



ARCUS

ACKRON WIND FARM

TECHNICAL APPENDIX 7.3
BATS

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1 INTRODUCTION

This Technical Appendix (TA) describes the methods and results of the Bat Surveys undertaken to obtain baseline ecological information, to inform the Ecological Impact Assessment (EclA) of the proposed Ackron Wind Farm.

This TA will present the methods and results of bat surveys undertaken in 2019, and will support the Environmental Impact Assessment (EIA) Report - Chapter 7: Ecology in addition to:

- TA 7.1: Habitats & Botany;
- TA 7.2: Protected Species; and
- TA 7.4: Fisheries.

The aim of the Bat Surveys was to obtain detailed information regarding the occurrence and distribution of bats within the Bat Survey Area (Figure 1, Annex A), to provide an accurate and robust baseline on which to base EclA.

The following terminology is used throughout this TA:

- The Development: the whole physical process involved in the development of the land at Ackron Wind Farm, including the wind farm construction and operation (not a piece of land);
- The Site: all land with the potential to support the Development (as shown in Figure 1, Annex A);
- Bat Survey Area (BSA): the land within which the bat surveys were undertaken (shown as in Figure 1, Annex A). In accordance with Bat Conservation Trust (BCT) survey guidelines (2012)¹ and current NatureScot (NS)(formerly Scottish Natural Heritage, SNH) guidance² the Bat Survey Area (BSA) is defined as an area a minimum of 200 metres (m) of the proposed Turbine Layout. As the final Turbine Layout was not defined at the time of survey, the BSA represents the extent of the boundary of the Site with a 200 m buffer applied.

1.1 Site Description

The Site lies within the Halladale River catchment with Giligill Burn, Akran Burn and an unnamed watercourse flowing from south-east to north-west through the Site. Caol Loch, Loch Akran and Loch Earacha lie outwith the Site, located to the east, south-east, and south-west respectively.

No public roads are located within the Site. The A836 (part of the promoted North Coast 500 [NC500]) lies adjacent to the northern boundary of the Site with the A897 forming the western boundary. An overhead transmission line transects the south-east corner of the Site connecting Connagill Substation in the south-west to Dounreay in the north-east.

There are no residential properties within the Site. The closest residential properties are Ackron Farm and Golval (both financially involved), located 0.9 km west and 1 km south-west of the nearest turbine, respectively.

1.2 The Development

The Development would involve the construction and operation of a wind farm within the Site, an area of approximately 662 hectares (ha). It is expected that the Development will consist of up to 12 turbines with a maximum height to blade tip of 149.9 metres (m). The total generating capacity is estimated to be in excess of 20 – 49.9 Megawatts (MW). Ancillary infrastructure will also be required as part of the Development and may include a

¹ Hundt, L. (2012). Bat Surveys – Good Practice Guidelines 2nd edition. Bat Conservation Trust, London.

² Joint Publication NS, Natural England, et al. (2019) Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation

substation, external transformers, new access tracks and site entrance, temporary construction compound, crane hardstandings and a permanent meteorological mast as well as the option for battery storage.

2 BASELINE METHODS

2.1 Desk Study

To provide context for the results of the Bat Surveys, a search for recent (0-20 years) biological records was carried out via the publicly available resources, such as the National Biodiversity Network (NBN) database³. A search radius of 5 km from the BSA was applied to bat species of low to medium risk from wind turbines⁴ with a 10 km search radius applied to species of high potential vulnerability, such as **Leisler's bat** (*Nyctalus leisleri*), noctule bat (*Nyctalus noctula*) and **Nathusius' pipistrelle** (*Pipistrellus nathusii*).

The criteria applied for the search of designated sites of ecological interest is provided in Table 8.3.1, below. Details for the designations of sites were sought from the NS Information Service) Site Link website⁵.

*Table 8.3.1: Site Risk Assessment Criteria for Windfarm Developments **

| Protection | Designation | Search Radius |
|---------------|--|---------------|
| Non-statutory | Ancient Woodland Inventory (AWI) | 2 km |
| | Site of Interest for Nature Conservation (SINC) | |
| | Local Nature Reserves (LNR) | |
| Statutory | Sites of Special Scientific Interest (SSSI) | 5 km |
| | National Nature Reserves (NNR) | |
| | Ramsar Sites Special Area of Conservation (SAC) | 10 km |

2.2 Field Survey

Bat surveys were carried out with reference to NS guidelines published in 2019⁴, between April and October 2019 (the Survey Season), with all survey work undertaken by Arcus. The Site was considered to be of low risk to bats. This was established with consideration of the site risk assessment criteria as presented within NS survey guideline⁴ (reproduced below (Table 8.3.2) for reference) in conjunction with the professional opinion of Arcus bat ecologists.

*Table 8.3.2: Site Risk Assessment Criteria for Windfarm Developments **

| Site Risk Level (1-5) ** | Project Size | | | |
|--------------------------|--------------|-------|--------|-------|
| | | Small | Medium | Large |
| Habitat Risk | 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.

³ National Biodiversity Network (online) Available online at: www.nbn.org.uk. Accessed January 2018.

⁴ Joint Publication NS, Natural England, et al. (2019) Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation

⁵ NatureScot SiteLink. Last accessed 29/10/2020[online], <https://sitelink.nature.scot/maphttps://gateway.snh.gov.uk/sitelink/>

| ** 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. | |
|--|--|
| Habitat Risk | Description |
| Low | Small number of potential roost features, of low quality. Low quality foraging habitat 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 on an important flyway. Close to key roost and/or swarming site. |
| Project Size | Description |
| Small | Small scale development (≤10 turbines). No other wind energy developments within 10km. Comprising turbines <50m in height. |
| Medium | Larger developments (between 10 and 40 turbines). May have some other wind developments within 5km. Comprising turbines 50-100m in height. |
| High | Largest developments (>40 turbines) with other wind energy developments within 5km. Comprising turbines >100m in height. |
| * As informed by published guidelines ³ , current scientific research and professional opinion of Arcus ecologists. | |

2.2.1 Roost Surveys

2.2.1.1 Bat Roost Suitability Assessment

No specific Roost Surveys were carried out. However, initial walkovers of the Site, including during Phase 1 Surveys and Protected Species Surveys, did not identify any features with suitability to support roosting bats within the BSA. This was due to the dominance of habitats within the Site by open habitats such as blanket bog which are of little value to bats.

2.2.2 Bat Activity Surveys

The Survey Season comprised of the following three seasonal Survey Sessions, as defined in current NS guidance⁴;

- Survey Session 1: April/May (Spring);
- Survey Session 2: June-mid-August (Summer); and,
- Survey Session 3: Mid-August-October (Autumn).

Remote Static Activity Surveys were undertaken across the three Survey Sessions in 2019 (see Table 8.3.3, below).

Table 8.3.3: Remote Static Survey Dates

| Survey Session | Deployment Period | Survey Hours (per Anabat) | Survey Hours (per session) |
|----------------|-------------------------|---------------------------|----------------------------|
| 1 | 04/06/2019 – 18/06/2019 | 107.24 | 1072.4 |
| 2 | 08/08/2019 - 22/08/2019 | 130.62 | 1306.2 |
| 3 | 18/09/2019 - 01/10/2019 | 160.29 | 1602.9 |
| Total | | | 3981.50 |

A total of ten full spectrum Anabat Swift bat detectors (hereby referred to as Anabats), were deployed at ground level (detectors secured to 1 m high posts) for a minimum of ten consecutive nights across a range of habitat types, as per NS guidance. The AnaBats were set to record from approximately half an hour before sunset until approximately half an hour after sunrise.

In order to collect comparative data, AnaBats were deployed at the same six Remote Static Survey Locations (RSSL) (labelled as RSSL A, B, C, D, F, G) across the three Survey Sessions (see Table 8.3.4). However, due to changes in turbine layout during surveying, Session 2 and 3 had four different locations to Session 1 (RSSLs K-N) and did not record at four RSSLs (E, H, I and J) that were previously recorded in Session 1.

AnaBats were also located to allow for comparisons in recorded bat activity between two broad dominant habitat types; these are defined as open (i.e. open areas lacking high value linear habitat features with 50 m), or edge (i.e. within 50 m of woodland edges, or a linear feature such as a hedgerow or watercourse).

Table 8.3.4: Remote Static Survey Locations

| RSSL ID | Habitat Description | Habitat Type |
|---------|------------------------------|--------------|
| A | Wet heath | Open |
| B | Wet heath | Open |
| C | Dry heath | Open |
| D | Dry heath | Open |
| E | Dry heath | Open |
| F | Modified bog (wet grassland) | Open |
| G | Wet heath | Open |
| H | Wet heath | Open |
| I | Wet heath | Open |
| J | Dry heath | Open |
| K | Modified bog (wet grassland) | Open |
| L | Wet heath | Open |
| M | Wet heath near unnamed burn | Edge |
| N | Dry heath near woodland | Edge |

2.3 Data Analysis

2.3.1 Bat Call Analysis

Ultrasonic recordings captured during all activity surveys were subject to detailed analysis using audio software such as Anolook W, BatSound and Wave Surfer, with reference to bat species call identification guidance⁶, to enable identification of bat species.

Although analysis of ultrasonic recordings does enable identification of bat species, there are some limitations associated with species identification from acoustic monitoring. Echolocation calls from bats in the same genus often exhibit a large degree of overlap in their call structures, making definitive identification difficult. Additionally, a bat will vary the structure of its echolocation calls to reflect its needs. This behaviour results in a large degree of variation in the call structure of any given bat species and can also result in the structure of echolocation calls overlapping with those of other bat species.

Other limiting factors which may affect the recording of a bat echolocation call include (but are not strictly limited to):

- The distance and direction of the bat in relation to a bat detector;
- **The amount and type of 'clutter' in the vicinity of a bat detector;**
- Weather conditions; and
- The frequency response of the bat detector microphone.

Species identification is therefore applied with a level of confidence, especially where deterministic call characteristics are not present within a recording.

There is significant overlap in the call parameters between the two of the most common Scottish bat species; soprano pipistrelle (*Pipistrellus pygmaeus*) and common pipistrelle (*Pipistrellus pipistrellus*)⁶, therefore where this overlap exists, identifications may be restricted to genus level, and defined as *Pipistrellus* species (sp.).

AnaBats record bat echolocation as individual files containing bat calls within set periods of time (up to a maximum of 20 seconds), as opposed to the total individual bat calls. Additionally, it is often difficult (or not possible in the case of remote monitoring), to distinguish between a single bat passing the detector several times and several bats passing once in succession. Following identification and analysis, bat data is quantified as the number of files recorded containing bat calls (bat files), not the number of actual calls in real time. Following analysis, baseline data was interpreted to give an indication of bat activity. Remote Static Survey data was expressed using an index known as the Bat Activity Index (BAI).

2.3.2 Bat Activity Index (BAI)

The length of the night (hours of darkness) varies throughout the Survey Season by up to 40%, and thus the period over which bats may be active also varies significantly. As Remote Static Surveys are carried out over at least ten nights, the survey period of each Survey Session will be seen to vary. In order to carry out more detailed interpretation of the results, this temporal bias requires some correction. To correct for temporal bias in levels of bat activity, all bat Remote Static Survey data was interpreted using the BAI.

Within this report, the value of the BAI is expressed as passes (i.e. bat files) per hour (pph). The BAI may not identify the overall abundance of bats (i.e. in terms of absolute number of registrations), but it helps to identify the highest intensities of habitat use by bats during the available recording time. Through the application of the BAI, data can be interpreted by RSSL, taxa, habitat feature or Survey Session, and used to determine spatial patterns in activity within the BSA, as well as temporal patterns across the Survey Season.

⁶ Russ, J (2012) British Bat Calls: A Guide to Species Identification. Pelagic Publishing

BAI was calculated for each RSSL by dividing the number of recorded AnaBat files by the total number of sampling hours (between 0.5 hours before sunset to 0.5 hours after sunrise), to provide the mean number of bat pph.

The mean BAI for each Survey Session recorded across all RSSL was calculated by dividing the number of recorded AnaBat files by the total number of detector hours per session (total session sampling hours multiplied by number of detectors).

The mean BAI across the Survey Season, for example BAI per species, was calculated by dividing the number of recorded AnaBat files across the Survey Season per species, by the total number of detector hours across the total Survey Season (sampling hours multiplied by number of detectors).

A summary of the bat activity recorded during Remote Static Surveys expressed by BAI, is presented in Table 8.3.6. This table presents the mean BAI per RSSL across all Survey Sessions. A table presenting the levels of activity expressed as BAI per species at each RSSL during each Survey Session is presented in Annex B (Annex Table 2).

2.4 Survey Limitations

Bat Surveys have been carried out in accordance with the appropriate survey guidance as detailed within Section 2.3, with the exception of the following aspects;

- **Due to a technical error**, bat data recorded in April 2019 Remote Monitoring Activity Surveys was lost, and surveys were required to be repeated. These surveys were carried out 4th and 14th of June, just outwith the time period defined as 'spring' within guidance; and
- **Following** the development of the updated layout in July 2019, the scope of the summer Remote Monitoring Activity Surveys (carried out in early August) and autumn surveys (to be carried out in early-mid September) had to be amended to ensure sufficient coverage of the Updated Site, and to adherence to survey guidance.

In light of the above, it is acknowledged that surveys carried out in early June 2019 were limited by seasonality and spatial coverage, with regards to adherence to guidance.

Due to the exposed and open nature of both portions of the Updated Site and its location outwith the range of the majority of UK bat species, including all high-risk species, the Development is considered of low risk to bats. It is therefore considered that the timing and coverage of the June 2019 survey represents a minor deviation from guidance that is unlikely to have any notable detrimental impact on the robustness of the data required to inform the assessment of the effects of the Development of local bat populations.

3 BASELINE RESULTS

3.1 Desk Study

3.1.1 Designated Sites

One statutory site of international importance was identified within 5 km of the Site. This site has multiple ecological designations. A further five sites of national importance were identified within 5 km of the Site, information provided in Table 8.3.5 below.

Table 8.3.5: Statutory Designated Sites within 5 km of the Site

| Name of Site | Status | Qualifying Ecological Interests | Proximity to Development Area |
|------------------------------------|---------------------|---|-------------------------------|
| European Designations | | | |
| Caithness and Sutherland Peatlands | SAC and Ramsar site | <ul style="list-style-type: none"> • Acid peat-stained lakes and ponds • Blanket bog • Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels • Depressions on peat substrates • Marsh saxifrage (<i>Saxifraga hirculus</i>) • Otter (<i>Lutra lutra</i>) • Very wet mires often identified by an unstable 'quaking' surface • Wet heathland with cross-leaved heath • Blanket bog | Adjacent to southeast |
| National Designations | | | |
| East Halladale | SSSI | <ul style="list-style-type: none"> • Blanket bog | Adjacent to southeast |
| Strathy Coast | SSSI | <ul style="list-style-type: none"> • Machair • Maritime cliff • Saltmarsh • Sand dunes • Vascular plant assemblage | 950 m west |
| Red Point Coast | SSSI | <ul style="list-style-type: none"> • Maritime cliff • Scottish primrose (<i>Primula scotica</i>) | 1.5 km north |
| West Halladale | SSSI | <ul style="list-style-type: none"> • Blanket bog | 2.7 km to southwest |
| Sandside Bay | SSSI | <ul style="list-style-type: none"> • Sand dunes | 3.25 km northeast |

3.1.2 Non-statutory Designated Sites

No non-statutory designated sites were recorded within 2 km of the Site.

3.1.3 Bat Species Records

No records of bat species were found within 5 km of the BSA and there were no species of high potential vulnerability (i.e. *Nyctalus* **sp. or Nathusius'** pipistrelle) identified within 10 km of the BSA.

3.2 Field Surveys

3.2.1 Remote Static Activity Surveys

A total of 662 bat passes (see Appendix Table 1, Appendix B) were recorded over a total of 3981.50 survey hours across the Survey Season, giving a total mean BAI of 0.166 passes per hour (pph) for the Site, which represents 1 bat pass every 6.25 survey hours, or every 40 mins in real time.

Of the activity recorded, the majority (99.85%) was attributed to common pipistrelle, with the remaining 0.45% attributed to *Myotis* sp. (0.15%).

The following species/genus were detected within the BSA:

- Common pipistrelle; and
- *Myotis* sp.

Table 8.3.6: Summary of Mean Bat Activity Index (pph)

| RSSL | <i>Myotis</i> Species | Common Pipistrelle | Mean Total |
|----------------|-----------------------|--------------------|------------|
| A | 0 | 0.018 | 0.020 |
| B | 0 | 0.030 | 0.030 |
| C | 0 | 0.005 | 0.005 |
| D | 0 | 0.013 | 0.013 |
| G | 0 | 0.769 | 0.771 |
| J | 0 | 0.005 | 0.005 |
| K | 0 | 0.005 | 0.005 |
| L | 0 | 0.008 | 0.008 |
| M | 0.003 | 0.008 | 0.010 |
| N | 0 | 0.796 | 0.796 |
| Survey Session | <i>Myotis</i> Species | Common Pipistrelle | Mean Total |
| 1 | 0 | 0.014 | 0.014 |
| 2 | 0 | 0.224 | 0.225 |
| 3 | 0.001 | 0.219 | 0.220 |
| Season | 0 | 0.166 | 0.166 |

The design of Remote Static Surveys allowed for the collection of comparative datasets sufficient to draw robust conclusions on spatial or temporal distributions of bat activity across the Site during the Survey Season. A summary of these distributions is detailed in Section 3.2.2.1 and 3.2.2.2.

3.2.1.1 Spatial Variation in Bat Activity

During the Survey Season bat activity was recorded at every RSSL shown in Table 8.3.6. No activity was recorded at RSSLs E, F, H and I and therefore were excluded from the table. However, notable spatial variation in the level of activity was evident (Chart 8.3.1). A total of two RSSLs recorded mean activity levels above the overall survey mean (0.16 pph), these were; RSSLs G (0.77 pph) and N (0.80 pph). Activity at these two RSSLs constituted 94% of all bat passes recorded.

One of the RSSLs; N, was situated within woodland edge habitat and in close proximity to a watercourse (see Figure 2, Appendix A), while the other; G, was in open heathland habitat.

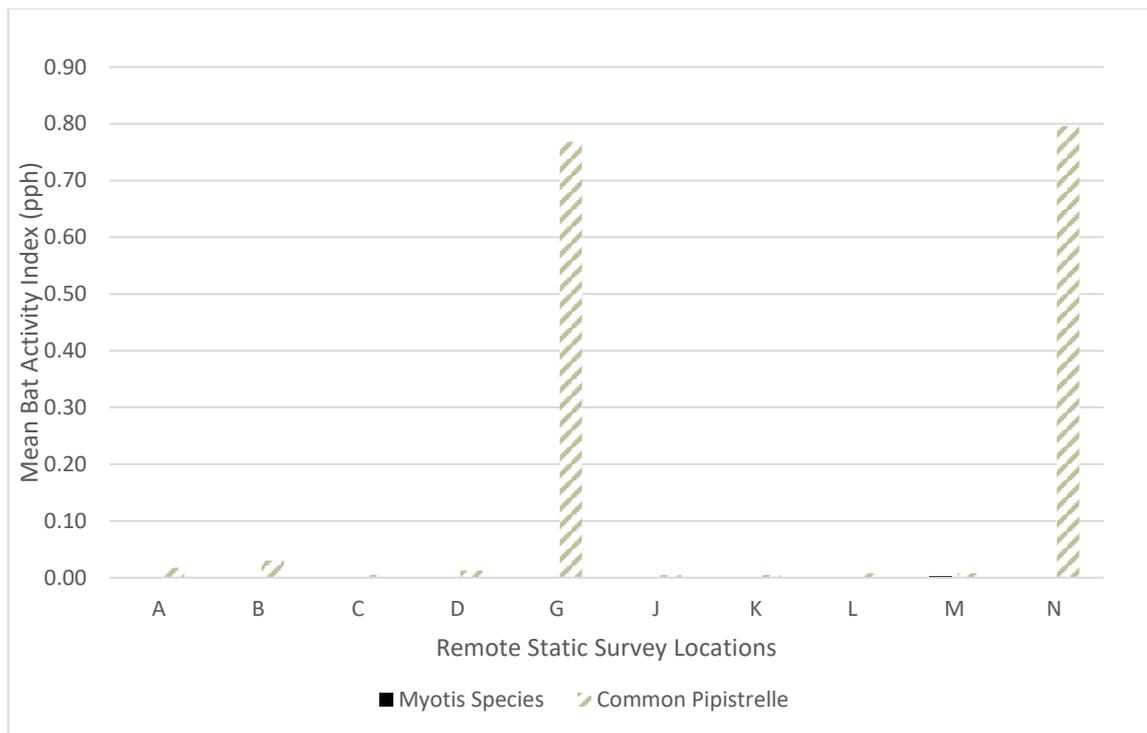


Chart 8.3.1: Spatial Variation in Total Bat Activity (mean BAI) across the Survey Season

3.2.1.2 Temporal Variation in Bat Activity

In addition to spatial variation, bat activity recorded notable temporal variation in the overall levels of activity, as well as the species abundances recorded, and the level of activity recorded spatially.

The highest number of bat passes (353) was recorded in Session 3, this constituted 53% of all bats recorded (compared to 2% and 45% for Sessions 1 and 2 respectively), however the Survey Session for Session 3 was slightly longer than Sessions 1 and 2. Once this temporal bias was corrected for (via the application of the BAI), Session 3 has a total mean BAI of 0.220 pph, while the BAI of Session 2 was higher at 0.225 pph, both of which are higher than the mean average BAI (0.160 pph) for the Survey Season.

Common pipistrelle was the only species recorded in Sessions 1 and 2, with only 1 *Myotis* sp. pass recorded in Session 3.

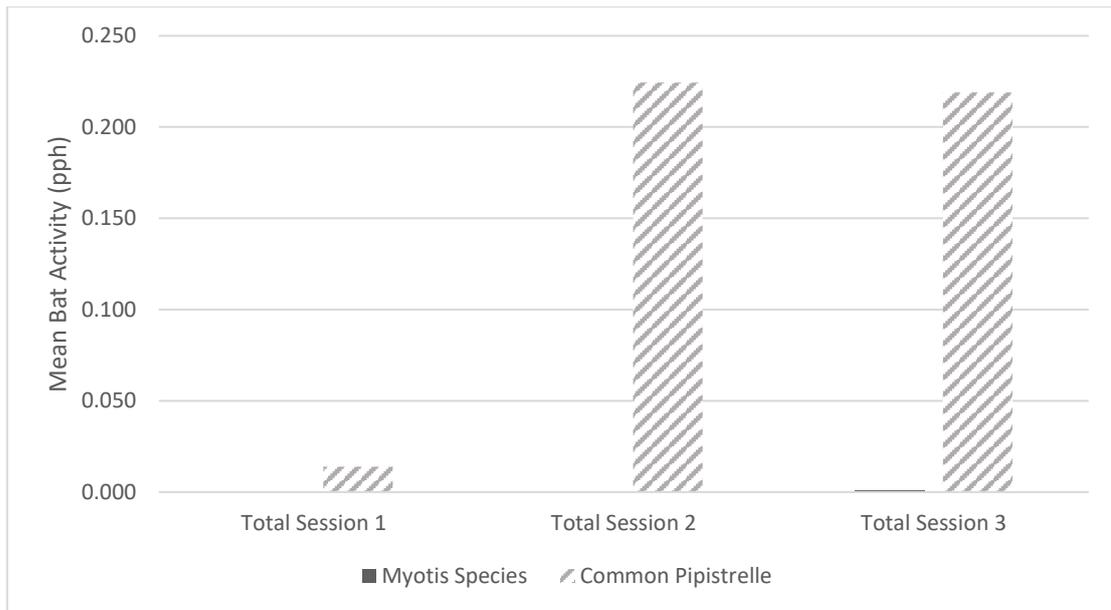


Chart 8.3.2: Temporal Variation in Total Bat Activity (mean BAI) across the Survey Season

3.2.2 Site Utilisation Summary

Overall, bat activity was low with a mean BAI approximating to one bat pass every 40 minutes. Common pipistrelles were accountable for 99.85% of all bat activity recorded, which are a common and widespread species in Scotland.

The BSA is dominated by open heathland, which is a habitat of very low value to foraging, commuting and roosting bats, with only small patches of plantation woodland areas in the vicinity – also of low value compared to broadleaved woodland⁷. However, it should be noted that in more northern aspects of species ranges where populations are smaller, and where broadleaved habitats are less abundant (such as where the Site is located in Caithness and Sutherland), coniferous plantation is likely to be of higher value to bats, when compared to other parts of their range where higher quality habitats are more abundant⁷.

There are no known records of any hibernaculum (winter hibernation roosts) within the BSA or the wider local area. Pipistrelle bats have a tendency to hibernate in trees and buildings⁷. As such, as no buildings exist within the BSA and any coniferous plantation generally offers poor roost potential⁷, it is considered very unlikely that hibernation is taking place in close proximity to the BSA.

4 ECOBAT ASSESSMENT

Table 8.3.7 below shows the key metrics for each bat species recorded within the BSA. The reference range is the number of nights for each species that the data from Ackron was **compared to using Ecobat's database. A recommended** reference range of at least 2000 is required to be confident in the relative activity levels of species recorded. However, the reference range depends on the number of records held within the Ecobat database for a given area. In this case, the Site is located in a remote part of the Scottish Highlands where there may be a lack of records that have been submitted to Ecobat (a UK wide database) available for comparison of results.

⁷ Dietz, c & Keifer, A. (2016). Bats of Britain and Europe, Bloomsbury Publishing Plc, London ISBN: PB:978-1-4729-2202-1

Table 8.3.7: Key Metric for Each Species Recorded Per Detector

| Detector Location | Species | Median Percentile | 95% CIs | Max Percentile | Nights Recorded | Reference Range |
|-------------------|----------------------------------|-------------------|-------------|----------------|-----------------|-----------------|
| A | <i>Pipistrellus pipistrellus</i> | 0 | 0 – 0 | 27 | 6 | 1209 |
| B | <i>Pipistrellus pipistrellus</i> | 14 | 27 – 27 | 52 | 6 | 1209 |
| C | <i>Pipistrellus pipistrellus</i> | 27 | 0 | 27 | 1 | 1209 |
| D | <i>Pipistrellus pipistrellus</i> | 24 | 23.5 – 23.5 | 47 | 2 | 1209 |
| G | <i>Pipistrellus pipistrellus</i> | 52 | 44.5 – 83.5 | 92 | 16 | 1209 |
| J | <i>Pipistrellus pipistrellus</i> | 27 | 0 | 27 | 1 | 1209 |
| K | <i>Pipistrellus pipistrellus</i> | 27 | 0 | 27 | 1 | 1209 |
| L | <i>Pipistrellus pipistrellus</i> | 14 | 13.5 - 13.5 | 27 | 2 | 1209 |
| M | <i>Myotis Sp.</i> | 0 | 0 | 0 | 1 | 293 |
| M | <i>Pipistrellus pipistrellus</i> | 14 | 13.5 – 13.5 | 27 | 2 | 1209 |
| N | <i>Pipistrellus pipistrellus</i> | 79 | 56.5 – 86.5 | 92 | 12 | 1209 |

The information within Table 8.3.7 is also represented graphically in the boxplot depicted by Chart 8.3.3 below. The centre line indicates the median activity level whereas the box represents the interquartile range (the spread of the middle 50% of nights of activity).

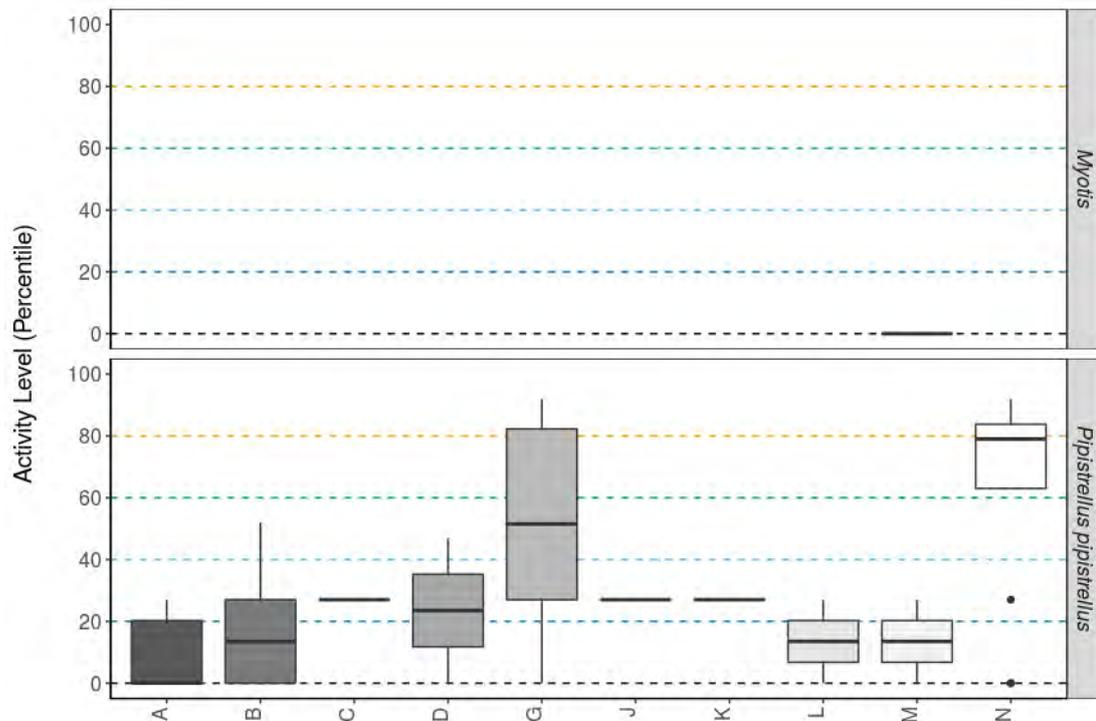


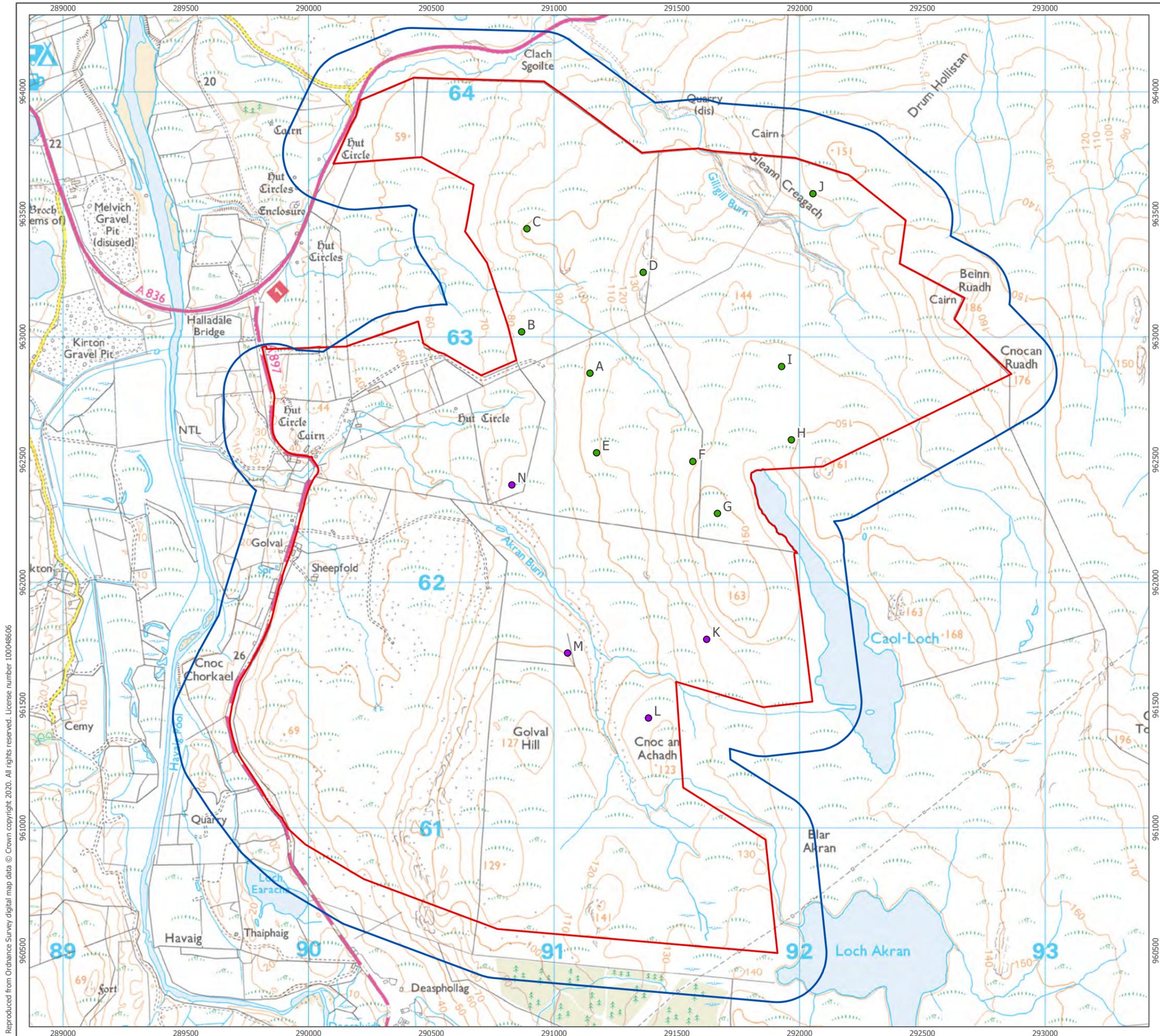
Chart 8.3.3: The activity level (percentile) of bats recorded across each night of the bat survey

5 CONCLUSION

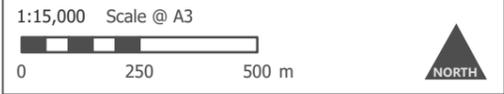
The levels of activity of both foraging and commuting bats recorded across the BSA was considered to be low overall, and dominated by common pipistrelle, a species considered of moderate vulnerability⁴ with regards to the Development.

ANNEX A - FIGURES

Figure 1: Bat Survey Area and Remote Static Survey Locations



- Site Boundary
- Bat Survey Area
- Remote Static Survey Locations
 - Spring Deployment
 - Amended Locations for Summer & Autumn Deployment



| | |
|-----------------|-------------------|
| Produced By: ST | Ref: 3138-REP-037 |
| Checked By: SC | Date: 12/11/2020 |

Bat Survey Area and RSSL
Figure 1

Ackron Wind Farm
Technical Appendix 7.3: Bats

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ANNEX B - DETAILED SURVEY DATA

Annex Table 1: Total Bat Passes recorded during Remote Static Activity Surveys, by Taxa and RSSL

| RSSL | Myotis Sp. | Common Pipistrelle | Total per Location |
|-------------------|------------|--------------------|--------------------|
| Survey Session 1 | | | |
| A | 0 | 3 | 3 |
| B | 0 | 5 | 5 |
| C | 0 | 0 | 0 |
| D | 0 | 5 | 5 |
| G | 0 | 0 | 0 |
| J | 0 | 2 | 2 |
| K | 0 | 0 | 0 |
| L | 0 | 0 | 0 |
| M | 0 | 0 | 0 |
| N | 0 | 0 | 0 |
| Total per Session | 0 | 15 | 15 |
| Survey Session 2 | | | |
| A | 0 | 3 | 4 |
| B | 0 | 2 | 2 |
| C | 0 | 0 | 0 |
| D | 0 | 0 | 0 |
| G | 0 | 1 | 1 |
| J | 0 | 0 | 0 |
| K | 0 | 2 | 2 |
| L | 0 | 2 | 2 |
| M | 0 | 2 | 2 |
| N | 0 | 281 | 281 |
| Total per Session | 0 | 293 | 294 |
| Survey Session 3 | | | |
| A | 0 | 1 | 1 |
| B | 0 | 5 | 5 |
| C | 0 | 2 | 2 |
| D | 0 | 0 | 0 |
| G | 0 | 305 | 306 |
| J | 0 | 0 | 0 |
| K | 0 | 0 | 0 |
| L | 0 | 1 | 1 |
| M | 1 | 1 | 2 |
| N | 0 | 36 | 36 |

| | | | |
|-------------------|---|-----|-----|
| Total per Session | 1 | 351 | 353 |
| Grand Total | 1 | 659 | 662 |

Annex Table 2: Mean BAI recorded during Remote Static Activity Surveys, by Taxa and RSSL

| RSSL | Myotis Sp. | Common Pipistrelle | Total per Location |
|-------------------|------------|--------------------|--------------------|
| Survey Session 1 | | | |
| A | 0 | 0.03 | 0.03 |
| B | 0 | 0.05 | 0.05 |
| C | 0 | 0 | 0 |
| D | 0 | 0.05 | 0.05 |
| G | 0 | 0 | 0 |
| J | 0 | 0.02 | 0.02 |
| K | 0 | 0 | 0 |
| L | 0 | 0 | 0 |
| M | 0 | 0 | 0 |
| N | 0 | 0 | 0 |
| Total per Session | 0 | 0.01 | 0.01 |
| Survey Session 2 | | | |
| A | 0 | 0.02 | 0.03 |
| B | 0 | 0.02 | 0.02 |
| C | 0 | 0 | 0 |
| D | 0 | 0 | 0 |
| G | 0 | 0.01 | 0.01 |
| J | 0 | 0 | 0 |
| K | 0 | 0.02 | 0.02 |
| L | 0 | 0.02 | 0.02 |
| M | 0 | 0.02 | 0.02 |
| N | 0 | 2.15 | 2.15 |
| Total per Session | 0 | 0.22 | 0.23 |
| Survey Session 3 | | | |
| A | 0 | 0.01 | 0.01 |
| B | 0 | 0.03 | 0.03 |
| C | 0 | 0.01 | 0.01 |
| D | 0 | 0 | 0 |
| G | 0 | 1.90 | 1.91 |
| J | 0 | 0 | 0 |
| K | 0 | 0 | 0 |
| L | 0 | 0.01 | 0.01 |

| | | | |
|-------------------|------|------|------|
| M | 0.01 | 0.01 | 0.01 |
| N | 0 | 0.22 | 0.22 |
| Total per Session | 0 | 0.22 | 0.22 |
| Grand Total | 0 | 0.17 | 0.17 |