Blair Hill Wind Farm

Bat Survey Report

Technical Appendix 8.3

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1 INTRODUCTION

MacArthur Green was commissioned by the Applicant to carry out bat surveys at the proposed Blair Hill Wind Farm located near Newton Stewart, Dumfries and Galloway, (hereafter referred to as the 'Proposed Development').

Bat surveys included:

- Desk-based assessment;
- A Preliminary Roost Assessment for Bats (PRA) (2023 and 2024); and
- Automated activity surveys (2023).

The aim of the surveys was to quantify the Proposed Development usage by bats and variation in bat activity levels within the Site, and to inform the ecological impact assessment for the Blair Hill Wind Farm Environmental Impact Assessment Report (EIAR).

2 THE PROPOSED DEVELOPMENT AND SURVEY AREA

The Proposed Development is located approximately 2.7 km north of the town of Newton Stewart, approximately 4 km east of the River Cree and lies wholly within the Dumfries and Galloway (D&G) Council area.

The Site comprises an area of approximately 681.5 hectares (ha). The Proposed Development is set within grazed open moorland and areas of commercial forestry. The elevation varies from 100 m Above Ordnance Datum (AOD) to 404 m AOD. There are several minor watercourses on and around the Site. The Proposed Development is fully described within **Chapter 2: Project Description** of the EIAR.

The Proposed Development does not overlap with any statutory designated sites containing bat related qualifying features and interests.

The temporal (Anabat) survey area covered the wind turbine infrastructure area and consisted of 18 Anabat deployment locations as shown in **Figure 8.10**. The PRA survey area covered a wider extent than the Site boundary, see **Figure 8.10**.

The PRA survey area covered during the June 2023 survey for the Proposed Development was the main Site, the November 2023 and May 2024 PRA survey area covered the access track with a 30 m buffer, see **Figure 8.10**.

3 BATS AND WIND FARMS

3.1 Policy and Guidance

All bat species are protected under the following legislation:

- The Habitats Directive 92/43/EEC (as amended);
- The Wildlife and Countryside Act 1981 (as amended); and

- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).

Details pertaining to the legal status of bats are included within **Annex A** and in **Table A-1**.

In the UK and Europe, guidelines have been produced with regards to assessing the ecological impact upon bats from wind farm developments. These guidelines help to inform survey and mitigation strategies.

The following guidance documents have been used in the preparation of this report:

- Collins, J. (ed) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3rd Edition. The Bat Conservation Trust, London[1];
- Collins, J. (ed.) (2023). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 4th Edition. The Bat Conservation Trust, London;
- Andrews, H. (2018) *Bat Roosts in Trees: a guide for identification and assessment for tree-care and ecology professionals*. Pelagic Publishing, Exeter;
- Reason, P.F. and Wray, S. (2023). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. Chartered Institute of Ecology and Environmental Management, Ampfield;
- Russ, J. (2012) *British Bat Calls, A Guide to Species Identification*, Pelagic Publishing, Exeter; and
- NatureScot, Natural England, Natural Resources Wales, Renewable UK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter & the Bat Conservation Trust (BCT). (2021). *Bats and Onshore Wind Turbines: Survey Assessment and Mitigation*.

4 METHODS

4.1 Desk-Based Assessment

A desk-based assessment was undertaken with regards to the presence of bat species within the Site and its environs.

A National Biodiversity Network (NBN)[2] Atlas Scotland search was completed to obtain bat records from 2009 to 2024 within 10 km of the Proposed Development. A similar data search was undertaken with South West of Scotland Environmental Information Centre (SWSEIC) for records within 5 km.

4.2 Field Survey Methods

4.2.1 Preliminary Bat Roost Assessment

The PRA followed the assessment methodology as set out in Collins (2016)[1] and Collins (2023) to identify any Potential Roost Features (PRFs) in trees, buildings and structures, which could support

[1] Methods and analysis followed the 3rd edition of the Bat Conservation Trust survey guidelines as surveys in 2023 were completed before the 4th edition guidelines were published in September 2023.
[2] NBN Atlas occurrence download at https://nbnatlas.org (accessed on 04 January 2024).

roosting bats and to search for evidence of roosting bats. Where PRFs were identified in 2023, they were assigned a value of low, moderate or high suitability which indicates the likelihood of bats being present and informs the requirement for further survey work, such as a climbing inspection and/or dusk and dawn bat activity surveys. Collins (2016), state the following descriptions for assessing PRFs:

- Negligible – Negligible habitat features on site to be used by roosting bats.
- Low – A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[3] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity or hibernation[4]).

  A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential[5].

- Moderate – A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions[3] and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
- High – A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions[3] and surrounding habitat.

For the 2024 surveys, Collins (2023), state the following descriptions for assessing PRFs recorded in trees:

- PRF-I – PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
- PRF-M – PRF is suitable for multiple bats and may therefore be used by a maternity colony.

The PRA was carried out within the survey areas in 2023 and 2024, as shown in **Figure 8.10**.

4.2.2 Automated Activity Surveys

NatureScot *et al.* (2021) recommends that, "*Where developments have more than ten turbines, detectors should be placed within the developable area at ten potential turbine locations plus a third of additional potential turbine sites up to a maximum of 40 detectors for the largest developments.*"

[3] For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

[4] Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten et al., 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

[5] This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

The Proposed Development layout at the time of survey in 2023 included 34 proposed turbines, set within a larger proposed Site boundary at that time. A 34-turbine site would therefore require 18 locations to be sampled. The Proposed Development now includes for a much-reduced 14 turbines, and as such the required number of sampling locations to meet minimum guidance standards would be 11 survey locations. The 18 detectors were placed and spread across potential turbine locations across the Site, deployed seasonally (three deployment periods) from May to October. NatureScot *et al.* (2021) also recommends a minimum of ten consecutive nights of sampling per seasonal deployment. Detector locations are shown in **Figure 8.10**.

Anabat Swift detectors recording full-spectrum files were deployed for a minimum period of 14 consecutive nights across the Site (i.e., exceeding minimum survey requirements of ten days per season; spring April - May, summer June - mid-August; autumn mid-August - October) and were positioned at a height of 2 m above ground level. Each detector recorded bats from dusk to dawn with detectors starting 30 minutes before dusk and finishing 30 minutes after dawn. Detector operating times and a description of the habitat type at each location is shown in **Table B-1** of **Annex B**.

The full spectrum detector was deployed with the following settings:

- Sensitivity value of 14;
- Minimum frequency of 15 kHz;
- Maximum frequency of 250 kHz;
- Maximum file length of 15 s;
- Minimum event of -2 ms; and
- Sampling rate of 320 kHz.

Data was analysed using Kaleidoscope Pro Auto ID classifier which assigns a species label to a sound file (Reason *et al.* 2016). To ensure that all bat calls (with the exception of common and soprano pipistrelle which were excluded) were identified correctly by the software, they were manually reviewed by an appropriately trained ecologist using Kaleidoscope Viewer software. This method of analysis is in line with current guidelines for data analysis which recommends the manual checking of all non-*Pipistrellus* calls (excluding Nathusius' pipistrelle) when using automated methods (Collins, 2023). Sound files labelled as noise were also reviewed. Guidance on call parameters was taken from Russ (2012).

At the time of preparing this report (July 2024), the secure online tool Ecobat (Mammal Society, 2017) was not available and therefore alternative quantitative methods were used to assess bat activity levels, in line with advice received from NatureScot considering the ongoing unavailability of Ecobat.

4.3 Methods for Analysing Bat Activity Levels and Risks

NatureScot *et al.* (2021) details the methodology for analysing bat activity levels. This method is summarised below and involves the following modified steps (due to Ecobat being offline at the time of reporting):

1. Calculating bat passes per hour (bpph) for Bat Activity Level;
2. Categorising collision risk of the relevant species;
3. Identifying population relevant abundance (size of the populations);
4. Categorising the potential vulnerability of bat populations by combining collision risk with population abundance;
5. Categorising the Site risk level; and
6. An assessment of significance and mitigation.

The following sections outline the methods used in each step.

4.3.1 Step 1: Calculating Bat Passes Per Hour

To generate a bat activity index value and allow a comparison between locations, species and seasons, the number of bpph was calculated. This method refers to the number of bat passes as opposed to the number of individual bats recorded, as it is not possible to definitively identify individual bats and the total number of individual bats present. The data analysis did not include any noise files. The bpph is used to provide a quantitative measure of bat activity across the Site.

4.3.2 Step 2: Vulnerability to Collision

Appendix 3 of NatureScot *et al.* (2021) presents a generic assessment of vulnerability to collision for UK species, based on species behaviour, flight characteristics and casualties in the UK and Europe. **Table 4-1** provides a summary of the vulnerability of each bat species to collision.

Table 4-1: Vulnerability of Bat Species to Turbine Impact in the UK

Risk of Turbine Impact (Collision Risk)		
Low Risk	**Medium Risk**	**High Risk**
Myotis spp.	Serotine	Common pipistrelle
Long-eared bats	Barbastelle	Soprano pipistrelle
Horseshoe bats		Noctule
		Leisler's bat
		Nathusius' pipistrelle

Habitat characteristics at the location of turbines can have an important influence on the vulnerability of bat species to collision. For example, proximity to key feeding sites and commuting routes such as water features and woodland edge habitats is known to increase the likelihood of bat collision (NatureScot *et al.* (2021)).

4.3.3 Step 3: Population Relative Abundance

NatureScot *et al.* (2021) details the sensitivity of a bat species to impact based on their population's relative abundance in Scotland as detailed in **Table 4-2**. Species with the rarest relative abundance are more susceptible to significant effects.

Table 4-2: Population Relative Abundance of Bats in Scotland

Relative Abundance	Species
Common	Common pipistrelle (*Pipistrellus pipistrellus*)
	Soprano pipistrelle (*Pipistrellus pygmaeus*)
Rarer	Brown long-eared bat (*Plecotus auritus*)
	Daubenton's bat *(Myotis daubentonii)*
	Natterer's bat (*Myotis nattereri*)
Rarest	Whiskered bat (*Myotis mystacinus*)
	Brandt's bat (*Myotis brandtii*)
	Nathusius' pipistrelle (*Pipistrellus nathusii*)
	Noctule bat (*Nyctalus noctule*)
	Leisler's bat (*Nyctalus leisleri*)

4.3.4 Step 4: Potential Vulnerability of Bat Populations

Table 4-3 below, sourced from NatureScot *et al.* (2021), uses the measure of collision risk, in combination with population relative abundance, to indicate the potential vulnerability of populations of British bat species. The overall potential vulnerability of bat populations is identified as: low (yellow), medium (orange), high (red).

Table 4-3: Level of Potential Vulnerability of Populations of British Bat Species

Relative Abundance of Bats in Scotland		Collision Risk		
		Low collision risk	Medium collision risk	High collision risk
	Common species			Common pipistrelle Soprano pipistrelle
	Rarer species	Brown long-eared bat Daubenton's bat Natterer's bat		
	Rarest species	Whiskered bat Brandt's bat		Nathusius' pipistrelle Noctule bat Leisler's bat

4.3.5 Step 5: Categorise the Site Risk Level

The Site risk level is categorised through a combination of habitat risk and project size which is then entered into the table matrix as shown below in

Table 4-4 to calculate the overall Site risk level. The full matrix table, as provided within NatureScot *et al.* (2021), is shown in **Annex C** of this report which includes descriptions on how to determine the habitat risk and project size for the Proposed Development.

Table 4-4: Initial Site Risk Level (1-5) Assessment

Habitat Risk	Project Size		
	Small	Medium	Large
Low	1	2	3
Moderate	2	3	4
High	3	4	5

Key: Green (1-2) – low/lowest site risk; Amber (3) – medium site risk; Red (4-5) – high/highest site risk[6]

4.3.6 Step 6: Assessment of Significance and Mitigation

The outputs of the bpph detailed in Step 1 above are then used to assess the significance of effect within the EIAR. At this stage, other Site-specific factors should be considered such as habitat characteristics (and how they may change), behaviour of species at the Proposed Development, and location of the Proposed Development regarding the natural range of the species and how this could affect favourable conservation status.

Mitigation measures as detailed within section 7.1 of NatureScot *et al.* (2021) are then considered where appropriate.

5 BAT SURVEY LIMITATIONS

NatureScot *et al.* (2021) guidance recommends the minimum level of pre-application survey required for ground level static detectors to be ten nights of recordings in each of spring (April - May), summer (June to mid-August) and autumn (mid-August - October). In Scotland, due to unfavourable weather conditions and low activity levels for bats in April, ground-level automated activity surveys commenced in May and were completed in October by MacArthur Green.

Automated activity surveys should capture a sufficient number of nights (minimum of ten nights) with appropriate weather conditions for bat activity (i.e., temperatures at or above of 8 °C in Scotland at dusk, maximum ground level wind speed of 5 m/s and no, or only very light, rainfall) (NatureScot *et al*, 2021). To account for the potential limitations of weather on the number of suitable nights recorded, surveys were carried out over longer deployment periods, with a minimum of 14 nights recorded.

Some temporal calls were assigned an unknown value (NoID), due to the recording of a very faint call or an incomplete call that could not be identified to species level on the spectrogram. These were not considered further in the analysis.

For some *Nyctalus* and *Myotis* spp. calls it was only possible to identify the call to genus level.

Due to unforeseen errors with the detectors, microphones or batteries, it was not always possible to achieve 14 consecutive nights of recordings. However, only one detector failed to record data for the minimum ten nights during a deployment period (Location 11 in August), with this location

[6] Some sites could conceivably be assessed as being of no (0) risk to bats. This assessment is only likely to be valid in more extreme environments, such as above the known altitudinal range of bats, or outside the known geographical distribution of any resident British species.

recording nine nights. As the majority of locations recorded for more than ten nights, and with more detectors deployed than required (18 deployed versus the 11 required by the guidance for a development of this size), and with a total of 747 complete nights recorded this is significantly more than the minimum number of nights required (i.e., 11 Anabats*10 nights*3 seasonal deployments = 330 nights of data) required for the Proposed Development. The survey timings can be seen in **Annex B**, **Table B-1**.

Anabat detectors are a commonly used bat detector for acoustic monitoring at wind farm sites, however all bat detectors have limitations and will only monitor bat activity within a limited area, which for Anabats is usually around 30 m, depending on a variety of environmental factors. Furthermore, due to passive monitoring methodologies depending on sound reaching the microphone, the detection rate of bat calls varies with a bias towards loud bat calls with quieter calls, namely brown long-eared bats (low collision risk species), potentially being under-recorded.

6 SURVEY RESULTS & ANALYSIS

6.1 Desk-Based Assessment

The NBN Atlas data search[2] returned records of the following bat species within 10 km of the Proposed Development between 2009 - 2024 inclusive:

- Daubenton's;
- Natterer's;
- *Myotis* spp.;
- Leisler's;
- Noctule;
- *Nyctalus* spp.;
- Common pipistrelle;
- Soprano pipistrelle; and
- Brown long-eared bat.

Details regarding licences and data providers for these records are included in **Table 6-1** below.

Table 6-1 Data Providers for NBN Atlas Scotland Records Used

Species	Data Provider (Recorder)	Licence
Daubenton's	Scottish Natural Heritage (SNH)/British Trust for Ornithology (BTO) (Southern Scotland Bat Survey)	OGL[7]
Natterer's	SNH/BTO (Southern Scotland Bat Survey)	OGL[7]
Myotis spp.	SNH/BTO (Southern Scotland Bat Survey)	OGL[7]

[7] Open Government Licence (OGL) https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ [Accessed January 2024].

Species	Data Provider (Recorder)	Licence
Leisler's	SNH/BTO (Southern Scotland Bat Survey)	OGL[7]
Noctule	SNH/BTO (Southern Scotland Bat Survey)	OGL[7]
Nyctalus spp.	SNH/BTO (Southern Scotland Bat Survey)	OGL[7]
Common pipistrelle	SNH/BTO (Southern Scotland Bat Survey)	OGL[7]
Soprano pipistrelle	SNH/BTO (Southern Scotland Bat Survey) and Bat Conservation Trust (Claudia Gebhardt)	OGL[7]
Brown long-eared bat	SNH/BTO (Southern Scotland Bat Survey)	OGL[7]

A data request from the SWSEIC[8] returned records of the following bat species within 5 km of the Proposed Development between 2009 - 2024 inclusive:

- Brown long-eared;
- Brandt's;
- Common pipistrelle;
- Soprano pipistrelle;
- *Pipistrelle* spp.;
- *Myotis* spp.;
- Whiskered;
- Daubenton's;
- Natterer's;
- *Nyctalus* spp.; and
- Noctule.

6.2 Preliminary Bat Roost Assessment

The PRA survey for the Proposed Development was undertaken by MacArthur Green in June and November 2023. Additional surveys in May 2024 were conducted in the access track area around Auchinleck. Associated High and Moderate PRF records are shown in **Figure 8.10** with the detailed results (target notes) listed in **Annex D, Table D-1**.

There was a total of 15 features recorded with negligible to high potential suitability for roosting bats in 2023. Twelve of these features were located along the track (two moderate and ten low potential), the moderate potential features are located beyond 30 m of planned infrastructure or existing track. Three of the other features are outwith the Site boundary, with one high potential feature being over 690 m from the closest proposed wind turbine (T10). The other features are

[8] https://swseic.org.uk/ [Accessed August 2024]

negligible and low. In 2024, three features were recorded as PRF-I[9] (Collins, 2023), within the closest being 15 m from the proposed track.

No features with moderate or high suitability for roosting bats were recorded within 200 m plus rotor radius of a proposed wind turbine location and as such no further surveys were required.

6.3 Automated Activity Surveys

MacArthur Green deployed detectors at 18 locations at the Site from May to October in 2023 over a total period of 42 days and collecting 747 complete recording nights of data, see **Table B-1** of **Annex B** and **Figure 8.10**.

A total of nine bat species and two bat genera were recorded at these locations. The total number of bat passes recorded for each species across all the detectors within the Site are shown below in **Table 6-2**.

Table 6-2 Total Number of Bat Passes for Each Species Across all Locations

Species/Species Group	No. of Registrations	Percentage of total (%)
Soprano pipistrelle	15,406	53.92
Common pipistrelle	7,335	25.67
Nathusius' pipistrelle	1	0.00
Noctule	1,316	4.61
Leisler's	2,293	8.03
Nyctalus spp.	127	0.44
Daubenton's	1,084	3.79
Natterer's	366	1.28
Whiskered	293	1.03
Myotis spp.	23	0.08
Brown long-eared	321	1.12
Total	**28,565[10]**	**99.98[11]**

The summarised results and analysis are presented in Steps 1 – 6 below.

6.3.1 Step 1: Bat Activity Levels (using bpph)

Bat Activity Levels Across the Site and Through the Seasons

Data on the activity levels for all species across the Site and through the seasons is provided in **Table E-1** of **Annex E**. Professional judgement was used to assess the Site risk.

[9] PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
[10] NoID call registrations were not considered for analysis.
[11] Due to rounding, the percentage may not be 100% exactly.

The bpph for each bat species found at each location across the three Visits[12] are shown in **Table 6-3**[13]; see also **Figures 8.11 - 8.13** in relation to high collision risk species. There are several bat species that were not recorded over the deployment period at several of the locations.

Table 6-3 Bat Passes per Hour for Each Species Across all Locations and Visits

Common pipistrelle			
	Visit 1 bpph	**Visit 2 bpph**	**Visit 3 bpph**
Location 1	0.22	0.01	0.09
Location 2	0.87	0.05	0.15
Location 3	1.98	0.18	0.20
Location 4	0.84	0.08	0.03
Location 5	1.15	0.18	0.29
Location 6	0.93	0.13	0.07
Location 7	2.33	0.37	0.49
Location 8	0.29	0.03	0.14
Location 9	1.63	0.05	0.05
Location 10	0.32	0.26	0.21
Location 11	1.22	0.38	0.88
Location 12	6.56	2.47	1.60
Location 13	5.21	7.23	0.82
Location 14	6.69	4.43	0.29
Location 15	1.50	0.23	0.14
Location 16	0.01	0.67	0.53
Location 17	0.21	0.18	0.19
Location 18	0.79	1.48	0.31
Soprano pipistrelle			
	Visit 1 bpph	**Visit 2 bpph**	**Visit 3 bpph**
Location 1	0.25	0.04	0.13
Location 2	0.88	0.10	0.15
Location 3	1.97	0.13	0.24
Location 4	1.06	0.08	0.08
Location 5	1.47	0.29	1.02
Location 6	1.21	0.08	0.13
Location 7	3.43	1.37	0.66
Location 8	0.41	0.13	0.18

[12] Nathusius' pipistrelle has not been included in **Table 6-3** as only one bat pass was recorded during Visit 3.
[13] N.B. In **Table 6-3** *Myotis* species have been combined as they are considered low collision risk species.

Location 9	5.07	0.12	1.36
Location 10	0.88	0.80	0.57
Location 11	1.40	0.66	0.90
Location 12	15.80	5.51	2.21
Location 13	5.87	1.81	1.76
Location 14	15.45	40.31	0.67
Location 15	2.74	0.67	0.18
Location 16	0.01	1.32	0.93
Location 17	0.36	0.74	0.43
Location 18	1.34	4.23	1.20
***Nyctalus* spp.**			
	Visit 1 bpph	**Visit 2 bpph**	**Visit 3 bpph**
Location 1	0.06	0.12	0.00
Location 2	0.05	0.15	0.00
Location 3	0.02	0.04	0.00
Location 4	0.05	0.02	0.00
Location 5	0.06	0.20	0.00
Location 6	0.09	0.27	0.02
Location 7	0.12	0.15	0.00
Location 8	0.03	0.11	0.01
Location 9	0.20	0.25	0.00
Location 10	2.03	2.43	1.79
Location 11	0.08	0.31	0.02
Location 12	1.81	1.08	0.25
Location 13	1.15	0.28	0.02
Location 14	7.51	1.27	0.02
Location 15	0.84	0.38	0.02
Location 16	0.00	2.52	0.15
Location 17	0.06	0.67	0.08
Location 18	0.16	1.90	0.81
***Myotis* spp.**			
	Visit 1 bpph	**Visit 2 bpph**	**Visit 3 bpph**
Location 1	0.23	0.06	0.16
Location 2	0.30	0.08	0.05
Location 3	0.38	0.08	0.03
Location 4	0.04	0.03	0.14

Location 5	0.12	0.09	0.10
Location 6	0.06	0.58	0.10
Location 7	0.09	0.12	0.09
Location 8	0.08	0.02	0.02
Location 9	0.97	0.04	0.01
Location 10	0.80	0.77	0.57
Location 11	0.19	0.23	0.08
Location 12	0.67	0.41	0.07
Location 13	0.40	0.10	0.08
Location 14	2.01	2.40	0.15
Location 15	0.41	0.12	0.09
Location 16	0.00	0.12	0.03
Location 17	0.02	0.08	0.04
Location 18	0.13	0.07	0.13
Brown long-eared			
	Visit 1 bpph	**Visit 2 bpph**	**Visit 3 bpph**
Location 1	0.00	0.03	0.01
Location 2	0.05	0.03	0.01
Location 3	0.05	0.02	0.01
Location 4	0.02	0.02	0.02
Location 5	0.00	0.01	0.02
Location 6	0.01	0.03	0.02
Location 7	0.02	0.08	0.02
Location 8	0.02	0.04	0.02
Location 9	0.11	0.04	0.01
Location 10	0.16	0.08	0.05
Location 11	0.02	0.05	0.01
Location 12	0.25	0.10	0.03
Location 13	0.02	0.01	0.01
Location 14	0.19	0.14	0.05
Location 15	0.03	0.05	0.01
Location 16	0.00	0.02	0.03
Location 17	0.21	0.09	0.04
Location 18	0.06	0.04	0.04

Site Activity Levels

Throughout the survey period, for all species, the 29/05/2023, 30/05/2023, 26/05/2023 and 03/08/2023 recorded the highest total bat passes across all 18 detectors: 1846, 1985, 2250 and 2293 respectively.

Overall, the highest total bpph (40.31 bpph) was recorded during Visit 2 at Location 14 for soprano pipistrelle.

During Visit 1, the maximum bpph for all species was at Location 14 with 31.85 bpph, and the minimum was at Location 16 with 0.02 bpph (**Chart 6-1**). Location 14 was located along plantation edge and by a watercourse, it is also the closest surveyed location to the Wood of Cree. Bats are known to use woodland edges as commuting corridors and the watercourse provides foraging opportunities. However, Location 14 is outwith the Site boundary and is over 2 km from the nearest proposed wind turbine (T10), due to the design evolution. Over all Locations during Visit 1, the bat species with the maximum bpph was soprano pipistrelle with 15.80 bpph, at Location 12. There was a total of 13,282 bat passes during Visit 1.

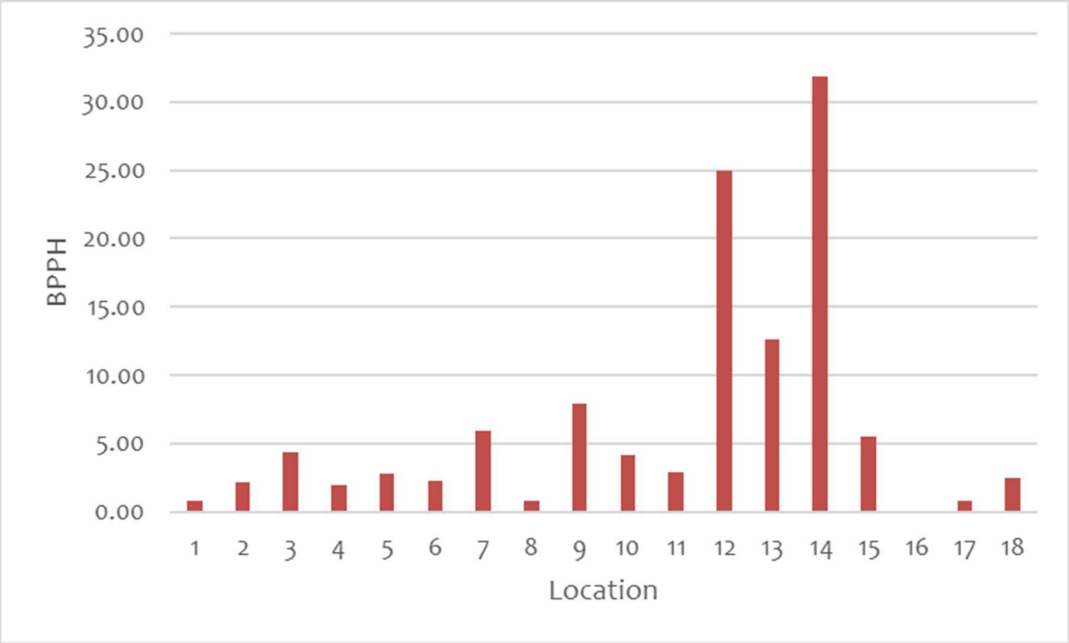

Chart 6-1: Visit 1 Bat Passes Per Hour at each Location

During Visit 2, the maximum bpph for all species was again at Location 14 with 48.29 bpph, and the minimum was at Location 4 with 0.22 bpph (**Chart 6-2**). Over all Locations during Visit 2, the bat species with the maximum bpph was soprano pipistrelle with 40.31 bpph, at Location 14 (**Table 6-3**). There was a total of 10,748 bat passes during Visit 2.

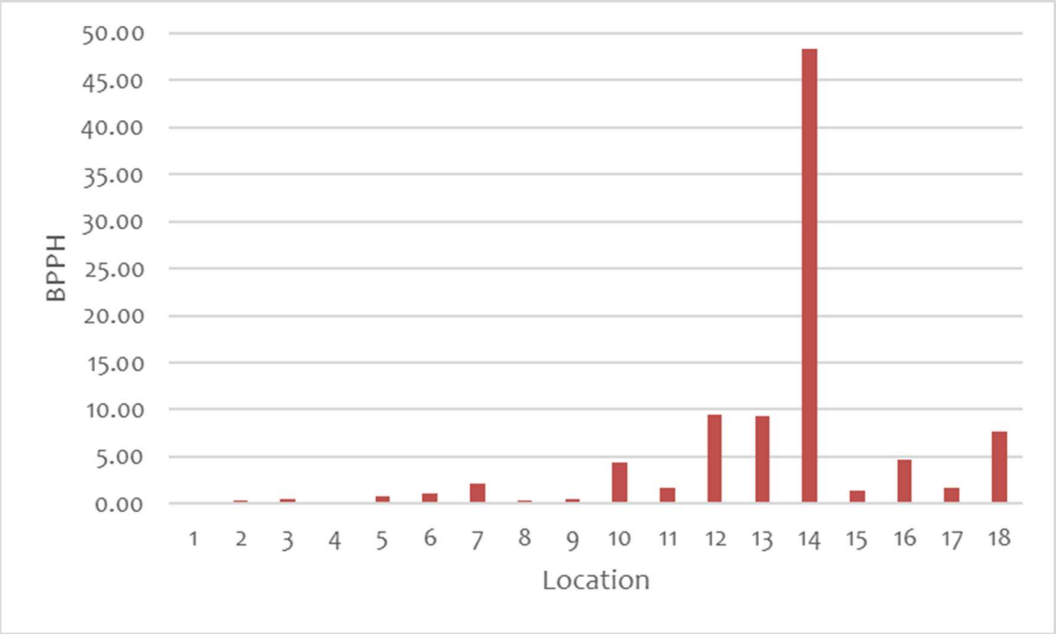

Chart 6-2: Visit 2 Bat Passes Per Hour at each Location

During Visit 3, the maximum bpph for all species was at Location 12 with 4.13 bpph, and the minimum was at Location 4 with 0.27 bpph (**Chart 6-3**). Over all Locations during Visit 3, the bat species with the maximum bpph was soprano pipistrelle with 2.21 bpph, at Location 12. There was a total of 4,542 bat passes during Visit 3.

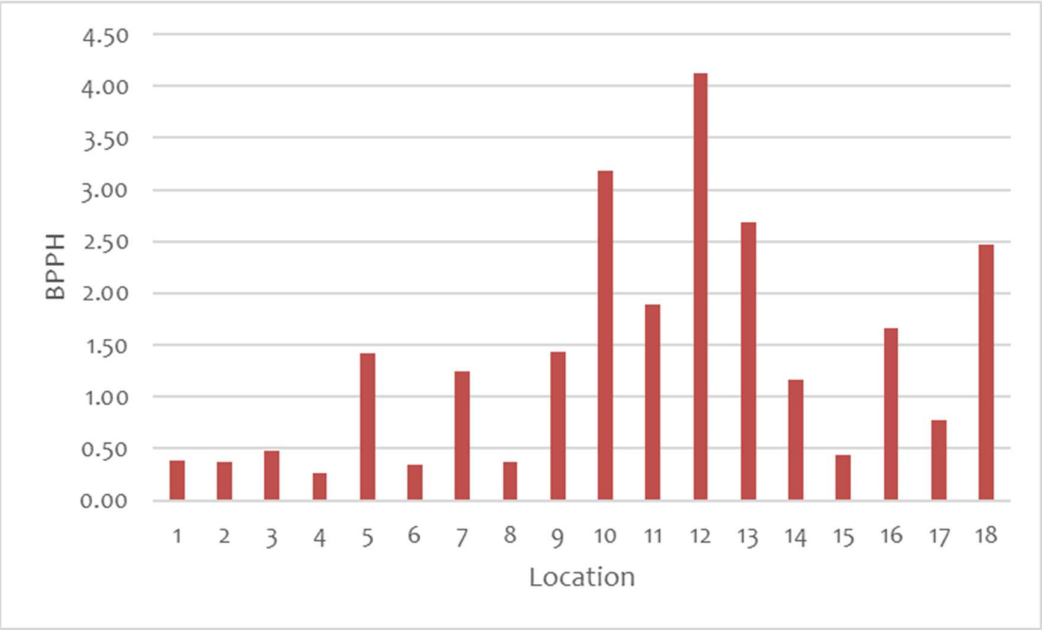

Chart 6-3: Visit 3 Bat Passes Per Hour at each Location

6.3.2 Step 2, 3 and 4: Collision Risk, Population Relative Abundance and Potential Vulnerability

Table 6-4 details the collision risk, population relative abundance and potential vulnerability of the bat species recorded at the Proposed Development.

Table 6-4: Collision Risk, Population Relative Abundance and Potential Vulnerability

Bat Species	Collision Risk	Population Relative Abundance	Potential Vulnerability
Soprano pipistrelle	High	Common	Medium
Common pipistrelle	High	Common	Medium
Nathusius' pipistrelle	High	Rarest	High
Noctule	High	Rarest	High
Leisler's	High	Rarest	High
Nyctalus spp.	High	Rarest	High
Daubenton's	Low	Rarer	Low
Natterer's	Low	Rarer	Low
Whiskered	Low	Rarest	Medium
Myotis spp.	Low	Rarer – Rarest	Low – Medium
Brown long-eared	Low	Rarer	Low

6.3.3 Step 5: Categorising Site Risk Level

The Site risk level is determined by project size and habitat risk (see

Table 4-4). The Proposed Development consists of 14 turbines that are over 50 m in height, and so falls within the 'Medium' project size, as shown in

Table 4-4 and **Table C-1** of **Annex C**.

In terms of habitat risk for bats, the Site is connected to the wider landscape by linear features such as woodland edges. Foraging habitat quality and connectivity within this buffer area is moderate with small open burns and a fairly homogenous area of open grazed moorland habitat present, resulting in a habitat risk classification of '**Moderate**' as shown in

Table 4-4 and **Table C-1** of **Annex C**.

According to

Table 4-4 above, the '**Medium**' project size combined with a '**Moderate**' habitat risk level results in an overall site risk assessment of **'Medium' (3).**

6.3.4 Step 6: Risk Assessment – High Collision Risk Species Only

In analysing bat activity levels, professional judgement has been used previously in the absence of any recognised standard measure to define levels as being high, medium or low. This took into consideration the geographical and site location and habitats present as well as professional

experience. NatureScot *et al.* (2021) recommends the use of Ecobat as a measure of activity levels. Ecobat analyses activity levels during nights where bat activity was recorded and assigns a value to the activity levels (low, low/moderate, moderate, moderate/high or high) for each location on each night. These values are based on a comparison with other surveys within the local area. While this provides an objective assessment of activity levels in a given area, the reliability of the results can be impacted by how many previous surveys within the comparison radius have been submitted to Ecobat. As noted above, at the time of preparation of this Technical Appendix the Ecobat tool was still offline and unavailable.

Therefore, Site specific details, knowledge of bat species behaviour, professional judgement and experience from other and similar projects has been used to assess the bat activity levels at the Proposed Development as high, medium or low. While the appraisal of activity levels was ascertained using professional judgement, the risk assessment has taken due consideration of the NatureScot *et al.* (2021) guidance, as shown in the preceding sections above to provide an assessment of risk.

The overall risk assessment is undertaken for high collision risk species which were identified at the Site (excluding Nathusius' pipistrelle as only a single bat pass was recorded throughout the survey period for this species). Low-risk species have a low risk of collision with a turbine blade, so the impact of the Proposed Development on the local bat population would likely be negligible, particularly also considering the low bpph recorded for these species at the Site (**Section 6.3.1** and **Table 6-3**).

6.3.4.1 Common Pipistrelle

For common pipistrelle, bpph and distribution of activity is presented in **Figure 8.11**, see also **Table 6-3**. Locations 1-6, 8-11 and 15-18 all had less than 2 bpph in each survey Visit, and the overall risk at these locations is considered Low.

Of the remining locations, Location 7 was considered Moderate risk in spring only (2.3 bpph) (Low risk in summer and autumn). Locations 12 and 14 were considered Moderate risk in spring and summer, and Low in autumn (with bpph varying between 2.47 – 6.69 at these locations over spring and summer – see **Table 6-3**). Location 13 was considered Moderate/High risk in summer (7.23 bpph), Moderate in spring and Low in autumn. Locations 12 and 13 are close to each other within the Site, whereas Location 14 is situated further west (**Figure 8.10**).

Location 12 was situated in a location where higher bat activity would be expected, situated along a commuting woodland edge in an area of plantation and forestry clear-fell and beside a mature pond with abundant foraging resources. The direction of detector recording was also positioned to record over the waterbody, and therefore would collect data on bats foraging frequently at this location. Location 12 is situated 208 m from the closest proposed wind turbine (T8), which is located in open clear-fell and away from existing woodland edges.

Location 13 was situated along plantation edges and a forestry track, with the bearing of detector recording along the edge features, such edge features act as commuting corridors of paths. Location 13 is situated 178 m from the closest proposed wind turbine (T10), which is located in dense conifer plantation and away from existing woodland edges.

Location 14 was located along plantation edge and by a watercourse, it is also the closest surveyed location to the Wood of Cree. Bats are known to use woodland edges as commuting corridors and the watercourse provides foraging opportunities. However, Location 14 is 1.8 km outwith the Site boundary and is approximately 2.2 km from the nearest proposed wind turbine (T10), due to the design evolution of the Proposed Development.

Overall, for common pipistrelle the risk is assessed as Low for the majority of the Site across all seasons, however a small number of Locations have been identified as having a Moderate or Moderate/High risk.

6.3.4.2 *Soprano Pipistrelle*

For soprano pipistrelle, bpph and distribution of activity is presented in **Figure 8.12**, see also **Table 6-3**. Locations 1-6, 8, 10-11, 16 and 17 all had less than 2 bpph in each survey Visit, and the overall risk at these locations is considered Low.

Of the remining locations, Locations 7, 9, 13, and 15 were considered Moderate risk in spring only (Low risk in summer and autumn), and Location 18 Moderate risk in summer only (Low risk in spring and autumn); with bpph ranging from 2.74 to 5.87. All these Locations apart from Location 13 are outwith the Site boundary and distant to proposed wind turbines (**Figure 8.10**). The bpph indicates High risk at Location 12 in spring, but Moderate in summer and autumn. Location 14 also indicates High risk during spring and, in particular, summer with 40.31 bpph (Low risk in autumn) – the locational and Site-specific context of these Locations has already been discussed in **Section 6.3.4.1** above.

6.3.4.3 *Nyctalus spp.*

For *Nyctalus* spp., bpph and distribution of activity is presented in **Figure 8.13**, see also **Table 6-3**. Locations 1-9, 11-13, 15 and 17-18 all had less than 2 bpph in each survey Visit, and the overall risk at these locations is considered Low. No *Nyctalus* spp. were recorded at Location 16 in spring or Locations 1-5, 7 and 9 during autumn.

Of the remining locations, Location 10 was considered Moderate risk in spring and summer (Low in autumn) with bpph ranging from 2.03 – 2.43 (Location 10 is distant to the Site, see **Figure 8.10**). Location 16 was considered Moderate risk in summer only with a bpph of 2.52 (Low risk in spring and autumn). The only High risk location for *Nyctalus* spp. was recorded at Location 14 in spring with 7.51 bpph (Low risk in summer and autumn). Location 14 is distant to the Site as already discussed in **Section 6.3.4.1** above.

6.3.4.4 *Summary*

For the three high collision risk species recorded at the Site, the majority of Locations were considered Low risk across all seasons. A relatively small number of Locations were considered of Moderate, Moderate/High, or High risk, and often only in certain seasons. As has been discussed in the preceding sections, many of these relatively higher risk Locations are outwith the Site boundary and distant to proposed wind turbines. The activity within the Site and where wind turbines are proposed is generally Low, with the exception of Locations 12 and 13. This data is also

presented in **Table E-1** of **Annex E** which includes the bpph, bat passes per night and maximum bat activity (bat passes per night).

7 MITIGATION & MONITORING

The risk assessment with regards to high collision risk species above indicates that in some locations and in some seasons, there may be a relatively high risk to bats.

The Proposed Development includes mitigation by design and embedded mitigation to reduce the potential collision risk to bats, for instance via:

- A degree of forest felling will be required to accommodate infrastructure, and as bats can utilise edge habitat such as plantation edges for foraging and commuting, this felling will create new edge habitats for bats. In line with NatureScot *et al*. (2021) guidance a 50 m buffer will be maintained from blade tip to feature height to reduce potential risk to bats;
- A 50 m buffer for any infrastructure or construction activity around all watercourses where possible, except where a minimum number of watercourse crossings are required. This will minimise effects along potential commuting and foraging corridors associated with watercourses; and
- In line with NatureScot *et al*. (2021) guidance the Proposed Development will utilise the method of reduced rotation speed whilst idling by feathering, at all wind turbines, to reduce collision risks to bats during the bat active period (April to October). The guidance notes that, "*The reduction in speed resulting from feathering compared with normal idling may reduce fatality rates by up to 50 %*". Given the known presence of high collision risk bat species on-site, this measure will be put in place from the start of the operational period of the Proposed Development, and it does not result in any loss of output.

Given the presence of high collision risk species on-site and the identification of some potential Moderate to High risk locations at certain times of the year, it is expected that a Bat Mitigation and Monitoring Plan (BMMP) may be required as a condition of consent. This BMMP will facilitate for post-construction/operational phase bat monitoring to ensure implemented mitigation is successful. The BMMP would involve a bat activity monitoring programme combined with high resolution weather data, and bat carcass searches. This monitoring would continue for a prescribed number of years post-construction. After the first year of monitoring, the information will be used to inform the development of a detailed curtailment plan, if this is deemed to be required. If implemented, the curtailment plan will be monitored further to establish its effectiveness and any changes in activity created by surrounding habitat change associated with forestry operations. A curtailment plan involves raising the cut-in speed with associated loss of power generation in combination with reducing the blade rotation below the cut-in speed. This can be considered where reduced rotation speed whilst idling does not provide sufficient reduction in risk to bats. Effective and efficient curtailment plans require high resolution information on bat activity combined with detailed weather data on rainfall and wind speed plus information from carcass searches. This information allows curtailment to focus on specific times and dates corresponding with periods of high bat activity.

8 REFERENCES

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ANNEX A. BATS LEGAL STATUS

The information contained in this Annex is a summarised version of the legislation and should be read in conjunction with the appropriate legislation.

All bat species receive protection under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)[14].

For any wild bat species, it is an offence to deliberately or recklessly:

- capture, injure or kill a bat;
- harass a bat or group of bats;
- disturb a bat in a roost (any structure or place it uses for shelter or protection);
- disturb a bat while it is rearing or otherwise caring for its young;
- obstruct access to a bat roost or otherwise deny an animal use of a roost;
- disturb a bat in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species;
- disturb a bat in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young; and
- disturb a bat while it is migrating or hibernating.

It's also an offence to:

- damage or destroy a breeding site or resting place of such an animal (whether or not deliberately or recklessly); and
- keep, transport, sell or exchange, or offer for sale or exchange any wild bat (or any part or derivative of one) obtained after 10 June 1994[15].

[14] Sections 39(1) – (3).
[15] Available online: https://www.nature.scot/professional-advice/protected-areas-and-species/protected-species/protected-species-z-guide/protected-species-bats [Accessed January 2024].

Table A-1 Legal and Conservation Status of all UK Bats[16]

Species	Legislation / Convention													
	Bern Convention Appendix II	Bonn Convention Appendix II	WCA	Habitats Directive Annex IV	Habitats Directive Annex II	Habs Regs 1994 (as amended) *Scotland*	Conservation of Habs & Species Regs 2010	Conservation Regs (N Ireland) 1995	CROW Act 2000	NERC Act 2006	Wild Mammals Protection Act	UK BAP Priority species	IUCN Red List*	EUROBATS Agreement
Greater horseshoe bat	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	LC	✓
Lesser horseshoe bat	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	LC	✓
Daubenton's bat	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		LC	✓
Natterer's bat	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		LC	✓
Whiskered bat	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		LC	✓
Brandt's bat	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		LC	✓
Bechstein's bat	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NT	✓
Alcathoe bat	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		DD	✓
Noctule	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	LC	✓
Leisler's bat	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		LC	✓
Serotine	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		LC	✓
Common pipistrelle	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		LC	✓
Soprano pipistrelle	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	LC	✓
Nathusius' pipistrelle	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		LC	✓
Brown long-eared bat	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	LC	✓
Grey long-eared bat	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		LC	✓
Barbastelle	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NT	✓
Greater mouse-eared bat	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		LC	✓

*IUCN categories: LC is Least Concern, NT is Near Threatened, DD is Data deficient; see www.iucnredlist.org for more details.

[16] Source: Bat Conservation Trust. Available online: http://www.bats.org.uk/pages/bats_and_the_law.html [Accessed January 2024].

ANNEX B. SURVEY TIMINGS & ANABAT LOCATIONS

Table B-1 Description of Anabat Locations and Summary of Temporal Survey Effort

Location	Easting	Northing	Bearing	Habitat	Total Number of Complete Recording Nights		
					Visit 1 17/05/2023 – 01/06/2023	Visit 2 31/07/2023 – 15/08/2023	Visit 3 19/09/2023 – 04/10/2023
1	242130	573816	58	Within 65 m of tributary of Cordorcan Burn	14	14	14
2	241717	573319	105	Within 62 m of tributary of Cordorcan Burn	14	14	14
3	241249	573066	216	Within 90 m of Black Burn	14	14	14
4	241985	572853	275	Within 90 m of Black Burn	14	14	14
5	240294	572663	150	Along plantation edge	14	14	14
6	241644	572393	200	Within clearfell	14	14	14
7	240703	572276	312	Open moorland	14	14	14
8	242519	572208	195	Within clearfell	14	14	14
9	240055	572154	212	Within plantation	14	14	14
10	239604	571878	305	Along plantation edge	14	14	14
11	240872	571763	222	Open moorland	14	9	14
12	241710	571604	132	Beside pond	14	14	14
13	241395	571311	216	Within plantation	14	14	14
14	239390	571085	135	Along plantation edge and Washing Burn	14	10	14
15	240200	571013	350	Beside clearfell	14	14	14
16	242483	570710	125	Within 98 m of plantation	14	14	14
17	241626	570137	144	Open moorland	14	14	14
18	241942	569550	38	Within 61 m of tributary of Castle Burn	14	14	14
Total					**747**		

ANNEX C. INITIAL SITE RISK ASSESSMENT

Table C-1 Initial Site Risk Assessment[17].

Site Risk Level (1-5)18	Project Size			
Habitat Risk		Small	Medium	Large
	Low	1	2	3
	Moderate	2	3	4
	High	3	4	5
Key: Green (1-2) – low/lowest site risk; Amber (3) – medium site risk; Red (4-5) – high/highest site risk				

Habitat Risk	Description
Low	Small number of potential roost features, of low quality. Low-quality foraging habitats that could be used by small numbers of foraging bats. Isolated site not connected to the wider landscape by prominent linear features.
Moderate	Buildings, trees or other structures with moderate-high potential as roost sites on or near the site. Habitat could be used extensively by foraging bats. Site is connected to the wider landscape by linear features such as scrub, tree lines and streams.
High	Numerous suitable buildings, trees (particularly mature ancient woodland) or other structures with moderate-high potential as roost sites on or near the site, and/or confirmed roosts present close to or on the site. Extensive and diverse habitat mosaic of high quality for foraging bats. Site is connected to the wider landscape by a network of strong linear features such as rivers, blocks of woodland and mature hedgerows. At/near edge of range and or an important flyway. Close to key roost and /or swarming.
Project Size	**Description**
Small	Small scale development (<10 turbines). No other wind energy developments within 10 km. Comprising turbines <50 m in height.
Medium	Larger developments (between 10 and 40). May have some other wind development within 5 km. Comprising turbines 50 – 100 m in height.
Large	Largest developments (>40 turbines) with other wind energy developments within 5 km. Comprising turbines >100 m in height.

[17] Sourced from: NatureScot, Natural England, Natural Resources Wales, Renewable UK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter & Bat Conservation Trust (BCT). (2021). *Bats and Onshore Wind Turbines: Survey Assessment and Mitigation.*

[18] Some sites could conceivably be assessed as being of no (0) risk to bats. This assessment is only likely to be valid in more extreme environments, such as above the known altitudinal range of bats, or outside the known geographical distribution of any resident British species.

ANNEX D. PRELIMINARY BAT ROOST ASSESSMENT

Table D-1 Preliminary Bat Roost Assessment Target Notes

PRF_ID	Feature	Survey Date	Notes	PRF Category	Grid Reference
PS032	Tree	06/06/2023	Mature oak with several small knot holes on the underside of branches. None look like they extend far. Features at approximately 5 m.	Low	NX 41796 69248
PS038	Structure	08/06/2023	Abandoned cottage with most of the roof still standing. Currently being used by sheep with little human interference.	High	NX 40862 71308
PS039	Tree	08/06/2023	Small patch of mature Sitka spruce forestry.	Negligible	NX 39648 71691
PS048	Tree	01/11/2023	Mature oak by watercourse. Difficult to thoroughly survey as smothered in ivy, but low potential for roosting features within and around thick tangles of ivy.	Low	NX 44816 70464
PS049	Tree	01/11/2023	Two large, mature oaks, one with a rot hole of moderate potential around 4 m from ground, and the other with cracks left by a broken bough around 4 m from ground.	Low	NX 44767 70412
PS050	Tree	01/11/2023	Single ash with fairly exposed upward-facing crack of low potential around 8 m from ground.	Low	NX 44812 70550
PS051	Tree	01/11/2023	Mature oak with at least two rot holes of moderate potential around 4 m from ground.	Moderate	NX 44847 70514
PS052	Tree	01/11/2023	Group of mostly small/young hazel and oak along riverbank, potentially some small nooks amongst ivy and relatively exposed cracks of low potential.	Low	NX 44834 70497
PS053	Tree	01/11/2023	Two mature oaks with rot holes of moderate potential around 4 m from ground.	Moderate	NX 44878 70522
PS054	Tree	01/11/2023	Group of broadleaves and conifers of various sizes/ages. Some have small cracks, loose bark and ivy of low potential. Exceptions are described in Notes PRF ID PS051 and PS053.	Low	NX 44890 70475
PS055	Tree	01/11/2023	Scots pine with large patch of loose bark of low potential around 4 m from ground, as likely too exposed.	Low	NX 46245 68996
PS056	Tree	01/11/2023	Mature oak at edge of conifer plantation with several rot holes, but none appear to penetrate too deeply.	Low	NX 45116 70332
PS057	Tree	02/11/2023	Large mature oak with upwards-facing cracks that do not appear to penetrate too deeply.	Low	NX 44528 70517
PS058	Tree	06/11/2023	Rowan with knot holes, cavities, decayed limbs.	Moderate	NX 43688 70565
PS059	Tree	06/11/2023	Ash with suspended broken limb.	Low	NX 44729 70610
PS067	Tree	07/05/2024	Vertical crack where bough has split around 3 m from ground, potentially going deep enough to support small numbers of bats.	PRF-I	NX 44861 70217

PRF_ID	Feature	Survey Date	Notes	PRF Category	Grid Reference
PS068	Tree	07/05/2024	Vertical crack where bough has split around 4 m from ground, potentially going deep enough to support small numbers of bats.	PRF-I	NX 44863 70242
PS069	Tree	07/05/2024	Vertical crack in main trunk around 3 m from ground, potentially going deep enough to support small numbers of bats.	PRF-I	NX 44859 70283

ANNEX E. SEASONAL LOCATION SPECIFIC DATA

Table E- 1 Seasonal Location Specific Data for all Species

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l1	MYODAU	v1	2023-05-17	7	0.05	0.01
l1	MYODAU	v1	2023-05-22	7	0.37	0.06
l1	MYODAU	v1	2023-05-21	7	0.32	0.05
l1	MYODAU	v1	2023-05-19	7	0.26	0.04
l1	MYODAU	v1	2023-05-26	7	0.11	0.02
l1	MYODAU	v1	2023-05-25	7	0.11	0.02
l1	MYODAU	v1	2023-05-28	7	0.11	0.02
l1	MYODAU	v1	2023-05-23	7	0.05	0.01
l1	MYODAU	v1	2023-05-24	7	0.05	0.01
l1	MYONAT	v1	2023-05-22	1	0.05	0.01
l1	MYONAT	v1	2023-05-25	1	0.05	0.01
l1	NYCNOC	v1	2023-05-26	5	0.26	0.04
l1	NYCNOC	v1	2023-05-21	5	0.11	0.02
l1	PIPPIP	v1	2023-05-17	9	0.05	0.01
l1	PIPPIP	v1	2023-05-25	9	0.05	0.01
l1	PIPPIP	v1	2023-05-26	9	0.16	0.02
l1	PIPPIP	v1	2023-05-21	9	0.16	0.02

[19] The maximum bat count per night is the maximum number of bat passes recorded at the respective Location on the respective seasonal survey Visit, per species.

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l1	PIPPIP	v1	2023-05-20	9	0.05	0.01
l1	PIPPIP	v1	2023-05-29	9	0.47	0.07
l1	PIPPIP	v1	2023-05-30	9	0.47	0.07
l1	PIPPYG	v1	2023-05-26	11	0.58	0.09
l1	PIPPYG	v1	2023-05-25	11	0.16	0.02
l1	PIPPYG	v1	2023-05-30	11	0.32	0.05
l1	PIPPYG	v1	2023-05-17	11	0.11	0.02
l1	PIPPYG	v1	2023-05-29	11	0.21	0.03
l1	PIPPYG	v1	2023-05-20	11	0.21	0.03
l1	PIPPYG	v1	2023-05-27	11	0.05	0.01
l10	MYODAU	v1	2023-05-17	12	0.41	0.06
l10	MYODAU	v1	2023-05-20	12	0.24	0.03
l10	MYODAU	v1	2023-05-26	12	0.47	0.07
l10	MYODAU	v1	2023-05-27	12	0.65	0.09
l10	MYODAU	v1	2023-05-19	12	0.35	0.05
l10	MYODAU	v1	2023-05-28	12	0.53	0.08
l10	MYODAU	v1	2023-05-21	12	0.24	0.03
l10	MYODAU	v1	2023-05-30	12	0.47	0.07
l10	MYODAU	v1	2023-05-29	12	0.29	0.04
l10	MYODAU	v1	2023-05-22	12	0.12	0.02
l10	MYODAU	v1	2023-05-23	12	0.71	0.10
l10	MYODAU	v1	2023-05-25	12	0.29	0.04

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l10	MYONAT	v1	2023-05-20	3	0.06	0.01
l10	MYONAT	v1	2023-05-26	3	0.06	0.01
l10	MYONAT	v1	2023-05-25	3	0.18	0.03
l10	MYONAT	v1	2023-05-22	3	0.18	0.03
l10	MYONAT	v1	2023-05-27	3	0.06	0.01
l10	MYONAT	v1	2023-05-19	3	0.12	0.02
l10	MYONAT	v1	2023-05-28	3	0.12	0.02
l10	NYCNOC	v1	2023-05-18	62	1.29	0.19
l10	NYCNOC	v1	2023-05-26	62	0.88	0.13
l10	NYCNOC	v1	2023-05-27	62	0.35	0.05
l10	NYCNOC	v1	2023-05-17	62	0.76	0.11
l10	NYCNOC	v1	2023-05-22	62	0.41	0.06
l10	NYCNOC	v1	2023-05-29	62	3.65	0.53
l10	NYCNOC	v1	2023-05-30	62	2.06	0.30
l10	NYCNOC	v1	2023-05-20	62	0.88	0.13
l10	NYCNOC	v1	2023-05-23	62	0.12	0.02
l10	NYCNOC	v1	2023-05-25	62	0.12	0.02
l10	NYCNOC	v1	2023-05-24	62	0.88	0.13
l10	NYCNOC	v1	2023-05-28	62	0.71	0.10
l10	NYCNOC	v1	2023-05-21	62	1.24	0.18
l10	NYCNOC	v1	2023-05-19	62	0.59	0.09
l10	PIPPIP	v1	2023-05-18	7	0.12	0.02

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l10	PIPPIP	v1	2023-05-29	7	0.24	0.03
l10	PIPPIP	v1	2023-05-30	7	0.12	0.02
l10	PIPPIP	v1	2023-05-23	7	0.12	0.02
l10	PIPPIP	v1	2023-05-28	7	0.29	0.04
l10	PIPPIP	v1	2023-05-22	7	0.06	0.01
l10	PIPPIP	v1	2023-05-19	7	0.06	0.01
l10	PIPPIP	v1	2023-05-17	7	0.18	0.03
l10	PIPPIP	v1	2023-05-21	7	0.18	0.03
l10	PIPPIP	v1	2023-05-24	7	0.18	0.03
l10	PIPPIP	v1	2023-05-26	7	0.41	0.06
l10	PIPPIP	v1	2023-05-27	7	0.18	0.03
l10	PIPPIP	v1	2023-05-25	7	0.06	0.01
l10	PIPPYG	v1	2023-05-23	43	0.12	0.02
l10	PIPPYG	v1	2023-05-28	43	2.53	0.37
l10	PIPPYG	v1	2023-05-30	43	0.24	0.03
l10	PIPPYG	v1	2023-05-19	43	0.12	0.02
l10	PIPPYG	v1	2023-05-21	43	1.24	0.18
l10	PIPPYG	v1	2023-05-22	43	0.12	0.02
l10	PIPPYG	v1	2023-05-29	43	0.18	0.03
l10	PIPPYG	v1	2023-05-17	43	0.35	0.05
l10	PIPPYG	v1	2023-05-20	43	0.12	0.02
l10	PIPPYG	v1	2023-05-24	43	0.18	0.03

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l10	PIPPYG	v1	2023-05-25	43	0.06	0.01
l10	PIPPYG	v1	2023-05-27	43	0.47	0.07
l10	PIPPYG	v1	2023-05-18	43	0.12	0.02
l10	PIPPYG	v1	2023-05-26	43	0.24	0.03
l10	PLEAUR	v1	2023-05-29	4	0.06	0.01
l10	PLEAUR	v1	2023-05-23	4	0.06	0.01
l10	PLEAUR	v1	2023-05-25	4	0.12	0.02
l10	PLEAUR	v1	2023-05-20	4	0.06	0.01
l10	PLEAUR	v1	2023-05-17	4	0.24	0.03
l10	PLEAUR	v1	2023-05-28	4	0.18	0.03
l10	PLEAUR	v1	2023-05-27	4	0.24	0.03
l10	PLEAUR	v1	2023-05-19	4	0.18	0.03
l11	MYODAU	v1	2023-05-17	7	0.12	0.02
l11	MYODAU	v1	2023-05-29	7	0.06	0.01
l11	MYODAU	v1	2023-05-27	7	0.06	0.01
l11	MYODAU	v1	2023-05-19	7	0.41	0.06
l11	MYODAU	v1	2023-05-25	7	0.18	0.03
l11	MYODAU	v1	2023-05-20	7	0.12	0.02
l11	MYODAU	v1	2023-05-26	7	0.06	0.01
l11	MYODAU	v1	2023-05-30	7	0.06	0.01
l11	MYONAT	v1	2023-05-19	2	0.12	0.02
l11	MYONAT	v1	2023-05-25	2	0.06	0.01

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l11	MYONAT	v1	2023-05-21	2	0.06	0.01
l11	NYCNOC	v1	2023-05-29	6	0.12	0.02
l11	NYCNOC	v1	2023-05-26	6	0.35	0.05
l11	NYCNOC	v1	2023-05-30	6	0.06	0.01
l11	PIPPIP	v1	2023-05-27	39	0.59	0.08
l11	PIPPIP	v1	2023-05-17	39	0.12	0.02
l11	PIPPIP	v1	2023-05-23	39	0.18	0.03
l11	PIPPIP	v1	2023-05-28	39	0.12	0.02
l11	PIPPIP	v1	2023-05-19	39	0.53	0.08
l11	PIPPIP	v1	2023-05-20	39	0.18	0.03
l11	PIPPIP	v1	2023-05-22	39	0.18	0.03
l11	PIPPIP	v1	2023-05-29	39	2.29	0.33
l11	PIPPIP	v1	2023-05-24	39	0.41	0.06
l11	PIPPIP	v1	2023-05-25	39	0.53	0.08
l11	PIPPIP	v1	2023-05-30	39	1.82	0.26
l11	PIPPIP	v1	2023-05-21	39	0.24	0.03
l11	PIPPIP	v1	2023-05-26	39	1.24	0.18
l11	PIPPYG	v1	2023-05-18	45	0.06	0.01
l11	PIPPYG	v1	2023-05-17	45	0.06	0.01
l11	PIPPYG	v1	2023-05-19	45	0.65	0.09
l11	PIPPYG	v1	2023-05-28	45	0.24	0.03
l11	PIPPYG	v1	2023-05-21	45	0.12	0.02

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l11	PIPPYG	v1	2023-05-24	45	0.18	0.03
l11	PIPPYG	v1	2023-05-29	45	2.65	0.38
l11	PIPPYG	v1	2023-05-20	45	0.47	0.07
l11	PIPPYG	v1	2023-05-23	45	0.06	0.01
l11	PIPPYG	v1	2023-05-25	45	0.41	0.06
l11	PIPPYG	v1	2023-05-30	45	2.06	0.30
l11	PIPPYG	v1	2023-05-26	45	2.35	0.34
l11	PIPPYG	v1	2023-05-27	45	0.35	0.05
l11	PLEAUR	v1	2023-05-26	1	0.06	0.01
l11	PLEAUR	v1	2023-05-28	1	0.06	0.01
l12	MYODAU	v1	2023-05-17	13	0.06	0.01
l12	MYODAU	v1	2023-05-20	13	0.47	0.07
l12	MYODAU	v1	2023-05-28	13	0.24	0.03
l12	MYODAU	v1	2023-05-21	13	0.18	0.03
l12	MYODAU	v1	2023-05-23	13	0.47	0.07
l12	MYODAU	v1	2023-05-18	13	0.06	0.01
l12	MYODAU	v1	2023-05-26	13	0.59	0.08
l12	MYODAU	v1	2023-05-29	13	0.53	0.08
l12	MYODAU	v1	2023-05-19	13	0.06	0.01
l12	MYODAU	v1	2023-05-27	13	0.76	0.11
l12	MYODAU	v1	2023-05-22	13	0.12	0.02
l12	MYODAU	v1	2023-05-30	13	0.47	0.07

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l12	MYODAU	v1	2023-05-25	13	0.18	0.03
l12	MYODAU	v1	2023-05-24	13	0.18	0.03
l12	MYONAT	v1	2023-05-27	1	0.06	0.01
l12	MYONAT	v1	2023-05-22	1	0.06	0.01
l12	MYONAT	v1	2023-05-18	1	0.06	0.01
l12	MYONAT	v1	2023-05-20	1	0.06	0.01
l12	NYCNOC	v1	2023-05-20	75	1.94	0.28
l12	NYCNOC	v1	2023-05-19	75	0.47	0.07
l12	NYCNOC	v1	2023-05-25	75	0.06	0.01
l12	NYCNOC	v1	2023-05-28	75	0.06	0.01
l12	NYCNOC	v1	2023-05-26	75	4.41	0.64
l12	NYCNOC	v1	2023-05-21	75	1.41	0.20
l12	NYCNOC	v1	2023-05-23	75	0.18	0.03
l12	NYCNOC	v1	2023-05-24	75	0.18	0.03
l12	NYCNOC	v1	2023-05-27	75	0.41	0.06
l12	NYCNOC	v1	2023-05-30	75	0.82	0.12
l12	NYCNOC	v1	2023-05-17	75	0.47	0.07
l12	NYCNOC	v1	2023-05-29	75	2.06	0.30
l12	PIPPIP	v1	2023-05-25	158	3.71	0.54
l12	PIPPIP	v1	2023-05-18	158	0.12	0.02
l12	PIPPIP	v1	2023-05-19	158	0.59	0.08
l12	PIPPIP	v1	2023-05-17	158	0.18	0.03

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l12	PIPPIP	v1	2023-05-24	158	5.41	0.78
l12	PIPPIP	v1	2023-05-20	158	0.71	0.10
l12	PIPPIP	v1	2023-05-23	158	6.88	0.99
l12	PIPPIP	v1	2023-05-30	158	6.59	0.95
l12	PIPPIP	v1	2023-05-26	158	9.29	1.34
l12	PIPPIP	v1	2023-05-28	158	1.29	0.19
l12	PIPPIP	v1	2023-05-29	158	5.24	0.76
l12	PIPPIP	v1	2023-05-27	158	2.47	0.36
l12	PIPPIP	v1	2023-05-22	158	0.41	0.06
l12	PIPPIP	v1	2023-05-21	158	2.24	0.32
l12	PIPPYG	v1	2023-05-17	291	1.18	0.17
l12	PIPPYG	v1	2023-05-24	291	11.59	1.67
l12	PIPPYG	v1	2023-05-23	291	1.35	0.20
l12	PIPPYG	v1	2023-05-30	291	17.06	2.46
l12	PIPPYG	v1	2023-05-25	291	4.06	0.59
l12	PIPPYG	v1	2023-05-28	291	15.29	2.21
l12	PIPPYG	v1	2023-05-29	291	13.76	1.99
l12	PIPPYG	v1	2023-05-18	291	3.35	0.48
l12	PIPPYG	v1	2023-05-20	291	2.00	0.29
l12	PIPPYG	v1	2023-05-21	291	5.76	0.83
l12	PIPPYG	v1	2023-05-22	291	1.41	0.20
l12	PIPPYG	v1	2023-05-27	291	12.76	1.84

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l12	PIPPYG	v1	2023-05-19	291	2.06	0.30
l12	PIPPYG	v1	2023-05-26	291	17.12	2.47
l12	PLEAUR	v1	2023-05-28	4	0.24	0.03
l12	PLEAUR	v1	2023-05-29	4	0.18	0.03
l12	PLEAUR	v1	2023-05-17	4	0.12	0.02
l12	PLEAUR	v1	2023-05-19	4	0.06	0.01
l12	PLEAUR	v1	2023-05-20	4	0.06	0.01
l12	PLEAUR	v1	2023-05-22	4	0.06	0.01
l12	PLEAUR	v1	2023-05-23	4	0.06	0.01
l12	PLEAUR	v1	2023-05-25	4	0.18	0.03
l12	PLEAUR	v1	2023-05-26	4	0.18	0.03
l12	PLEAUR	v1	2023-05-21	4	0.24	0.03
l12	PLEAUR	v1	2023-05-24	4	0.18	0.03
l12	PLEAUR	v1	2023-05-30	4	0.18	0.03
l13	MYODAU	v1	2023-05-22	7	0.18	0.03
l13	MYODAU	v1	2023-05-24	7	0.18	0.03
l13	MYODAU	v1	2023-05-19	7	0.06	0.01
l13	MYODAU	v1	2023-05-28	7	0.18	0.03
l13	MYODAU	v1	2023-05-26	7	0.29	0.04
l13	MYODAU	v1	2023-05-18	7	0.06	0.01
l13	MYODAU	v1	2023-05-29	7	0.41	0.06
l13	MYODAU	v1	2023-05-20	7	0.35	0.05

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l13	MYODAU	v1	2023-05-27	7	0.41	0.06
l13	MYODAU	v1	2023-05-30	7	0.18	0.03
l13	MYODAU	v1	2023-05-25	7	0.06	0.01
l13	MYODAU	v1	2023-05-21	7	0.18	0.03
l13	MYODAU	v1	2023-05-23	7	0.24	0.03
l13	NYCNOC	v1	2023-05-17	75	0.12	0.02
l13	NYCNOC	v1	2023-05-19	75	0.29	0.04
l13	NYCNOC	v1	2023-05-26	75	1.35	0.20
l13	NYCNOC	v1	2023-05-29	75	4.41	0.64
l13	NYCNOC	v1	2023-05-24	75	0.12	0.02
l13	NYCNOC	v1	2023-05-20	75	0.18	0.03
l13	NYCNOC	v1	2023-05-27	75	0.12	0.02
l13	NYCNOC	v1	2023-05-30	75	1.12	0.16
l13	NYCNOC	v1	2023-05-23	75	0.06	0.01
l13	NYCNOC	v1	2023-05-21	75	0.12	0.02
l13	PIPPIP	v1	2023-05-21	137	0.88	0.13
l13	PIPPIP	v1	2023-05-20	137	0.24	0.03
l13	PIPPIP	v1	2023-05-22	137	0.88	0.13
l13	PIPPIP	v1	2023-05-24	137	3.24	0.47
l13	PIPPIP	v1	2023-05-28	137	1.35	0.20
l13	PIPPIP	v1	2023-05-26	137	8.06	1.16
l13	PIPPIP	v1	2023-05-25	137	2.76	0.40

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l13	PIPPIP	v1	2023-05-18	137	0.06	0.01
l13	PIPPIP	v1	2023-05-29	137	6.29	0.91
l13	PIPPIP	v1	2023-05-27	137	4.18	0.60
l13	PIPPIP	v1	2023-05-19	137	1.06	0.15
l13	PIPPIP	v1	2023-05-23	137	3.47	0.50
l13	PIPPIP	v1	2023-05-30	137	3.41	0.49
l13	PIPPYG	v1	2023-05-21	153	0.65	0.09
l13	PIPPYG	v1	2023-05-20	153	0.94	0.14
l13	PIPPYG	v1	2023-05-25	153	3.41	0.49
l13	PIPPYG	v1	2023-05-17	153	0.65	0.09
l13	PIPPYG	v1	2023-05-24	153	1.65	0.24
l13	PIPPYG	v1	2023-05-28	153	3.29	0.48
l13	PIPPYG	v1	2023-05-26	153	8.18	1.18
l13	PIPPYG	v1	2023-05-19	153	0.88	0.13
l13	PIPPYG	v1	2023-05-22	153	0.71	0.10
l13	PIPPYG	v1	2023-05-29	153	9.00	1.30
l13	PIPPYG	v1	2023-05-27	153	4.88	0.71
l13	PIPPYG	v1	2023-05-23	153	1.88	0.27
l13	PIPPYG	v1	2023-05-30	153	4.29	0.62
l13	PLEAUR	v1	2023-05-23	1	0.06	0.01
l13	PLEAUR	v1	2023-05-30	1	0.06	0.01
l14	MYODAU	v1	2023-05-17	10	0.29	0.05

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l14	MYODAU	v1	2023-05-28	10	0.35	0.05
l14	MYODAU	v1	2023-05-30	10	0.41	0.06
l14	MYODAU	v1	2023-05-20	10	0.29	0.05
l14	MYODAU	v1	2023-05-23	10	0.35	0.05
l14	MYODAU	v1	2023-05-22	10	0.29	0.05
l14	MYODAU	v1	2023-05-29	10	0.24	0.04
l14	MYODAU	v1	2023-05-26	10	0.41	0.06
l14	MYODAU	v1	2023-05-25	10	0.41	0.06
l14	MYODAU	v1	2023-05-24	10	0.47	0.07
l14	MYODAU	v1	2023-05-21	10	0.59	0.09
l14	MYODAU	v1	2023-05-27	10	0.59	0.09
l14	MYODAU	v1	2023-05-19	10	0.41	0.06
l14	MYOMYS	v1	2023-05-17	20	1.06	0.16
l14	MYOMYS	v1	2023-05-28	20	0.35	0.05
l14	MYOMYS	v1	2023-05-30	20	0.12	0.02
l14	MYOMYS	v1	2023-05-26	20	0.41	0.06
l14	MYOMYS	v1	2023-05-24	20	0.47	0.07
l14	MYOMYS	v1	2023-05-27	20	0.12	0.02
l14	MYOMYS	v1	2023-05-18	20	0.06	0.01
l14	MYOMYS	v1	2023-05-23	20	0.47	0.07
l14	MYOMYS	v1	2023-05-21	20	1.18	0.18
l14	MYOMYS	v1	2023-05-22	20	0.18	0.03

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l14	MYOMYS	v1	2023-05-25	20	0.24	0.04
l14	MYOMYS	v1	2023-05-20	20	1.00	0.16
l14	MYOMYS	v1	2023-05-19	20	0.71	0.11
l14	MYONAT	v1	2023-05-18	9	0.06	0.01
l14	MYONAT	v1	2023-05-27	9	0.18	0.03
l14	MYONAT	v1	2023-05-24	9	0.24	0.04
l14	MYONAT	v1	2023-05-19	9	0.06	0.01
l14	MYONAT	v1	2023-05-22	9	0.06	0.01
l14	MYONAT	v1	2023-05-23	9	0.18	0.03
l14	MYONAT	v1	2023-05-17	9	0.06	0.01
l14	MYONAT	v1	2023-05-21	9	0.53	0.08
l14	MYONAT	v1	2023-05-25	9	0.06	0.01
l14	NoID	v1	2023-05-22	3	0.06	0.01
l14	NoID	v1	2023-05-26	3	0.06	0.01
l14	NoID	v1	2023-05-21	3	0.12	0.02
l14	NoID	v1	2023-05-23	3	0.18	0.03
l14	NYCLEI	v1	2023-05-30	82	4.53	0.70
l14	NYCLEI	v1	2023-05-26	82	0.82	0.13
l14	NYCLEI	v1	2023-05-28	82	1.71	0.26
l14	NYCLEI	v1	2023-05-21	82	4.76	0.74
l14	NYCLEI	v1	2023-05-22	82	1.82	0.28
l14	NYCLEI	v1	2023-05-18	82	0.88	0.14

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l14	NYCLEI	v1	2023-05-29	82	2.35	0.37
l14	NYCLEI	v1	2023-05-25	82	1.06	0.16
l14	NYCLEI	v1	2023-05-24	82	1.06	0.16
l14	NYCLEI	v1	2023-05-19	82	4.82	0.75
l14	NYCLEI	v1	2023-05-20	82	2.59	0.40
l14	NYCLEI	v1	2023-05-17	82	2.18	0.34
l14	NYCLEI	v1	2023-05-27	82	4.53	0.70
l14	NYCLEI	v1	2023-05-23	82	2.71	0.42
l14	NYCNOC	v1	2023-05-28	39	0.71	0.11
l14	NYCNOC	v1	2023-05-26	39	0.76	0.12
l14	NYCNOC	v1	2023-05-27	39	0.65	0.10
l14	NYCNOC	v1	2023-05-25	39	0.06	0.01
l14	NYCNOC	v1	2023-05-30	39	1.24	0.19
l14	NYCNOC	v1	2023-05-17	39	0.12	0.02
l14	NYCNOC	v1	2023-05-20	39	0.65	0.10
l14	NYCNOC	v1	2023-05-29	39	1.00	0.16
l14	NYCNOC	v1	2023-05-21	39	1.47	0.23
l14	NYCNOC	v1	2023-05-23	39	1.82	0.28
l14	NYCNOC	v1	2023-05-24	39	0.18	0.03
l14	NYCNOC	v1	2023-05-22	39	1.41	0.22
l14	NYCNOC	v1	2023-05-19	39	2.29	0.36
l14	PIPPIP	v1	2023-05-21	106	6.24	0.97

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l14	PIPPIP	v1	2023-05-20	106	1.41	0.22
l14	PIPPIP	v1	2023-05-22	106	2.18	0.34
l14	PIPPIP	v1	2023-05-27	106	4.00	0.62
l14	PIPPIP	v1	2023-05-23	106	3.71	0.58
l14	PIPPIP	v1	2023-05-30	106	2.12	0.33
l14	PIPPIP	v1	2023-05-17	106	4.12	0.64
l14	PIPPIP	v1	2023-05-19	106	3.47	0.54
l14	PIPPIP	v1	2023-05-26	106	3.06	0.47
l14	PIPPIP	v1	2023-05-28	106	2.41	0.37
l14	PIPPIP	v1	2023-05-18	106	1.12	0.17
l14	PIPPIP	v1	2023-05-25	106	4.71	0.73
l14	PIPPIP	v1	2023-05-29	106	1.82	0.28
l14	PIPPIP	v1	2023-05-24	106	2.53	0.39
l14	PIPPYG	v1	2023-05-20	220	5.71	0.89
l14	PIPPYG	v1	2023-05-23	220	3.76	0.58
l14	PIPPYG	v1	2023-05-27	220	7.00	1.09
l14	PIPPYG	v1	2023-05-17	220	9.94	1.54
l14	PIPPYG	v1	2023-05-26	220	10.53	1.63
l14	PIPPYG	v1	2023-05-21	220	12.94	2.01
l14	PIPPYG	v1	2023-05-18	220	1.47	0.23
l14	PIPPYG	v1	2023-05-30	220	3.24	0.50
l14	PIPPYG	v1	2023-05-22	220	5.53	0.86

Location ID	Species	Visit	Survey Date	Maximum bat activity (bat passes per night)[19]	bat passes per night	bat passes per hour
l14	PIPPYG	v1	2023-05-29	220	4.06	0.63
l14	PIPPYG	v1	2023-05-24	220	5.59	0.87
l14	PIPPYG	v1	2023-05-19	220	6.59	1.02
l14	PIPPYG	v1	2023-05-28	220	10.12	1.57
l14	PIPPYG	v1	2023-05-25	220	12.59	1.95
l14	PLEAUR	v1	2023-05-27	6	0.12	0.02
l14	PLEAUR	v1	2023-05-24	6	0.24	0.04
l14	PLEAUR	v1	2023-05-26	6	0.35	0.05
l14	PLEAUR	v1	2023-05-19	6	0.12	0.02
l14	PLEAUR	v1	2023-05-23	6	0.06	0.01
l14	PLEAUR	v1	2023-05-21	6	0.06	0.01
l14	PLEAUR	v1	2023-05-22	6	0.24	0.04
l14	PLEAUR	v1	2023-05-30	6	0.06	0.01
l15	MYODAU	v1	2023-05-17	9	0.24	0.03
l15	MYODAU	v1	2023-05-24	9	0.29	0.04
l15	MYODAU	v1	2023-05-21	9	0.24	0.03
l15	MYODAU	v1	2023-05-29	9	0.18	0.03