

The AgriBats project

AgriBats is focused on understanding how habitats on arable farmland can help conserve bats. We worked with landowners across Hampshire and Dorset to record and investigate how bats use field margin habitats created through Agri-environmental schemes (AES). They can support an abundance of insects and, therefore, might present favourable foraging opportunities for bats. If we can determine how these habitats might benefit bats, farmland can be managed to ensure habitats are provided which support the UK's bat population.



A volunteer setting up a bat detector

Bat habitats in the arable landscape

AES field margins are sown or naturally regenerated areas that border the edges of cropped fields. Each AES option has a specific aim, to either protect a habitat or create one. The four most commonly implemented on arable land across the UK are:

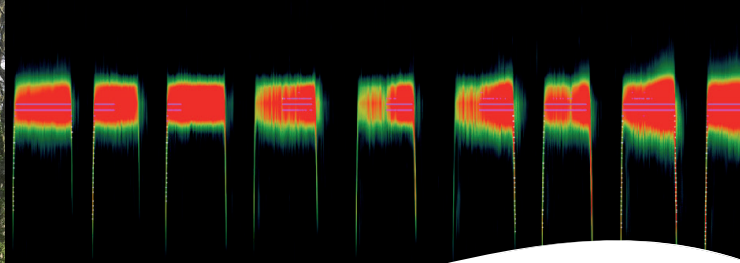
Grass margins - 2-6 metre wide grass strips.

Pollen and nectar mix plots - a sown mixture that produces a variety of nectar-rich plants to attract pollinators and nectar feeding insects like bees.

Wildflower margins - sown with perennial wildflowers and grasses. This diverse mix will attract a broad range of wildlife.

Wild bird seed mix plots - sown with at least three seed bearing plants. This mixture produces overwintering seed for birds during the winter period when food is scarcer.

Grass margins (left) and wildflower margins (right) are common AES habitat options.



Greater horseshoe sonogram

How are bats using field margin habitats?

Our bat recordings show that AES field margins are not just used by bats when commuting, they can also be used as foraging sites. Along the margins we recorded "feeding buzzes", where bats increase the frequency of their echolocation calls to home in on prey. Across 15 farms we recorded more than half of the UK's bat species, including several which are vulnerable. Bat activity was highest along wild bird seed mixture and pollen and nectar plots which are more diverse compared to grass margins.

Management implications

The AgriBats project has shown that there may be a role for AES in the conservation of bat species which occupy farmland. Our results suggest that increasing the diversity of our arable landscape by replacing margins that consist of one dominant plant group, such as grass margins, may benefit bats. Providing a range of habitats on farmland, that are sown at different times of the year, may also be important to ensure a diversity of vegetation structure is created.

Support and funding

We are grateful to the landowners and farmers who allowed us access to their land to survey bats. Also, thanks to our volunteers for the many hours they spent collecting data. This work was supported by the Heritage Lottery Fund.



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AgriBats

Learning about bats on arable farmland in Hampshire & Dorset



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A bat detector on site

British bats

How many species live in the UK?

17 of the 1,240 bat species that occur worldwide are resident in the UK. This means that bats account for nearly a quarter of British mammals.

What do they eat?

British bats are insectivores, but different bat species will target different insect prey such as moths, midges and beetles.

How do bats catch their prey and navigate?

Bats hunt and navigate at night by echolocating. To echolocate bats make high frequency sounds through their mouth or nose, these sounds travel through the air as waves and bounce off objects in their path. The returning waves, or echoes, give the bat information about what is ahead of them, including the location and size of prey.

Where do bats live?

The place a bat lives is called a roost. Bats roost in different places depending on the time of year because they will have different needs when breeding compared to hibernating. Most of our native bat species evolved to live in trees and caves, but many have now adapted to roost in buildings including barns, houses, tunnels and bridges.

What is the status of bats in UK?

Bat populations declined significantly in Britain during the 20th century due to a combination of factors including loss of roost and feeding sites. Bat roosts in Britain are protected under legislation, but foraging sites are unprotected making them susceptible to land use changes. As over 25% of land in Britain is arable farmland, it is important that we understand how we can reduce the impacts of agriculture on bat feeding sites.

Bats recorded on arable field margins

Over 9,000 bat recordings were made during our farmland surveys. Species and species groups recorded along AES field margins were:

Common, Soprano and Nathusius' Pipistrelles

Of the three pipistrelle species that live in the UK, the most common and widespread are common pipistrelles. The two other pipistrelle species, soprano and Nathusius', tend to be recorded less frequently on farmland since sopranos prefer wetland habitats and Nathusius' are migratory.



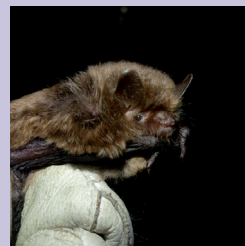
Greater and Lesser Horseshoe bats

Greater and lesser horseshoe bats are vulnerable species in the UK. They can be identified by their "horseshoe-shaped" nostrils, known as the nose-leaf, that amplifies their echolocating calls. They tend to forage within 2.5km of their roost sites.



Myotis bats

Seven species of Myotis bats can be found in the UK, namely Alcaethoe, Bechstein, Brandt's, Daubenton's, Natter's, and Whiskered bat. Myotis bats are difficult to identify to species level during acoustic surveys as they produce similar echolocation calls.



Barbastelle bat

Considered one of the most endangered bats in western Europe, the Barbastelle can be identified by its black fur and pug-like nose. Barbastelles can travel up to 20 km from their roost to reach their foraging grounds.

Long-eared bats

Grey long-eared and brown long-eared bats have both been recorded in the UK, although grey long-eared bats can be found only in a few places in southern England. They are difficult to distinguish from one another; the most reliable distinguishing feature being dorsal hair colour.



Noctule

This is Britain's biggest bat species. They fly in open areas where they can reach speeds of 50kph. Noctules' calls sound like 'chip chop' with occasional click noises. This species rarely roosts in buildings.



Serotine

A large species of bat which is usually one of the first species to emerge from their roosts in the evening. It roosts in crevices, particularly in inaccessible cavity wall spaces of old buildings. They can have a lifespan of 19 years.

