



Bat Survey Report

Land of West Church Lane, Climping

November 2021

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Bat Survey Report

Land of West Church Lane, Climping

12/11/2021

Turnberry Consulting
Vivid and Climping Homes Ltd

Document Control:

Project no.	Project
10320	Land of West Church Lane, Climping

Rev	Written by:	Checked by:	Authorised by:	Date:
Rev0	Harry Webster	Paul Carter	Richard Schofield	15 November 2021

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Non-technical Summary

A series of seven bat activity surveys were carried out at land of West Church Lane. Climbing prior to development. The bat surveys follow on from a Preliminary Ecological Appraisal (PEA) and concurrent preliminary roost assessment for bats and this report should be read in conjunction with the PEA report (Phlorum 2020).

Current proposals are for the construction of a residential development to include the provision of green space. A new junction will be required between A259 and Church Lane. It is understood the woodland within the southern and western site extent will be retained with the exception of an area of hedge and trees within the south-eastern site extent to make way for the new junction. Ponds will also be created as part of the plans. The survey area extended over approximately hectares 25 (ha).

The main findings of the survey are as follows:

- ❖ The survey covered the whole of the site. Surveyors systematically walked the perimeter of the site with handheld Duet bat detectors, stopping for ten minutes at regular intervals to watch for bats.
- ❖ No bats were recorded emerging from any onsite trees during the transect surveys.
- ❖ Overall, there was a **moderate** level of bat activity at the site. A total of four bat species were recorded foraging and commuting at the site which included common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*) and brown long-eared (*Plecotus auritus*). Individuals were mainly flying along the treeline at the southern and western site boundaries. The most frequently recorded bat species were common pipistrelle and noctule.
- ❖ An ecological watching brief is recommended while the workers carry out the proposed development of the site, in addition a reinspection of all trees with a **low** potential for roosting bats is recommended before their scheduled removal. We recommend that they are soft felled under a watching brief by a suitably qualified ecologist present who will guide the works.

1. Introduction

Background

- 1.1 Phlorum Limited was commissioned by Vivid and Climping Homes Ltd to carry out a series of seven bat activity surveys in relation to land of west Church Lane (hereafter referred to as “the site”) prior to development.
- 1.2 The bat surveys follow on from a Preliminary Ecological Appraisal (PEA) and concurrent preliminary roost assessment for bats and this report should be read in conjunction with the previous PEA report (Phlorum 2020).
- 1.3 It is understood that current proposals are for the construction of a residential development to include the provision of green space.
- 1.4 During the PEA, the site and woodland and hedge habitat were considered to have **moderate** potential for foraging and commuting bats. The habitat within the arable field provides **negligible** potential for roosting bats, but the woodland, hedge and tree habitat provide **moderate** potential for roosting bats. Overall, it was considered the site offers **moderate** potential for roosting bats.
- 1.5 This report provides an assessment of the status of bats within the site, providing information on their presence/likely absence and distribution. Potential impacts of the proposed development are identified and measures to mitigate the effects of the proposed development on bats are discussed in outline.

Site Description

- 1.1 The site at Church Lane is within a relatively rural location within the centre of Climping in West Sussex. The site is bounded to the north by residential housing, and Horsemere Green Lane and to the east by Church Lane. Yapton Road bounds the site to the west and Crookthorn Lane is directly south.
- 1.2 In wider surrounds, agricultural land dominates the landscape south, east and west with residential properties and commercial buildings to the north. Littlehampton is located approximately 1.5km to the east and the coastline is approximately 1.3km to the south.
- 1.3 The National Grid Reference for the centre of the site is TQ 00082 02044. The survey area extended over approximately 25 hectares (ha).

2. Methodology

Data Search

- 2.1 Records for bats within a 2km radius of the site were obtained from the Local Records Centre (SxBRC, 2020) as part of the Preliminary Ecological Appraisal.

Personnel

- 2.2 The survey was led by Kim Roll-Baldwin, an ecological consultant with over 2 years' survey experience. Kim has previous experience leading protected species surveys, in particular bats.

Dusk Transect Surveys

- 2.3 Six dusk transect activity surveys were carried out on 25th April, 20th May, 24th June, 26th August, 20th September and 7th October. Bat Box Duet heterodyne detectors, Anabat SD2 and Anabat Express frequency division detectors were used for the surveys.
- 2.4 The survey area concentrated on the whole of the site. Surveyors walked the perimeter of the site with handheld Duet bat detectors, stopping at locations around the site for up to ten minutes before moving on. Static Anabat bat detectors were placed in the southern and northern parts of the site during the surveys.
- 2.5 The evening surveys commenced at least 15 minutes before sunset and lasted for at least two hours after sunset. Prior to sunset, bat detectors were tuned to below 30 kHz to listen for any pre-emergence social calls in proximity to the site and at sunset they were tuned to 45 kHz.

Dawn Transect Survey

- 2.6 A dawn transect survey was carried out on the 20th July 2021. Bat box heterodyne detectors and Anabat Express frequency division detectors were used for the survey.
- 2.7 The survey area concentrated on the whole of the site. One surveyor walked the perimeter of the site with a handheld Duet bat detector, stopping at locations around the site for up to ten minutes before moving on. The second surveyor walked the perimeter of the site with a handheld Duet bat detector going the opposite direction to surveyor 1.
- 2.8 The dawn survey commenced at least 2 hours before sunrise and lasted for at least 15 minutes after sunrise. Prior to the survey, bat detectors were tuned to below 30 kHz to listen for any pre-emergence social calls in proximity to the site.

Constraints

Data Search Constraints

- 2.9 It is important to note that, even where data is held, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest; the area may be simply under-recorded.

Bat Survey Constraints

- 2.10 Bats are mobile animals which can move roost sites both within and between years. It is possible that surveys carried out in May, June, July, August, September and October may miss roosts occupied at other times of the year.

3. Results

Data Search

- 3.1 The data search returned recent (post-2005) records of bats from the genera pipistrelle (*Pipistrellus*), long-eared (*Plecotus*), *Myotis* serotine (*Serotinus*), and noctule (*Nyctalus*) occurring within the 2km search area.

PEA Results

- 3.2 During the PEA potential bat roosting features were seen in the woodland on the southern and western boundary of the site. Trees with densely covered ivy and mature trees with split limbs were seen (TN1, TN2 and TN3).
- 3.3 The boundary trees and on-site woodland blocks provide suitable habitat for foraging and commuting bats and provide connectivity to offsite habitat to the east and west.
- 3.4 An aerial tree climb was recommended on the trees that are scheduled for removal, which included T7 – pedunculate oak (*Quercus robur*), T8 – ash (*Fraxinus excelsior*), and T9 – ash (*Fraxinus excelsior*). One was considered high (T9) and two were considered to provide moderate (T7, T8) potential for roosting bats.

Tree Climbing Inspection Results

- 3.5 T7 (English Oak) – **moderate** roosting potential. Two rot holes inspected, and no bats were seen roosting within the tree at the time of the survey. The first rot hole was facing north-east and was 5x5cm. The second rot hole was also facing north-east and was 5x5cm. This tree has been reassessed as having a **low** potential for roosting bats.
- 3.6 T8 (ash) – The tree considered as **moderate** roosting potential, was aerially inspected. The southern knothole of 2cm x 2cm was investigated; no bats or sign of roosting were seen. This tree has been reassessed as having **low** potential for roosting bats.
- 3.7 T9 (ash) – The tree, considered as **high** roosting potential. Two rot holes about 15x8cm on the north side. The lower hole was 3m from the ground, was inspected using a torch, and no bats were found. The second hole was 3.5m high on the north side, and again no bats were detected. This tree has been reassessed as having **low** potential for roosting bats.
- 3.8 It is recommended that all trees with a **low** potential for roosting bats on-site are reinspected just before their removal (maximum 1 week before) to ensure no bats have moved into any PRFs during the time between the inspection and their scheduled removal.

Survey Overview

- 3.9 The survey concentrated on the treelines which were mostly distributed site wide. The broad-leaved semi-natural woodland on the south and west site boundary was where PRF's (preliminary roost features) were observed during the PEA and would be the expected place for bat activity to be observed.
- 3.10 A **moderate** level of bat activity was recorded at the site during the seven transect surveys.
- 3.11 No bats were recorded emerging from the on-site trees during the seven surveys.
- 3.12 A total of 4 bat species were recorded foraging and commuting at the site which included common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*), and brown long-eared (*Plecotus auritus*). Individuals were mainly flying along the treeline in the southern and western boundaries of the site. The most frequently recorded bat species were common pipistrelle and noctule, accounting for 70% of the total recordings.

Transect Surveys

First Transect Survey (Dusk): 25th April 2021

- 3.13 Sunset was at 20:14hrs and the temperature at the start of the survey was 10°C. There was little cloud cover, a gentle breeze, and no rain.
- 3.14 The survey detected one bat commuting at the south-eastern corner, the species was identified through call analysis on Analook as common pipistrelle (*Pipistrellus pipistrellus*).
- 3.15 No bats were seen to emerge from any features for the duration of the survey.
- 3.16 The first (and only) bat pass was recorded at 19:35hrs which was seen and not heard, this was identified as a common pipistrelle through call analysis on Analook.

Second Transect Survey (Dusk): 20th May 2021

- 3.17 Sunset was at 20:49hrs and the temperature at the start of the survey was 14°C, falling to 11°C. There was minimal cloud cover, a gentle breeze, and no rain.
- 3.18 The survey detected one bat. The species was identified through call analysis on Analook as common pipistrelle (*Pipistrellus pipistrellus*).
- 3.19 No bats were seen to emerge from any features for the duration of the survey.
- 3.20 The first bat pass was recorded at 21:30hrs and was seen and not heard, this was identified as a common pipistrelle through call analysis on Analook.

Third Transect Survey (Dusk): 24th June 2021

- 3.21 Sunset was at 21:05hrs and the temperature at the start of the survey was 16°C falling to 13°C by the end of the survey. There was heavy cloud cover, a light breeze, and no rain.

- 3.22 Several bat passes were detected by the handheld Batbox Duet heterodyne detectors, but unfortunately from the calls the species could not be identified as there were no Anabat Frequency division detectors used.
- 3.23 No bats were seen to emerge from any features for the duration of the survey.
- 3.24 The first bat pass was recorded at 21:55hrs at the south boundary which was heard and not seen. The highest level of activity was recorded between 21:55hrs – 22:07hrs. The last pass was recorded at 23:14hrs at the northwest site boundary.

Fourth Transect Survey (Dawn): 20th July 2021

- 3.25 Sunrise was at 05:12hrs and the temperature at the start of the survey was 15°C, increasing to 16°C at the end of the survey. There was minimal cloud coverage, a light breeze and no rain.
- 3.26 In total 1 bat species was detected during the survey. This was identified as brown long-eared (*Plecotus auritus*).
- 3.27 No bats were seen to emerge from any features for the duration of the survey.
- 3.28 The first bat pass was recorded at 03:49hrs at the east boundary flying southwards. This was identified as a brown long-eared (*Plecotus auritus*) which was heard and not seen. Foraging was recorded at the east and south boundaries by brown long-eared. The highest level of activity was recorded between 03:49hrs – 04:22hrs. The last pass was recorded at 04:22hrs by a brown long-eared at the south boundary, heading north and was heard but not seen.

Fifth Transect Survey (Dusk): 26th August 2021

- 3.29 Sunset was at 20:15hrs and the temperature at the start of the survey was 17°C remaining the same by the end of the survey. There were high levels of cloud cover, gentle breeze and no rain.
- 3.30 In total 2 bat species were recorded during the survey. These were common pipistrelle (*Pipistrellus pipistrellus*), and noctule (*Nyctalus noctula*).
- 3.31 No bats were seen to emerge from any features for the duration of the survey.
- 3.32 The first bat pass was recorded at 20:33hrs at the south boundary which was heard and not seen. This was identified through call analysis on Anlook as a common pipistrelle (*Pipistrellus pipistrellus*). foraging was recorded at the south aspects of the site. The highest level of activity was recorded between 20:33hrs – 20:50hrs. The last pass was recorded at 21:51hrs at the north boundary which was heard and not seen.

Sixth Transect Survey (Dusk): 20th September 2021

- 3.33 Sunset was at 19:03hrs and the temperature at the start of the survey was 17°C falling to 15 at the end of the survey. The cloud cover was minimal, there was a light breeze and no rain.
- 3.34 In total 3 species of bat were recorded during the survey. These were identified on Anlook through call analysis as common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and noctule (*Nyctalus noctula*).

- 3.35 No bats were seen to emerge from any features for the duration of the survey.
- 3.36 The first bat pass was recorded at 19:24hrs which was seen and heard commuting at the treeline in the south perimeter. This was identified through call analysis as a noctule (*Nyctalus noctula*). Foraging was recorded at the sites southern boundary. The highest level of activity was recorded between 19:24hrs – 19:58hrs. The last pass was recorded at 20:40hrs which was heard but not seen at the northwest boundary.

Seventh Transect Survey (Dusk): 7th October 2021

- 3.37 Sunset was at 19:03hrs and the temperature at the start of the survey was 17°C falling to 15C at the end of the survey. There were low levels of cloud cover, no wind and no rain.
- 3.38 In total 3 species of bat were detected during the survey. These were identified as common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and noctule (*Nyctalus noctula*).
- 3.39 No bats were seen to emerge from any features for the duration of the survey.
- The first bat pass was recorded at 20:33hrs at the south boundary which was heard and not seen. This was identified through call analysis on Anlook as a common pipistrelle (*Pipistrellus pipistrellus*). foraging was recorded at the south aspects of the site. The highest level of activity was recorded between 20:33hrs – 20:50hrs. The last pass was recorded at 21:51hrs at the north boundary which was heard and not seen.

4. Discussion and Recommendations

Discussion

- 4.1 The survey site is located at land of West Church Lane, Climping. The survey area extended over approximately 25 hectares (ha). Boundary trees and woodland blocks provide suitable foraging and commuting habitat for bats and provide connectivity to offsite habitat to the east and west.
- 4.2 Habitats to be impacted by the development proposals include arable land, ruderal vegetation, hedge and trees and broad-leaved woodland.
- 4.3 During the initial preliminary ecological appraisal undertaken on 3rd October 2020, the site was assessed as having **moderate** potential for foraging and commuting bats. The habitat within the arable field provides **negligible** potential for roosting bats, but the woodland, hedge and tree habitat provide **moderate** potential for roosting bats.
- 4.4 Overall, there was a **moderate** level of activity at the site. A total of four bat species were recorded foraging and commuting at the site which included common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*nyctalus noctula*), and brown long-eared (*Plecotus auritus*). Individuals were mainly flying along the treeline at the southern and western boundaries of the site. The most frequently recorded bat species were common pipistrelle and noctule.
- 4.5 Bats are not likely to pose a constraint to development. However, it is recommended that all trees with **low** potential for roosting bats on-site are reinspected just before their removal (maximum 1 week before) to ensure no bats have moved into any of PRFs during the time between the surveys and their scheduled removal.
- 4.6 We recommend that the trees that are to be removed are soft felled under a watching brief with a suitably qualified ecologist present who will guide the works. If necessary, a tree climb inspection can be carried out prior to felling the trees.

Recommendations

Construction Phase

- 4.7 A suitably licensed ecologist should oversee the works and discuss the stages with the on-site contractors. If during the works a bat is found, then the ecologist needs to be informed and all work stopped until it has been assessed. If a roost is found, then a bat ESPM license may be required before the works continue.

Habitat Enhancement/Retention

- 4.8 Boundary trees and hedgerow should be retained, where possible. These linear features provide habitat connectivity to the wider landscape.

- 4.9 Additional roosting opportunities could be incorporated into the final design to enhance the site for roosting bats post works. This could include the installation of at least two bat boxes such as the Schwegler 1FF bat box located on surrounding mature trees within the site. These should be orientated with a south-east or south-west aspect and located at least 3m from ground level.

Bats and Lighting

- 4.10 The current site is not well lit at night and therefore the development should serve to maintain the site's value for foraging bats and to minimise indirect impacts from lighting associated with the new development and during the construction phase of the development. This can be achieved by following accepted best practise (Institute of Ecology and Environmental Management 2006, Institute of Lighting Professionals 2018, Bat Conservation Trust, 2014). A summary of general lighting guidance relating to bats, is given below.

- ❖ The level of any artificial lighting including flood lighting should be kept to a minimum, particularly around the site boundaries;
- ❖ LED lights are a preferred option to low pressure sodium lights or high pressure sodium or mercury lamps. LED lights do not emit UV radiation, towards which some insects are attracted, drawing them away from bat foraging areas in the surrounding landscape;
- ❖ all lights should be directed at a low angle with minimal light spillage wherever possible;
- ❖ ideally the site boundaries should be kept dark, preferably at bat emergence (0-1 hour after sunset) and during peak bat activity periods (e.g. 1.5 hours after sunset and 1.5 hours before sunrise);
- ❖ Artificial lighting should not directly illuminate any potential bat commuting areas such as boundary features. Similarly, any newly planted linear features or buffer areas around the site boundary should not be directly lit; and
- ❖ If security lights are required, then they will be set on a Passive Infrared (PIR) sensor and timer so that the light is only emitted for the short time period required.

5. Conclusions

Conclusions

- 5.1 A series of seven transect surveys were undertaken at land of west Church Lane, Climping on 25th April 2021, 20th May 2021, 24th June 2021, 20th July 2021, 26th August 2021, 20th September, and 7th October 2021.
- 5.2 The habitats on site include arable field, hedge and trees, broad-leaved semi-natural woodland and evergreen hedgerow. The survey area extended over 25ha (hectares).
- 5.3 Overall, a **moderate** level of activity was recorded at the site. A total of 4 bat species were recorded foraging and commuting at the site which included common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*) and brown long-eared (*Plecotus auritus*). Individuals were mainly flying along the treelines in the southern and western boundaries. The most frequently observed bat species were common pipistrelle and noctule.
- 5.4 A reinspection of all trees with a **low** potential for roosting bats on-site before their scheduled removal (maximum 1 week before) is recommended.
- 5.5 Providing a precautionary approach is followed during the works stages, a European Protected Species Mitigation License in relation to potential bat roosts **will not be required**.

6. References

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Appendix A

Bat Survey Map



Site Boundary



Broad-Leaved Semi-Natural Woodland



Transect Route



Dominant Flight Paths



Figure 1: Climbing Bat Transect Survey Map

Drawn by: HW

On: 12/11/2021

Ref: 0700

Not to scale



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Appendix B

Legislation

Legislation

This section contains information pertaining to the legislation and planning policy applicable in Britain. This information is not applicable to Northern Ireland, the Republic of Ireland the Isle of Man or the Channel Islands. Information contained in the following appendix is provided for guidance only.

Species

The objective of the EC Habitats Directive¹ is to conserve plants and animals which are considered to be rare across Europe. The Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2010 (as amended) (formerly The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended).

The Wildlife and Countryside Act 1981 (as amended) implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and also implements the obligations set out for species protection from the Council Directive 2009/147/EC (formerly 79/409/EEC) on the Conservation of Wild Birds (EC Birds Directive) in Great Britain.

Various amendments have been made since the Wildlife & Countryside Act came into force in 1981. Further details pertaining to alterations of the Act can be found on the following website: www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CROW) Act (2000) and Nature Conservation (Scotland) Act 2004.

There are a number of other legislative Acts affording protection to species and habitats. These include:

- ❖ Countryside and Rights of Way (CROW) Act 2000;
- ❖ Deer Act 1991;
- ❖ Natural Environment & Rural Communities (NERC) Act 2006;
- ❖ Protection of Badgers Act 1992; and
- ❖ Wild Mammals (Protection) Act 1996.

Bats

Bats are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). This act protects individuals from:

- ❖ intentional or reckless disturbance (at any level);
- ❖ intentional or reckless obstruction of access to any place of shelter or protection; and

¹ Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.

- ☞ selling, offering or exposing for sale, possession or transporting for purpose of sale

In addition, all species of bat are fully protected under The Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- ☞ deliberate killing, injuring or capturing of Schedule 2 species (all bats);
- ☞ deliberate disturbance of bat species as to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young; and
 - (ii) to hibernate or migrate.
- ☞ deliberate disturbance of bat species as to affect significantly the local distribution or abundance of the species;
- ☞ damage or destruction of a breeding site or resting place; and
- ☞ keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

A European Protected Species Mitigation (EPSM) Licence issued by Natural England will be required for works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake activities listed above. A licence is required to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and monitored.

Appendix C

Bat Survey Data

Bat Survey Data

First Transect Survey 25th April 2021

Number of Surveyors	Site and Job no:	Start Time	Sunset Time	Finish Time	Temperature (°C) at start	Temperature (°C) at end	Cloud Cover (Oktas 1-8)	Windspeed (Beauforts 1-12)	Rain
2	Climping, 9709	19:59	20:14	22:14	10	6	1	4	n/a

Surveyor 1: CB				Bat Detector Used:
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)
n/a	n/a	n/a	n/a	No bat activity detected.

Surveyor 2: NA				Bat Detector Used: A2
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)
19:35 – 19:37	Flew past trees in south east corner	Commuting	1	S. Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)

Second Transect Survey 20th May 2021

Number of Surveyors	Site and job no:	Start Time	Sunset Time	Finish Time	Temperature (°C) at start	Temperature (°C) at end	Cloud Cover (Okta 1-8)	Windspeed (Beauforts 1-12)	Rain
2	Climping, 9709	20:34	20:49	23:49	14	12	2	2	n/a

Surveyor 1: NA				Bat Detector Used: A3 & BD3
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)
21:30	South boundary	n/a	1	S. Common pipistrelle (<i>Pipistrellus pipistrellus</i>)

21:40	Flew from south towards north-west corner	Commuting	1	SH. Common pipistrelle (<i>Pipistrellus pipistrellus</i>)
21:42	South boundary	n/a	1	H. Common pipistrelle (<i>Pipistrellus pipistrellus</i>)

Surveyor 2: MV				Bat Detector Used: BD2
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)
21:37	Southwest boundary	Commuting	1	SH.
21:57	From south trees, then flew west	Foraging	1	SH.
22:00	Flew west from south	Commuting	4	SH.

Third Transect Survey 24th June 2021

Number of Surveyors	Site and job no:	Start Time	Sunset Time	Finish Time	Temperature (°C) at start	Temperature (°C) at end	Cloud Cover (Oktas 1-8)	Windspeed (Beauforts 1-12)	Rain
2	Climping, 9709	21:05	21:20	23:20	16	13	6	3	n/a

Surveyor 1: KB				Bat Detector Used: BD3					
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)					
21:55	South boundary	n/a	1	H.					
22:16	Flew from south towards north-west corner	Commuting	1	SH.					
22:43	South boundary	n/a	1	H.					

Surveyor 2: MV				Bat Detector Used: BD2
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)
22:01	Southwest boundary	Commuting	1	SH.
22:04	From trees, circled, then flew west	Foraging	1	SH.
22:07	From trees, circled, then flew towards green (northwards)	Commuting/Foraging	4	SH.
22:14	Southwest boundary	n/a	1	H.
22:37	Southwest corner	n/a	5	H.
22:49	Southwest corner	n/a	3	H.

23:03	Boundary adjoining green	n/a	1	H.					
23:14	Northwest boundary	n/a	2	H.					

Fourth Transect Survey (Dawn) 20th July 2021

Number of Surveyors	Site and job no:	Start Time	Sunrise Time	Finish Time	Temperature (°C) at start	Temperature (°C) at end	Cloud Cover (Oktas 1-8)	Windspeed (Beauforts 1-12)	Rain
2	Climping, 9709	03:12	05:12	05:27	15	16	1	1	n/a

Surveyor 1: CB				Bat Detector Used: A2	
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)	
03:49	East boundary	Foraging	1	S. Brown long-eared (<i>Plecotus auritus</i>)	

	heading south				
04:22	South boundary heading north	Foraging	1	S. Brown long-eared (<i>Plecotus auritus</i>)	

Surveyor 2: KS				Bat Detector Used: BD3	
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)	
n/a	n/a	n/a	n/a	No bat activity detected.	

Fifth Transect Survey 26th August 2021

Number of Surveyors	Site and job no:	Start Time	Sunrise Time	Finish Time	Temperature (°C) at start	Temperature (°C) at end	Cloud Cover (Okta 1-8)	Windspeed (Beauforts 1-12)	Rain
2	Climping, 9709	20:00	20:15	22:15	17	17	8	1	No

Surveyor 1: AF				Bat Detector Used: A1 & BD1
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)
20:43	West boundary	n/a	2	H. No data (echolocation)
20:45	Southwest corner, from trees	Commuting	3	SH. No data (echolocation)
20:49	Southwest corner, from trees	Foraging	2	SH. No data (echolocation)
21:25	Boundary adjoining green	n/a	n/a	H. No data (echolocation)

Surveyor 2: NA				Bat Detector Used: A3
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)

20:33	South boundary	n/a	1	H. Common pipistrelle (<i>Pipistrellus pipistrellus</i>)
20:41	South boundary	n/a	1	H. Noctule (<i>Nyctalus noctula</i>)
20:42	South boundary by tree line heading east	Foraging	2	SH. Noctule (<i>Nyctalus noctula</i>)
20:45	South boundary heading east	Foraging	1	SH. Noctule (<i>Nyctalus noctula</i>)
20:50	South boundary heading east	Foraging	1	SH. Noctule (<i>Nyctalus noctula</i>)
21:13	South boundary	n/a	1	H. Noctule (<i>Nyctalus noctula</i>)
21:27	Southeast corner	n/a	1	H. Noctule (<i>Nyctalus noctula</i>)
21:31	Southeast corner	n/a	1	H. Noctule (<i>Nyctalus noctula</i>)

21:50	East boundary	n/a	1	H. Common pipistrelle (<i>Pipistrellus pipistrellus</i>)
21:51	North boundary	n/a	1	H. No data (echolocation)

Sixth Transect Survey 20th September 2021

Number of Surveyors	Site and job no:	Start Time	Sunset Time	Finish Time	Temperature (°C) at start	Temperature (°C) at end	Cloud Cover (Oktas 1-8)	Windspeed (Beauforts 1-12)	Rain
2	Climping, 9709	18:48	19:03	21:03	17	15	1	1	No

Surveyor 1: KB				Bat Detector Used: A3	
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)	
19:24	Flew from tree line south perimeter	Commuting	1	SH. Noctule (<i>Nyctalus noctula</i>)	
19:37	Flew eastwards at	Commuting	7	H. Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)	

	south boundary			
19:39	South boundary	n/a	2	H. Common pipistrelle (<i>Pipistrellus pipistrellus</i>)
19:41	South boundary	n/a	8	H. Common pipistrelle (<i>Pipistrellus pipistrellus</i>)
19:47	South boundary	n/a	2	H. Noctule (<i>Nyctalus noctula</i>) & common pipistrelle (<i>Pipistrellus pipistrellus</i>)
19:51	South boundary	n/a	3	H. Soprano pipistrelle (<i>Pipistrellus pipistrellus</i>)
20:13	Southeast boundary	n/a	n/a	H. Common pipistrelle (<i>Pipistrellus pipistrellus</i>)

Surveyor 2: AF				Bat Detector Used: BD1 & A1
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)
19:32	Flew from treeline in	Foraging	20	SH. No data (echolocation)

	southwest corner			
19:34	Flew from treeline at south boundary then returned	Foraging	8	SH. No data (echolocation)
19:40	Flew from treeline at south perimeter (opposite B233 road)	Foraging	2	SH. No data (echolocation)
19:44	Southern boundary	n/a	n/a	H. No data (echolocation)
19:48	Flew from tree line at south boundary then returned	n/a	1	SH. No data (echolocation)
19:50	Southwest boundary	n/a	n/a	H. No data (echolocation)

19:51	Southwest boundary	n/a	n/a	H. No data (echolocation)					
19:58	Flew from treeline at south perimeter (opposite B233 road)	Foraging	2	SH. No data (echolocation)					
20:28	Northwest boundary	n/a	1	H. No data (echolocation)					
20:40	Northwest boundary	n/a	2	H. No data (echolocation)					

Seventh Transect Survey 7th October 2021

Number of Surveyors	Site and job no:	Start Time	Sunset Time	Finish Time	Temperature (°C) at start	Temperature (°C) at end	Cloud Cover (Oktas 1-8)	Windspeed (Beauforts 1-12)	Rain
2	Climping, 9709	18:12	18:27	20:27	13	10	2	1	No

Surveyor 1: PC				Bat Detector Used: BD1
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)
18:59	Flew towards green (Northwards)	Commuting	1	SH.
19:03	Upper southwest corner	n/a	1	H.
19:08	Toward treeline at west boundary	Foraging	7	SH.
19:20	Lower southwest corner	n/a	1	H.
19:22	Flew toward south treeline	Commuting	1	SH.

19:25	Lower southwest corner	n/a	1	H.
19:30	Lower southwest corner	Foraging	4	H.
19:31	Lower southwest corner	n/a	1	H.
19:33	Lower southwest corner	n/a	1	H.
19:35	Upper southwest corner	n/a	2	H.
19:37	Upper southwest corner	Foraging	5	H.
19:40	Upper southwest corner	Foraging	6	H.

19:42	Upper southwest corner	Foraging	4	H.
19:52	Boundary adjoining Horsemere Green	n/a	1	H.
20:13	Northwest lower corner	n/a	2	H.
20:25	Northwest upper corner	n/a	2	H.

Surveyor 2: TB				Bat Detector Used: A1 & B03
Time	Location	Activity observed	Number of passes	Comments/Notes (S = Seen, H = Heard, SH Seen and Heard)
19:05	n/a	Foraging/Comm uting	1	S. Common pipistrelle (<i>Pipistrellus pipistrellus</i>)
19:07	n/a	Foraging	2	S. Soprano pipistrelle (<i>Pipistrellus pipistrellus</i>)

19:13	n/a	Foraging	1	S. Brown long-eared (<i>Plecotus auritus</i>)
19:41	n/a	Foraging	7	S. Common pipistrelle (<i>Pipistrellus pipistrellus</i>)
20:06	n/a	Foraging	2	H. Brown long-eared (<i>Plecouts auritus</i>)
20:10	n/a	Foraging	1	H. Brown long-eared (<i>Plecotus auritus</i>)

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