

LANGDYKE TRUST

BAINTON HEATH - SURVEY FOR BATS

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Background

Following an initial evening visit to the reserve on 7 July 2023 it was considered important to seek a mechanised monitoring to investigate what species were foraging or at least commuting across it. The initial report on the first evenings observations is Appended.

Survey methods

Daniel Whitby, a bat electronic specialist in West Sussex, was contacted and he kindly agreed to lend us two automatic bat recorders when his professional use finished in August. As we wanted to use them at a Nature Reserve he agreed to let us use them for minimal cost.

These were received in late August but as I was having mobility problems and was having to go to Scotland at the end of August, Stuart Irons agreed to take over the deployment and recovery of the instruments.

The recorders were deployed on 5 September 2023.

Static Recorder 1 was placed on the west boundary line of trees about half way along.

Static Recorder 2 was located to the SE of the large pond on the NW of the reserve.

Each was located about 2m above ground on a suitable tree with the microphone hanging free from a branch. The exact number of nights when recording was made is unknown because of battery life being unknown. However, it is likely to have been from 3-6 nights.

Results

The following table of results was provided by Daniel. He recorded the number of crickets being recorded as well but they are of no relevance to us and have been omitted. The species of the crickets is unknown but we knew they were abundant in the area flying amongst the trees and scrub.

Detector	species	number of files	notes
Static 1	<i>Barbastella barbastellus</i>	6	05/09-06/09 all calls on same night between 21:19 and 05:59
	<i>Myotis species</i>	44	
	<i>Nyctalus noctula</i>	15	
	<i>Pipistrellus nathusii</i>	2	05/09-06/09 20:40 and 02:03
	<i>Pipistrellus pipistrellus</i>	277	
	<i>Pipistrellus pygmaeus</i>	425	
	<i>Plecotus auritus</i>	12	
Static 2	<i>Myotis species</i>	32	
	<i>Nyctalus leislerii</i>	1	
	<i>Nyctalus noctula</i>	4	
	<i>Pipistrellus pipistrellus</i>	360	
	<i>Pipistrellus pygmaeus</i>	193	
	<i>Plecotus auritus</i>	1	

Myotis nattereri was observed and identified on the first evening of observations on 7 July 2023 by its characteristic flight pattern and silhouette against the light sky. (Ident: R. Stebbings).

Summary of total recordings for 5 September and subsequent few nights.

(A file is a set of recordings from a single pass made by a bat. The numbers can relate to one animal flying back and forth past the microphone or could be different bats. Both are likely to have happened. However, it does show which species are using the reserve most in that short period of early autumn nights.)

<i>Barbastella barbastellus</i>	6
<i>Plecotus auritus</i>	13
<i>Nyctalus noctula</i>	19
<i>Nyctalus leislerii</i>	1
<i>Pipistrellus nathusii</i>	2
<i>Pipistrellus pipistrellus</i>	637
<i>Pipistrellus pygmaeus</i>	618
<i>Myotis nattereri</i>	6*
<i>Myotis species</i>	76
<i>Total files</i>	1372

* sight observations made on 7 July 2023

Interpretation

This set of records, made towards the end of the active season for bats, is quite unexpected and remarkable. The minimum number of species found over the reserve was at least eight or almost half the total number of bat species known to be resident in Britain. The *Myotis* species cannot be separated from their calls and it is possible could include another three species known to occur in this area of England.

The following are notes on each species. It should be remembered all these are specially protected under the Wildlife and Countryside Act 1981 and other protections are given for some.

Barbastella barbastellus (6)

A rare species found across southern Britain and East Anglia. It is a specially protected species. It is estimated the total population in Britain may be about 5000 animals. Although some roosts are found in buildings, it often occurs in split broken tree branches. It feeds in open woodland mostly on moths. Therefore, such damaged tree branches should not be 'tidied' up. This species was most unexpected to be found in this area.



Plecotus auritus (13)

A widespread species throughout Britain and most often found roosting in buildings, especially old houses. Unfortunately there is strong evidence the species has declined due to timber treatments in efforts to control wood boring beetles. It forages mostly on moths in and around deciduous woodland. Has been estimated to total 200,00 bats in Britain but possibly fewer now.

Nyctalus noctula (19)

Once an abundant species across lowland Britain with large colonies numbering hundreds in hollow trees. Loss of hedgerow trees and hollow trees has affected it considerably as well as declines in large grassland beetles. Control of cockchafer in pastures had a huge effect on bat numbers of this our second largest bat species. Flies early in evening, often emerging before sunset. Said to number around 50,000 bats which may be a fraction of numbers a century ago.

Nyctalus leislerii (1)

A rare species across Britain, being about half the size of the Noctule. Most often roosts in buildings but does occur in artificial bat roost boxes. Forages over pastures often close to woodlands and high hedge-lines. Has been estimated it could number around 10,000 bats in Britain.

Pipistrellus nathusii (2)

This new species to Britain was first found in 1969 by myself in the NCC Furzebrook Research Station in Dorset. By chance, I found the second specimen in Pembrokeshire in 1980s. Following that, other specimens were found in Cambridgeshire and I was able to find the first breeding colony near Gibraltar Point in Lincolnshire. It is distributed widely across mainland Europe and it is believed there was a rapid expansion west from Russia and the Baltic States as a result of severe winters in the east. It is known to be a migratory species and now is found around the British Isles. Generally found in open woodland and in riparian habitats. Feeds on flies often those emerging from water.

Pipistrellus pipistrellus (637)

Traditionally called the common pipistrelle which is widespread all over the British Isles. Tends to roost mainly in buildings, sometimes in large colonies of up to 1000 bats in summer maternity clusters. Foraging territories can be up to 25km² or more. Populations have declined by an estimated 80% or more since the 1960s They feed on flies of many kinds but often these are caught near aquatic habitats. Population in Britain has been estimated as from 1.5 - 2.0 million

Pipistrellus pygmaeus (618)

This species was identified about 20 years ago from the echolocation call frequencies which differ from the common pipistrelle. At present there is little knowledge about its life history but certainly is very similar to the common pipistrelle.

Myotis nattereri (6*)

This is a widespread animal is found over almost all of Britain. It prefers woodland edges and hedgerows for foraging where it eats mostly moths. It roosts in buildings and hollow trees and can be in large numbers, especially in hibernation. Has been estimated to total 100,000 bats in Britain. When observed on the evening of 7 July it was flying along the tall line of western boundary trees. It was still quite light just after sunset with a clear bright sky.

Myotis species (76)

These records could be only Natterer's bats but three other species of *Myotis* are known to live in this area. Echolocation calls cannot be used to separate the species at present but research is progressing to find a way of separating them. One, *M. daubentoni*, is plentiful along the Nene and Welland river valleys. It is often found foraging over ponds and lakes feeding on aquatic insects as the adults emerge from the water.

SUMMARY AND RECOMMENDATIONS

By using specialist recording equipment, it has been shown that at least half the British bat fauna (8 or 9 of 17) has been flying around the Bainton Heath Reserve in early September. This was most unexpected especially recording the nationally rare barbastelle.

It is suggested it would be valuable to undertake further recording at different seasons. Also, as this equipment is now a reliable survey technique, its use in the Trusts other reserves is strongly recommended. As a result of discovering the bat fauna in the various areas, some input could be made in developing future management plans to encourage increased use of sites by bats.

03 November 2023

APPENDIX 1

BAINTON HEATH - BATS

AIM. A site visit was made to make an initial assessment as to whether bats are visiting and what kind of survey work might be needed to determine its value to bats.

DATE. - 7 July 2023

WEATHER & SEASON

The visit date was chosen to maximise possible encounters with bats. Most bat births occur in the second half of June and hence the mothers have greatest need to feed to produce milk. Weaning takes around 45 days from birth and therefore, one could expect a maximum search effort being made in all suitable habitats.

The forecast for 7th July suggested a hot day (actually it was around 30°C by day) with light breeze and evening dropping to a high minimum of 19°C but was around 25°C when we arrived on site at 21.00 BST.

It is well known that the first bats around this date emerge from their day roosts at approximately 21.20.

SURVEY

The evening was completely clear and notable for a large number of hawker dragonflies flying around trees on the western boundary and some chafers flying from the grassland into the trees. There were some flies but numbers were not large. All initial observations were made by standing just to the east of the west tree boundary (mostly pine trees). This allowed maximum sight visibility in all directions but in addition a Pettersson Ultrasound Detector model D240 was used. This was tuned at maximum gain between 25kHz to 65kHz to listen for all the species which could be expected in the area.

Bat observations

21.33 - medium sized bat flew close around trees - thought to be *Myotis nattereri*
22.38 - medium sized bat flew close around trees - thought to be *Myotis nattereri*
22.00 - Detector picked up rapid sounds of bat at around 50kHz - *Pipistrellus sp*
22.02 - Loud slow pulses at around 50kHz - species unknown.

Decision made to go to track leading from the village to the Heath to see if that route was being used by bats. Most bats in the area were likely to be using buildings and hollow trees for roosts within the village. As soon as we got onto the track the first bat was encountered flying towards the Heath.

22.21 - 22.24 - Four bats heard flying along that route all tuned at around 56-58kHz.
Soprano, *Pipistrellus pygmaeus*

Back in village near the church there was virtually no bat activity which suggests the bat population in the area is small.

INTERPRETATION

The first two bats were most likely to have been Natterers. The fact that these were seen very early suggested they were roosting within the site. Typically they feed along the edge of woodland and hedgerows, quite low, ready to catch moths as they emerge from grassland and fly to trees and scrub. The fact that no other bats were picked up for 22 minutes suggests bats were entering the area from distant roosts and on our walk back towards the village seemed to confirm that possibility.

It seemed the fact there were so few bat encounters, on what could be termed an ideal evening for bat activity, suggests the local population was small.

CONCLUSION

Clearly a few bats do visit Bainton Heath for feeding. There are some prime habitats nearby with the lakes and ponds. Future monitoring could best be carried out using some up-to-date fixed point passive recorders (like camera traps but recording ultrasound) with the latest technology which records the time and likely species. Enquiries are being made as to what would be best in this site with availability and cost implications.

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9 July 2023