of turbines.

More and more people are beginning to value our wildlife and the wider environment in which we live. Some things have got better over the years.

Getting the balance right

We often hear about balancing the needs of one sector with another – in the economic interest. Balancing implies that something will lose out and all too often it is the environment that has taken the loss. We need to find solutions that satisfy everything and the Well-being of Future Generations Act (2105) for Wales aims to do just that – it is called Sustainability.

What do you think?



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