Bat Surveys at 62 Broadwood Avenue, Ruislip, Middlesex

17th July 2024

Bee.Wise.Eco Ecologist Contact Details:
Rita Smoldareva BSc (Hons) PGDip
Email: rita@beewise.eco
www.beewise.eco

Table of Contents

This report is valid for one year from the date of the survey visit. Should works be delayed to later than one year after the survey then a further update survey of the site would be required as habitats change over time, along with their potential to support protected species.

The author of the report is Margarita Smoldareva. She is a qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and an associate member of the Landscape Institute, the Institute of Environmental Management and Assessment (IEMA), and the Institution of Engineering and Technology (IET). Margarita has 9 years of experience and has acquired a wide range of ecological skills through her academic and professional experiences.

Margarita has extensive experience in Biodiversity Net Gain and in undertaking protected species surveys and UKHab habitat surveys. She obtained her Great Crested Newt Licence (Level 1) in 2019 and her Bat Licence (Level 1) in 2022. Additionally, she has been involved in multiple reptile and great crested newt translocation projects.

Margarita is also exploring how technology can aid ecological baseline and monitoring surveys. She holds a UAV operating licence and is fully insured.

Her qualifications include a BSc (Hons) in Landscape Management (Land Use) from the University of Greenwich in 2013, a postgraduate diploma in Landscape Ecology with GIS from the University of Greenwich in 2018, and an MSc in Connected Environments (part-time) from University College London (UCL) in 2023.

1. Introduction

Project Description

In June 2024, The Drawing Room (London) Ltd instructed Bee.Wise.Eco to undertake nocturnal emergence bat surveys at 62 Broadwood Avenue, Ruislip, Middlesex.

A Preliminary Bat Roost Assessment of the site was undertaken in September 2023 by MMEcology dated May 2024. During the exterior inspection of the property, various potential roosting sites and entry points into the loft were identified, such as raised roof tiles and loose hanging tiles, openings behind flat roof capping, and gaps between the soffits and the brickwork. Additionally, indications of bat roosting, specifically bat droppings, were observed during the survey as such the residential building was classed as confirmed bat roost therefore requiring roost characterisation surveys. Three nocturnal emergence surveys with use of night vision aids were recommended.

A sample of the droppings found within the loft space was sent for DNA analysis, to robustly identify the species of bat roosting on site as recommended by MMEcology report. The results are available in Appendix A and the bat species confirmed as Brown long-eared bat (*Plecotus auritus*).

This report details the finding of dusk emergence bat surveys undertaken between 4th June 2024 and 16th July 2024.

2. Relevant Legislation

Bats

Bats and the places they use for shelter or protection (i.e. roosts) receive European protection under The Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations 2017). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that bats, and the places they use for shelter or protection, are capable of being a material consideration in the planning process.

Regulation 41 of the Habitats Regulations 2017 (as amended), states that a person commits an offence if they:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats; or
- damage or destroy a bat roost (breeding site or resting place).

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

It is an offence under the Habitats Regulations 2017 for any person to have in his possession or control, to transport, to sell or exchange or to offer for sale, any live or dead bats, part of a bat or anything derived from bats, which has been unlawfully taken from the wild.

Whilst broadly similar to the above legislation, the WCA 1981 (as amended) differs in the following ways:

- Section 9(1) of the WCA makes it an offence to *intentionally* kill, injure or take any protected species.
- Section 9(4)(a) of the WCA makes it an offence to *intentionally or recklessly** damage or destroy, *or obstruct access to*, any structure or place which a protected species uses for shelter or protection.
- Section 9(4)(b) of the WCA makes it an offence to *intentionally or recklessly** disturb any protected species *while it is occupying a structure or place which it uses for shelter or protection*.

*Reckless offences were added by the Countryside and Rights of Way (CRoW) Act 2000.

As bats re-use the same roosts (breeding site or resting place) after periods of vacancy, legal opinion is that roosts are protected whether or not bats are present.

The following bat species are Species of Principal Importance for Nature Conservation in England: Barbastelle Bat *Barbastella barbastellus*, Bechstein's Bat *Myotis bechsteinii*, Noctule Bat *Nyctalus noctula*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Brown Long-eared Bat *Plecotus auritus*, Greater Horseshoe Bat *Rhinolophus ferrumequinum* and Lesser Horseshoe Bat *Rhinolophus hipposideros.*

3. Bat Survey Methodology

General information

Nocturnal emergence bat surveys were undertaken in line Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2023) and Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment of dawn surveys (Bat Conservation Trust, 2022). Night Visual Aids consisting of three cameras with infrared recording Sony AX53 capability and five supplementary infrared illuminators and torches were also used. The camcorder footage was later analysed using Video slow and fast speed Ramp software to allow slowing down the video in line with the recorded bat call to ensure the location of bat movement was captured to conclude if the bat emerged from potential roosting features associated with the site. The location of the infrared camcorders remained the same during each survey to ensure a full coverage of the areas of the building to be affected by the proposals.

Type of survey carried out

Presence/absence survey (emergence/re-entry)
The survey involved three dusk nocturnal visits to watch, listen for and record bats exiting bat roosts. The aim of the survey is to determine the presence or likely absence of roosting bats at the time of surveys and the need for mitigation.

Equipment used to detect bats

Bat detector types used included Echo Meter Touch 2 Pro (for ios) and Batscanner.

Constraints

All areas required to be surveyed were visible and accessible. Therefore, there were no constraints to surveying.

4. Bat Survey Results

Weather conditions during first survey

Date	Survey	Times	Weather conditions
04/06/2024	Dusk	20:50 – 22:50 sunset at 21:12	Temp: 16 C Cloudy: 10% Wind: F0 Rain: None

Survey results

Description of emerging bats.
Total of one brown long-eared bat emerged from the south-eastern roof section of the residential building on site.

Description of other bat behaviour.
Three bat species, soprano pipistrelle, common pipistrelle and brown long eared bats, were recorded during first nocturnal bat survey.

Date	**Surveyor and survey position**	**Building** (Elevation covered)	**Activity**
Survey visit 1			
04/06/2024	Rita Smoldareva +IR camera	Front SE	The first bat recorded was soprano pipistrelle, noted at 20:59, commuting from south towards the woodland to the rear of the dwelling. The second soprano pipistrelle bat was recorded at 21:03, commuting from south towards north. Common pipistrelle bat was observed at 21:21, commuting from east towards west. At 22:01, one brown long eared bat emerged from the gap between the roof tiles on the south-eastern elevation (noted on the map) and it continued towards north, to the woodland. In total, one brown long eared bat emerged from the roof.
	David Crisp + IR camera	Rear	The first bat recorded was soprano pipistrelle, noted at 20:59, commuting from south towards the woodland to the rear of the dwelling. The second soprano pipistrelle bat was recorded at 21:03, commuting from south towards north. Common pipistrelle bat was observed at 21:21, commuting from east towards west. At 22:01, one brown long eared bat emerged from the gap between the roof tiles on the south-eastern elevation (noted on the map) and it continued towards north, to the woodland. Further bat activity included common pipistrelle and soprano pipistrelle foraging along the northern site boundary, along the woodland

Date	Surveyor and survey position	Building (Elevation covered)	Activity
			edge, from 21:26 until 21:44. Brown long-eared bat faint calls were recorded from 22:05 until 22:16. No bats were observed emerging from the northern elevation of the building.
	IR camera 3	Front SW	The first bat recorded was soprano pipistrelle, noted at 20:59, commuting from south towards the woodland to the rear of the dwelling. The second soprano pipistrelle bat was recorded at 21:03, commuting from south towards north. Common pipistrelle bat was observed at 21:21, commuting from east towards west. At 22:01, one brown long eared bat emerged from the gap between the roof tiles on the south-eastern elevation (noted on the map) and it continued towards north, to the woodland. No bats were observed emerging from the south-western elevation of the building.

Weather conditions during second survey

Date	Survey	Times	Weather conditions
28/06/2024	Dusk	20:50 – 22:45 sunset at 21:12	Temp: 16 C Cloudy: 30% Wind: F0 Rain: None

Survey results

Description of emerging bats.

In total two brown long-eared bats emerged from the same location, southern eastern roof elevation, a gap between the roof tiles.

Description of other bat behaviour.

Three bat species, soprano pipistrelle, common pipistrelle and brown long-eared bat were recorded during second nocturnal bat survey.

Date	**Surveyor and survey position**	**Building** (Elevation covered)	**Activity**
Survey visit 2			
28/06/2024	Rita Smoldareva (1) + IR camera	Front SE	At 21:08, first bat observed was common pipistrelle, commuting south to north, towards the woodland to the rear of the dwelling. The second bat observed was soprano pipistrelle, commuting from south towards the woodlands, at 21:12. Faint calls of both species were continuously recorded from 21:22 until 22:01, however no visual was made. Second surveyor confirmed that these two bats were foraging along the northern site boundary. At 22:13, one brown long-eared bat emerged from a gap between the roof tiles and commuted towards the northern site boundary. A second bat was observed emerging from the same gap at 22:21, following the same pattern of commuting towards the woodland to the north. No further bat activity recorded during the second emergence survey.
	David Crisp (2) + IR Camera	Rear	At 21:08, first bat observed was common pipistrelle, commuting south to north, towards the woodland to the rear of the dwelling. The second bat observed was soprano pipistrelle, commuting from south towards the woodlands, at 21:12. From 21:22 until 22:01 two bats, one common pipistrelle and one soprano pipistrelle were foraging along the northern site boundary.

Date	Surveyor and survey position	Building (Elevation covered)	Activity
			At 22:13, one brown long-eared bat emerged from a gap between the roof tiles and commuted towards the northern site boundary. A second bat was observed emerging from the same gap at 22:21, following the same pattern of commuting towards the woodland to the north. Brown long-eared bat faint calls were recorded from 22:17 until 22:21. No emerging bats recorded from the rear elevation.
	IR Camera 1	Front SW	Same as Surveyor 1. No emerging bats recorded from the south-western elevation.

Weather conditions during third survey

Date	Survey	Times	Weather conditions
16/07/2024	Dusk	20:50 – 22:55 sunset at 21:11	Temp: 18 C Cloudy: 10% Wind: F0/1 Rain: None

Survey results

Description of emerging bats.
Total of one brown long-eared bat emerged from the south-eastern roof section of the residential building on site.

Description of other bat behaviour.
Total of four bat species recorded the third survey, these were common pipistrelle, soprano pipistrelle, noctule and brown long-eared bats.

Date	**Surveyor and survey position**	**Building** (Elevation covered)	**Activity**
Survey visit 3			
16/07/2024	Rita Smoldareva (1)	Front SE	At 20:58, a noctule flying over high from south-eastern direction towards the woodland to the north of the site was observed. At 21:02, common pipistrelle bat followed directly by soprano pipistrelle were observed commuting towards north of the site from southern direction. At 22:27, one brown long eared bat emerged from the same location as previous two surveys and commuted towards the northern boundary. No further bat activity was recorded during the final survey.
	David Crisp (2)	Rear	At 20:58, a noctule flying over high from south-eastern direction towards the woodland to the north of the site was observed. At 21:02, common pipistrelle bat followed directly by soprano pipistrelle were observed commuting towards north of the site from southern direction. From 21:05 until 21:14, soprano pipistrelle was observed foraging along the woodland edge, close to the northern site boundary. Further foraging activity included, common pipistrelle joining at 21:08 until 21:12. At 22:27, one brown long eared bat commuted towards the northern boundary. From 22:31 until 22:37, brown long-eared bat faint calls were recorded however the bats were not observed.

Date	Surveyor and survey position	Building (Elevation covered)	Activity
			No emerging bats recorded from the rear elevation.
	IR Camera	Front SW	Same as main surveyor. No emerging bats recorded from the south-western elevation.

Map 1: Surveyor and NVA location

Surveyors

The lead surveyor for nocturnal emergence survey was Rita Smoldareva, an experienced bat surveyor, with over 9 years' experience of bat surveys and holds level 1 bat licence since July 2022 (# available on request).

Assistant Surveyor was David Crisp. David is an experienced bat surveyor who has undertaken bat surveys from May 2022.

Night Vision Aids (NVA) location and darkest point

IR Camera Location 1 – Front (SE)

IR Camera Location 2 – Front (SW)

IR Camera Location 3 – Rear

5. Conclusion and Recommendation

During the nocturnal emergence surveys, it was noted total of two brown long-eared bats emerged from south-eastern roof, the confirmed roost location is identified in the image and map within the report. DNA sample of the droppings found within the loft space confirmed that the bat species using the dwelling for roosting are brown long-eared bats.

As presence of roosting bats has been confirmed, a Natural England European Protected Species licence or a Bat Mitigation Class Licence will be required to enable the proposals.

Prior to a licence being issued, planning permission must be granted and relevant conditions relating to protected species must be discharged.

References

Collins, J. (ed), (2023), Bat Surveys for Professional Ecologists: Good Practice Guidelines 4th Edition, BCT, London

Bat Conservation Trust (2022) Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment on dawn surveys. https://cdn.bats.org.uk/uploads/pdf/Interim-guidance-note-on-NVAs-May-2022-FINAL.pdf?v=1653399882

CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf

Institute of Lighting Professionals (2012) Guidance for The Reduction of Obtrusive Light.
Mitchell-Jones, A.J. (2004), Bat Mitigation Guidelines, English Nature, Peterborough.

Appendix A – Biological Sample Analysis

Folio No: 2865-2024
Purchase Order: 62BW
Contact: Beewise.Eco
Issue Date: 12.07.2024
Received Date: 03.07.2024

Biological Report

Technical Report

SureScreen Scientifics

Folio No:	2865-2024
Purchase Order:	62BW
Contact:	Beewise.Eco
Issue Date:	12.07.2024
Received Date:	03.07.2024

SureScreen Scientifics

Biological Sample Analysis

Summary

Most biological materials (tissue, feces, hair, blood, etc.) contain small amounts of DNA from the organism of which it originated. Using molecular methods such as PCR (polymerase chain reaction) and DNA sequencing, SureScreen Scientifics are able to analyze an unknown sample to determine which species the sample originates from our methods are optimized for the detection of species including bats (over 92% of bat species worldwide can be identified including all 18 UK bat species), mammals; bees, wasps & hornets; birds; fish; plants (from roots, leaves, stem and even dried wood) and many more species.

Results

Lab ID	Site Name	OS Reference	Sample Type	Species Name	Match(%)
B3448	62 Broadwood Avenue - 1	TQ09328837	Bat Dropping	Brown long-eared bat (Plecotus auritus)	98.45

Genetic Sequence
CGGAGGCTTCGGGACTGATTGGTGCCACTAATAATTGGAGCCCCTGATATAGCTTTTCCCCGAATAAATAACATAA
GCTTCTGACTGCTTCCCCCATCTTTTCTACTACTTTTAGCTTCGTCTGCAGTAGAGGCTGGAGCAGGTACCGGTTG
AACAGTCTATCCTCCTTTAGCGGGAAACCTATGCACATGCAGGAGA

Matters affecting result: none
Reported by: Lauryn Jewkes

Approved by: Lauryn Jewkes

Folio No:	2865-2024
Purchase Order:	62BW
Contact:	Beewise.Eco
Issue Date:	12.07.2024
Received Date:	03.07.2024

Methodology

Once samples have arrived in the laboratory, the DNA is isolated using a commercial DNA extraction kit. Using PCR, DNA (if present within the sample) is amplified using universal molecular markers designed to amplify a short fragment of the DNA of the target species group (i.e. mammal, fish, arthropod, reptile, plant etc.). If amplification is successful, the resulting DNA sequence is revealed using a process known as Sanger Sequencing in order to obtain the genetic sequence of the mitochondrial gene within the sample. The sequence results are aligned against a library of known reference sequences using bioinformatics software, which enables us to determine which species the DNA sequence from the sample matches with, informing the species identity and sequence similarity (match %).

If the initial analysis is unsuccessful, the entire process is repeated up to two additional times with a fresh reserve sample (if available) in order to obtain a species identification. If no DNA is detected after three attempts, then we can be confident that any further analysis of the sample will likely also fail to result in species identification.

Interpretation of Results

Sample Type:

The sample you send to us can come from a variety of sources. Fecal, dropping, urine, hair, blood, carcass (skin, flesh, bone), gamete, plant matter or unknown biological material all contain DNA that we can test for in order to identify the species of origin.

Genetic Sequence:

The unique DNA sequence obtained from the sample.

Match (%):

How closely matched the DNA sequence from your sample is to the sequences within our reference database. This can be interpreted as a score of result accuracy, with the maximum score of 100% indicating an exact match of the sample to the indicated species' reference sequence. Lower scores (80-99%) indicate some variation between the sample and reference sequence, likely due to natural variation between individual genetic sequences and/or systematic variations generated through the sequencing process. Scores below 80% similarity should be interpreted with care and can indicate part degraded or part contaminated samples.

Inconclusive Result:

Degraded sample:

DNA is degraded and we are unable to determine species identification due to degradation of sample DNA. This can happen either before sample collection (old samples, exposure to UV etc.) or after sample collection if stored for long periods before analysis or not handled correctly.

Inhibited/contaminated sample:

We are unable to determine species identity due to contamination or the suspected presence of large quantities of PCR inhibitors. Contamination sources can originate from other species which could have come into contact with the samples, or human contamination during sample collection.

Alternative Result:

Sometimes, for targets such as bat dropping analysis, other mammalian species such as rodents are detected. We find this to be a common occurrence as some bat droppings can be similar in appearance to rodent droppings. Although sometimes unexpected, repeat analyses in these cases would likely return the same results.