Document Quality Record

Version	Status	Person Responsible	Date
0.1	Draft	LC/AW	13/07/2016
0.2	Reviewed	RI	13/07/2016
0.3	Updated	LC	13/07/2016
1	Internal Approval	RI	13/07/2016



ARECLEOCH WINDFARM EXTENSION

Bat Survey Report (2015 Surveys)

Technical Appendix 8.3B

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EXECUTIVE SUMMARY

MacArthur Green was commissioned by ScottishPower Renewables to undertake bat surveys at the proposed Arecleoch Windfarm Extension (hereafter referred to as the 'proposed Development').

The surveys were undertaken to inform the ecological assessment for the proposed Development's Environmental Impact Assessment Report (EIA Report).

This report presents the results of the bat survey work undertaken between 27 May and 6 October 2015 (inclusive) at the study area.

Five bat species were recorded during the temporal and spatial surveys: soprano pipistrelle (Pipistrellus pyqmaeus), common pipistrelle (Pipistrellus Pipistrellus), Myotis sp., brown long-eared (Plecotus auritus) and Nyctalus sp.. Records such as pipistrelle species¹ and unknown bat are not included in the overall number of species recorded for the study area.

An activity index was used to calculate bat registrations per hour in order to analyse bat activity in the study area (Bat Activity Index - BAI/hr). Spatial surveys which were carried out at dusk recorded 25.7 BAI/hr, which is considered to be a high activity rate post-emergence. The temporal surveys recorded a lower overall activity of 6.78 BAI/hr.

The overall bat activity index (BAI/hr) when combining spatial and temporal surveys for species at risk of collision, is considered to be low for species at high risk (Nyctalus sp.), and low for species at low risk (Myotis sp. and brown long-eared bat). For medium risk species (common pipistrelle, soprano pipistrelle and pipistrelle species) activity levels were assessed to be moderate.

No roosts were recorded within the study area. However, three railway buildings were considered to be potential bat roosts and were recorded as target notes. It is unknown if these buildings are suitable for bats as they were not surveyed due to being over 200 m from a proposed turbine and not adjacent to any proposed access track.

¹ It should be noted that *Pipistrelle sp.* is a bat call that overlaps between a soprano pipistrelle and common pipistrelle which can only be classified to genus level. For the purposes of this report it is not included in the overall number of species recorded for the study area.



1 INTRODUCTION

MacArthur Green was commissioned by ScottishPower Renewables to undertake bat surveys at the proposed Arecleoch Windfarm Extension (hereafter referred to as the 'proposed Development'). The proposed Development is located to the southwest of the village of Barrhill in South Ayrshire.

A survey plan for bats was conducted during the period of 27 May to the 6 October 2015. The survey plan included:

- daytime Inspection of the study area;
- spatial (point count) transect surveys; and •
- temporal (static) surveys.

The aim of the surveys was to identify roosting potential, quantify study area usage and variation of activity levels within the study area. Spatial and temporal surveys were carried out during the main bat activity period and in optimum weather conditions in order to maximise the likelihood of recording bats (see Annex 7).

These surveys were undertaken to inform the ecological assessment for the proposed Development's Environmental Impact Assessment Report (EIA Report).

2 **THE STUDY AREA**

The study area in which bat surveys were carried out encompassed the application boundary (refer to Figure 8.3B-1). The study area is located around 2km southwest of the village of Barrhill in South Ayrshire and near the border of Dumfries and Galloway. The study area encompasses the Arecleoch Forest at Shiel Hill and Knockshin. The majority of the study area supports commercial plantation, with large areas of clear fell interspersed between the forestry blocks. The forestry rides support mire habitat. There is a large powerline that intersects the northern section of the study area from west to east. There is also a railway line which runs through the study area from west to east. of the study area to surrounding habitats is supported by watercourses. There are several watercourses present in the study area, including the Water of Tig to the north and west and the Laggish Burn to the southeast. The White Loan feeds into the Cross Water to the east of the study area. There are also a number of unnamed burns present in the study area.

The highest point is located on Shiel Hill located in the northern section of the study area at an elevation of 230m. The majority of the study area is at a lower elevation.

BATS AND WINDFARMS 3

3.1 **Policy and Guidance**

All bats species are protected under the following legislation shown below. A person commits an offence if he/she: deliberately or recklessly captures, injures or kills a bat. It is also an offence to disturb, damage or destroy a place of shelter i.e. a roost. Details pertaining to the legal status of bats are included within Annex 1.

- The Habitats Directive 92/43/EEC.
- Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). ٠
- the Wildlife and Countryside Act 1981 (as amended). •
- the Nature Conservation (Scotland) Act 2004 (as amended).

In the UK, guidelines have been produced with regards to assessing the ecological impact upon bats from windfarm developments. These guidelines aid in producing mitigation and compensation strategies to minimise any negative impact upon local bat populations. The following guidance documents have been used in the preparation of this report:

- Natural England (2014) Bats and onshore wind turbines: interim guidance. TIN051. Third Edition.
- Hundt, L. (2012) Bat Surveys: Good Practice Guidelines, 2nd Edition, Bat Conservation Trust.
- Rodrigues L., et al. (2014) Guidelines for consideration of bats in windfarm projects, revision 2014. EUROBATS Publication Series No. 6.

3.2 **Potential Impacts**

It is now understood that, in some circumstances, bats may be at a greater risk of death from wind turbines than birds because they are affected by barotrauma as well as direct collision from blades (Baerwald et al. 2008) with a wind turbine in Europe and North America killing on average 2.3 birds and 2.9 bats per year (Rydell et al. 2012).

In the UK three taxa groups have been identified as high risk from collision with 98 % of bat mortality predominantly among taxa adapted to open-air foraging such as: Nyctalus, Pipistrellus and Eptesicus (Rydell et al. 2010).



Natural England interim guidance (2014) includes a collision risk assessment for British bat species. This is divided into two parts: (i) bat species likely to be threatened due to impacts from wind turbines and (ii) bat populations likely to be threatened due to impacts from wind turbines (shown in Table 3-1 and Table 3-2). Different bat species are considered to be at different levels of risk depending on their habitat preferences, flight behaviour and population status. Surveys have therefore been carried out for all bat species.

Natural England (2014) has identified the species of bats considered to be at low, medium and high risk (refer to Table 3-1 and Table 3-2).

Table 3-1 Bats likely to be at risk from wind turbines (taken from Natural England, 2014)

Low Risk	Medium Risk	High Risk	
Myotis species	Common pipistrelle	Noctule	
Long-eared bats	Serotine	Leisler's	
Horseshoe bats	Soprano pipistrelle	Nathusius pipistrelle	
	Barbastelle		

Table 3-2 Populations likely to be threatened due to impacts from wind turbines (taken from Natural England, 2014)

Low Risk	Medium Risk	High Risk
Myotis species	Serotine	Noctule
Long-eared bats	Barbastelle	Leisler's
Horseshoe bats		Nathusius pipistrelle
Soprano pipistrelle		
Common pipistrelle		

Bats travel between hibernacula sites to summer roosts in spring and autumn and therefore could be impacted negatively if windfarms were positioned between these two areas.

A recent synthesis of European and American data by the Swedish Vindval research programme concluded the following habitats to be high risk locations for windfarms; coasts, wetlands, hills and ridges. Turbines sited along linear landscapes such as lake shores, rivers, treelines, hedgerows, etc., are also considered to increase the likelihood of collision (Rydell et al., 2012).

3.3 **Study Area Assessment**

The appropriate level of effort for a bat survey at a proposed windfarm development depends on the scale of its likely impact, which in turn depends on the size of the site and the quality of the habitat. Bat Conservation Trust (BCT) guidance (Hundt, 2012) provides recommendations of minimum standards of survey effort in instances where sampling is required. To determine the survey effort the site must be assigned a high, medium or low value. Annex 2 contains the BCT assessment table "Factors to consider when determining the survey effort and site risk", which was used to determine the survey effort for this study area (as per Hundt, 2012).

Based on the geographical location of the study area in relation to high risk species (Nyctalus spp.), and its low to medium foraging and commuting suitability, it is considered to most closely fit the description of a medium value site (Hundt, 2012). For a medium value site, BCT guidelines recommend a minimum survey effort of at least one visit per transect per month between April and October for spatial surveys. For temporal surveys, the guidelines recommend five consecutive nights for each static location within the study area between April and October (see Annex 3 of this report for BCT bat survey minimum requirements).

Nyctalus species were identified during the desk-study search with one record located within 20 km of the study area. The record is 9 km from the study area a 'at height' surveys were not recommended for this Site.

4 **SURVEY METHODS**

4.1 **Desk-based Study**

A desk-based study was undertaken in order to inform subsequent field surveys and assessment with regards the presence of species of interest within the study area and its environs.

This study consisted of a search for Nyctalus records sourced from the 'Scottish Leisler's Bat Project' which were supplied to MacArthur Green by John Haddow in May 2015. The data set contains records of Nyctalus species in southern Scotland collected from long-term monitoring at proposed windfarms, other developments, and on-going research work being carried out by the 'Scottish Leisler's Bat Project' from 2010 to the end of the bat season in 2014.



A desk-based study was also undertaken to investigate the study area and its suitability to support bats using aerial photography. Potential features such as trees and buildings within the study area were noted. The information gained from this search was used to create the survey design i.e. spatial (point counts) and temporal (static) surveys.

4.2 **Spatial Surveys - Point Counts and Transect**

Spatial point count surveys were carried out over the main period of bat activity with surveys starting in May and finishing in September 2015; totalling five surveys (five surveys over five separate visits). The study area was divided into two transects and 33 point counts (see Figure 8.3B-1). Initially, 35 point counts were present along the transects, although two point counts were removed after the first two survey visits due to their positioning in clear-fell which caused a health and safety issue. For the dusk surveys, each survey or started their survey 30 minutes before sunset with each transect taking between 2 hours 42 minutes and 3 hours 48 minutes to complete. The start and finish points were rotated in every survey. Five minutes of static monitoring was undertaken at each of the listening points. Each surveyor carried calibrated bat detectors of the same type and model (Anabat SD 2 and Bat Box). The Anabat bat detector was coupled with a GPS device so that records were georeferenced. Survey effort is summarised in Table 4-1.

Survey Date	Transect Survey Type		Total Survey Time (hrs:mins)	
27/05/2045	1	Dusk	03:05	
27/05/2015	2	Dusk	03:20	
20/00/2015	1	Dusk	03:48	
30/06/2015	2	Dusk	02:53	
14/07/2015	1	Dusk	03:01	
14/07/2015	2	Dusk	02:54	
00/00/2015	1	Dusk	03:39	
06/08/2015	2	Dusk	02:54	
20/00/2015	1	Dusk	03:44	
29/09/2015	2	Dusk	02:42	
Total Survey (nights)	5	Total Survey (hrs:mins)	32:00	

Table 4-1 Summary of Spatial Survey Effort.

The transect routes sampled a range of habitat types representative of the study area. This is considered to provide data of onsite bat habitats, and to provide contextual information relating to bat activity within the wider area.

4.3 **Temporal Surveys – Static Detectors**

Temporal surveys involved leaving static Anabat SD2 detectors within the study area in order to record activity overnight and over prolonged periods of time. Six Anabat detectors were placed at six different locations (refer to Figure 8.3B-1).

The locations of the static detectors were selected based on the following criteria:

- to allow comparison of temporal variation between open, edge and steam habitats within the study area;
- to identify the fidelity of bats to particular foraging areas and commuting routes; and
- to identify migratory patterns across the study area.

Calibrated detectors were left out at these locations once a month for a minimum of five nights. As the Anabat SD2 microphones are directional, the microphones were positioned according to compass bearings. Anabats were not paired during the surveys. In line with Hundt (2012) guidance for medium habitat guality sites, surveys were undertaken every month between May and September inclusive, and therefore covered spring, summer and autumn seasons. Each detector recorded bats from dusk to dawn with detectors starting 30 minutes before dusk and finishing 30 minutes after dawn.

The placement of the static detectors covered a variety of habitats across the Site as shown in Figure 8.3B-1. Temporal survey effort is summarised in Table 4-2. Total automated survey effort is considered sufficient to provide a representative sample of bat activity within the study area.



Table 4-2 Summary of Temporal Surveys.

Survey Date	Time Parameter	Locations	Total Survey (hrs:mins:sec)	Total Number of Complete Nights
		1	32:32:58	3
		2	57:16:39	7
		3	57:16:53	7
May – June 27/05-03/06/2015	21:11-05:22	4	16:17:49	1
		5	35:10:54	4
		6	57:16:53	7
		Total	255:52:06	29
		1	46:05:53	6
		2	46:05:54	6
		3	26:10:56	3
June – July 30/06-06/07/2015	21:32-05:13	4	46:05:42	6
50,00 00,07,2015		5	46:05:42	6
		6	00:00:00	0
		Total	210:34:07	27
	21:21-05:28	1	48:41:54	6
		2	48:41:52	6
		3	48:41:48	6
July 14-20/07/2015		4	48:41:42	6
14 20/07/2015		5	48:41:48	6
		6	48:41:48	6
		Total	292:10:52	36
		1	47:04:50	5
		2	47:04:50	5
		3	47:04:45	5
August 06-11/08/2015	20:43-06:08	4	47:04:55	5
00-11/08/2015		5	47:04:55	5
		6	47:04:55	5
		Total	282:29:10	30
		1	54:30:29	3
		2	54:36:58	4
		3	53:17:22	3
September-October 29/09-06/10/2015	18:31-07:49	4	71:06:49	5
23/03-00/10/2013		5	36:22:33	2
		6	67:25:44	4
		Total	337:19:55	21

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Survey Date	Time Parameter	Locations	Total Survey (hrs:mins:sec)	Total Number of Complete Nights
Total Survey Time (hrs:mins:sec)	1378:26:10		Total Survey Nights	143

4.4 Method of Analysis

A bat registration is a sequence of bat pulses which is captured on a 15 second Anabat sound file. One sound file is counted as one bat registration. Different species within the same 15 second sound file are counted as different bat registrations.

An individual bat can pass a feature on several occasions while foraging. It is therefore not possible to estimate the number of individual bats. In accordance with BCT guidance (Hundt, 2012), an activity index is used to calculate bat registrations per hour which allows analysis of bat activity to estimate abundance and/or activity.

Bat Activity Index (BAI) (per hour) = Total number of bat 'registrations' / number of hours of recording

5 BAT SURVEY LIMITATIONS

The survey design and effort were devised in accordance to Hundt (2012) guidelines as shown in Annexes 2 and 3. The surveys carried out are considered to be sufficient to meet the guideline standards. The survey design was continually assessed with point count data analysed post-survey visit to determine if the design was appropriate to the number and species of bats encountered within the study area.

The main bat activity season is from April through to October, with breeding usually taking place in June and July. BCT guidance (Hundt, 2012) for proposed windfarm sites indicates that the survey period is from April and October. However, in Scotland bat activity can commence later and be limited at the end of the survey period due to the colder weather. Scotland experienced a colder and wetter than average spring² in 2015 which is likely to have delayed the emergence and activity levels of bats in the region. Therefore, surveys started in May and continued until September which covered the spring, summer and autumn bat activity periods (i.e. the main breeding and juvenile dispersal periods).

During the fourth spatial visit to the study area, a small section of the second transect route varied at point count 26. This was due to dense coniferous woodland cover. This is not seen to have affected the survey results as the same habitat type was sampled and it was adjacent to the original transect route and point count (refer to Figure 8.3B-2).

The spatial point count surveys were mostly carried out in optimal survey conditions. On some occasions the temperature dropped below 10 degrees Celsius (°C) during visits one, three and five, with the suboptimal temperature on these occasions from 7.9-9.6 °C for part of the survey period. Rain showers were encountered during visits one and two with these showers lasting 5 to 20 minutes long with the majority of the surveys carried out in dry weather. Bats are often active below temperatures of 10 °C in Scotland and as the showers were brief and/or light, these sub-optimal conditions are not seen as significant and are unlikely to have altered the outcome of the survey results (refer to Annex 7 for spatial survey weather data).

The automated static detectors are powered by 12-volt batteries and on some occasions the battery charge was not sufficient to complete a full survey period, or the equipment malfunctioned. It is possible that the cold weather or the longer night length at the start and end of the survey season may have affected the battery life. The loss of data is not considered to be significant in the context of the amount of data collected with 143 nights of data collected over five visits (see Table 4-2). The placement of the static detectors covered a variety of habitats across the study area as shown in Figure 8.3B-1. Total automated survey effort is considered sufficient to provide a representative sample of bat activity within the study area.

There is some overlap between the frequency calls of the common and soprano pipistrelle's which echolocate at a peak frequency of approximately 45 kHz and 55 kHz respectively. In instances where pipistrelle calls overlapped between 50 kHz and 50.9 kHz, they were recorded as *Pipistrelle* species.

Myotis species calls often overlap depending on their surrounding environs i.e. cluttered or open space. This often makes it difficult to identify *Myotis* bats to species level. If *Myotis* calls could not be identified to species level, they were recorded as *Myotis* species.

Nyctalus species calls (noctule and Leisler's bats) can be difficult to identify to species level as their calls overlap. Given that both these species have been assigned a high-risk level for both collision and population risk, and given that they can be difficult to identify to species level, they were classified only to genus level.

² Met Office weather summaries, accessed via: http://www.metoffice.gov.uk/climate/uk/summaries/2015/spring



'Unknown' calls were recorded during the spatial and temporal surveys. For spatial surveys this was due to very faint or fast calls which the surveyor could not identify in the field and the call was not recorded on the Anabat SD2 (directional microphone). For temporal surveys, bat calls were assigned an unknown value if the call was faint and could not be identified to genus level on Analook Software.

Anabat detectors are the preferred bat detector for acoustic monitoring at windfarm sites (Kunz et al. 2007); however, Anabat detectors have limitations and will only monitor bat activity within a limited area, usually around 30m³. Furthermore, the detection rate of bat calls varies with a bias towards loud bat calls with quieter calls, such as those from brown long-eared bats, potentially being under recorded. As a result of equipment limitations, only relative rather than direct statistical comparisons of bat activity can be made between species and only a set area within the study area can be sampled.

The analysis of bat data is subject to experience, therefore the Anabat data was analysed by ecologists experienced with bat call analysis using AnalookW software, version 4.3.19.

Nyctalus species are relatively more active at a height of 30m than those species with high frequency echolocation calls such as Myotis (Collins and Jones, 2009). A study on the difference of bat activity in relation to bat detector height found the difference between Nyctalus passes at the upper and lower detectors not to be statistically significant, despite proportionally more passes being recorded at height (Collins and Jones, 2009). Not all sites in the study recorded more Nyctalus passes at height, with two sites recording more passes at the lower detectors. The study therefore suggests that surveying from ground level can provide an accurate account of Nyctalus species.

The information currently available on bat behaviour in the UK is not sufficient to assess the threat that wind turbines may pose to populations. Anecdotal records of individual collisions exist but no quantified data at the colony or population level are available (Natural England, 2014).

In the absence of any recognised criteria to define levels of bat activity (e.g. what quantifies low, medium or high activity) professional judgement has been used, taking into consideration geographical location and experience gained through conducting similar surveys at other sites throughout Scotland.

6 SURVEY RESULTS

6.1 **Desk-based Study**

A search was carried out on records from the 'Scottish Leisler's Bat Project' supplied to MacArthur Green by John Haddow in May 2015.

Table 6-1 shows the number of Nyctalus records within 20 km of the study area. One Nyctalus record is within 10 km of the study area. Records supplied only locate records to a 1 km grid.

Table 6-1'Scottish Leisler's Bat Project' Records within 20km of the study area.

Species		Location	GPS	Distance from the study area	Year	Record type
Leisler's	5	South Ayrshire	NX1491	9km	2010	Anabat

6.2 **Daytime Inspection**

Habitat types within the study area were defined as edge, open, closed and stream habitats according to their exposed or sheltered nature. Edge habitats such as woodland/forest edge and burns are the preferred habitat of pipistrelle bats, while open habitats are more favoured by Nyctalus bats which can fly above woodland and fields. Woodland is the typical foraging habitats used by brown-long ears and some Myotis species (Russ, 2012). Daubenton's are associated with waterways (Russ, 2012).

In accordance within BCT Guidelines (Hundt, 2012) tree/s within 200 m of a turbine or adjacent to proposed access tracks were surveyed for potential roost feature/s. There are three small railway buildings present within the study area along the railway line (Target note 1 to 3); however, these buildings are more than 200m from a proposed turbine and not adjacent to any new access track and therefore were not surveyed (target notes (TNs) shown in Annex 4 and locations are illustrated in Figure 8.8).

Habitats within the study area noted to be potentially good foraging and commuting habitat include the following: forest rides, track, small ponds and numerous burns notably the White Loan, Laggish Burn and Water of Tig.

³ Detection distances vary with frequency and loudness (amplitude) of the bat calls and atmospheric attenuation. Many bats are detected over 30m under typical conditions, while some species such as Nyctalus sp. which call at low frequencies may be detectable from as far as 100m. However some species such as brown long-eared bats are hard to detect from shorter distances. This is why only relative rather than direct statistical comparisons of bat activity are made between species.



As a result of the daytime inspection the medium habitat value assigned to the study area was still deemed to be a valid assessment.

6.3 **Spatial Surveys – Point Counts**

In total five bat species were recorded during the spatial surveys: soprano pipistrelle (s.pip or '55 pip'); common pipistrelle (c.pip or '45 pip'); brown-long eared (Plecotus auritus); Myotis sp. (My); and Nyctalus sp. (Nyc). Unknown bat and Pipistrelle species (pip. sp.) calls were also recorded during the surveys but are not included in the overall number of species recorded for the study area⁴.

Figure 8.8 and Table 6-2 show the number and locations of bat registrations recorded along the transect route during the survey period. Bat activity within the study area was observed along the routes of transect 1 and transect 2. The greatest bat activity recorded along transect 1 was at the following locations:

- between point counts 2 to 4 adjacent to Kirkie Loch; •
- point count 7 Water of Tig tributary along a forestry ride; •
- between point counts 8 to 9 - Water of Tig tributary along forestry ride;
- between point counts 13 to 14 along forestry track and forestry ride; and •
- point count 16 along forestry ride.

The greatest bat activity recorded along transect 2 was at the following locations:

- between point counts 18 to 20 along track through clear fell habitat;
- between point counts 25 to 27 along clear fell habitat; •
- point count 29 along forestry ride; and •
- between point counts 31 to 32 along forestry track.

The total bat registrations per hour (BAI/hr) recorded for each species is shown in Table 6-2. A total of 819 bat registrations equating to a BAI/hr of 25.7 was recorded for the study area. The most commonly recorded species by BAI/hr was soprano pipistrelle (16.73 BAI/hr), followed by common pipistrelle (4.71 BAI/hr), *Pipistrelle* sp. (2.51 BAI/hr), *Nyctalus* sp. (1.26 BAI/hr), *Nyctalus* sp. (0.38 BAI/hr), unknown bat (0.09 BAI/hr) and brown-long eared bat (0.03 BAI/hr) as illustrated in Graph 6-1.

Table 6-2 shows a summary of the total spatial survey results. Table 6-3 to Table 6-7 show the total spatial survey results per survey visit. The composition of species recorded across the study area during the spatial survey results is shown in Graph 6-1 below, whilst the spatial activity during each survey visit is outlined in Graph 6-2.

The bats recorded were mainly commuting and feeding within the study area as shown in Annex 8. No social calls were recorded during the surveys. When surveyors could see bats flying, the flight height of bats was recorded, where this was possible. Soprano pipistrelle and Nyctalus species were recorded at height bands 0-5 m and 6-10 m, while common pipistrelle and unknown bat were only recorded at a height band of 6-10 m. It was also noted during the fourth visit in August that a large number of bats (>10) were feeding around large log piles at point count 19 and between point counts 19 and 18. These log piles could perhaps provide forage opportunities for bats or roosting habitats such as night time roosts.

Bat registrations steadily increased from a 0.31 BAI/hr in May to 14.81 BAI/hr in June. It further increased to 36.85 BAI/hr in July and peaked at 49.09 BAI/hr in August. Bat registrations then declined to 28.76 BAI/hr September.

Table 6-2 Summary of spatial surveys results.

	Total Activity											
Rec. time	s. pip.	c. pip.	pip sp.	My BLE		Nyc	Unknown					
31:52:00	533	150	80	12	1	40	3					
	16.73	4.71	2.51	0.38 0.03		1.26	0.09					
Total bat re	egistrations	8:	19	Total I	3AI/hr	25	.70					

(Abbreviations: s.pip – soprano pipistrelle; c.pip - common pipistrelle; pip. sp. pipistrelle species; My – Myotis sp.; ble – brown long-eared bat; Nyc - Nyctalus sp.)

⁴ There is an overlap in call frequency between common and soprano pipistrelle bats, and therefore calls which fall into this overlap are difficult to identify to species level. As a result, these calls were only identified to genus level and classified as 'pip. sp.'. Given the likelihood of these calls being from either common and soprano pipistrelle bats, 'pip. sp.' has been removed from the overall species count for the study area.



Table 6-3 Spatial surveys results May 27/05/2015.

			Activity visit 1 - Ma	y 27/05/2015			
Rec. time	s. pip.	c. pip.	pip. sp.	Му	BLE	Nyc	Unknown
6:25:00	1	0	0	1	0	0	0
	0.16	0.00	0.00	0.16	0.00	0.00	0.00
Total bat regi	strations		2	Total	BAI/hr		0.31

(Abbreviations: s.pip – soprano pipistrelle; c.pip - common pipistrelle; pip. sp. pipistrelle species; My – Myotis sp.; ble – brown long-eared bat; Nyc - Nyctalus sp.)

Table 6-4 Spatial surveys results June 30/06/2015.

	Activity visit 2 - June 30/06/2015											
Rec. time s. pip. c. pip. My BLE Nyc Unk												
6:41:00	49	30	14	1	0	5	0					
	7.33	4.49	2.09	0.16	0.00	0.75	0.00					
Total bat registrations		9	9	Total I	3AI/hr	14	.81					

(Abbreviations: s.pip – soprano pipistrelle; c.pip - common pipistrelle; pip. sp. pipistrelle species; My – Myotis sp.; ble – brown long-eared bat; Nyc - Nyctalus sp.)

Table 6-5 Spatial surveys results July 14/07/2015.

	Activity visit 3 - July 14/07/2015											
Rec. time	me s. pip. c. pip. pip sp. My BLE Nyc											
5:55:00	124	39	25	8	1	19	2					
	20.96	6.59	4.23	1.35	0.17	3.21	0.34					
Total bat registrations		2:	18	Total I	3AI/hr	36	.85					

(Abbreviations: s.pip - soprano pipistrelle; c.pip - common pipistrelle; pip. sp. pipistrelle species; My - Myotis sp.; ble - brown long-eared bat; Nyc - Nyctalus sp.)

Table 6-6 Spatial surveys results August 06/08/2015.

	Activity visit 4 - August 06/08/2015											
Rec. time	Rec. time s. pip. c. pip. My BLE Nyc											
6:25:00	193	67	38	1	0	15	1					
	30.08	10.44	5.92	0.16	0.00	2.34	0.16					
Total bat re	egistrations	3:	15	Total	BAI/hr	49	.09					

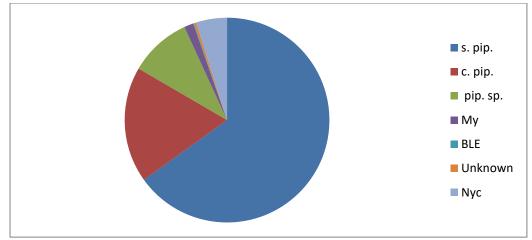
(Abbreviations: s.pip – soprano pipistrelle; c.pip - common pipistrelle; pip. sp. pipistrelle species; My – Myotis sp.; ble – brown long-eared bat; Nyc - Nyctalus sp.)

Table 6-7 Spatial surveys results September 29/09/2015.

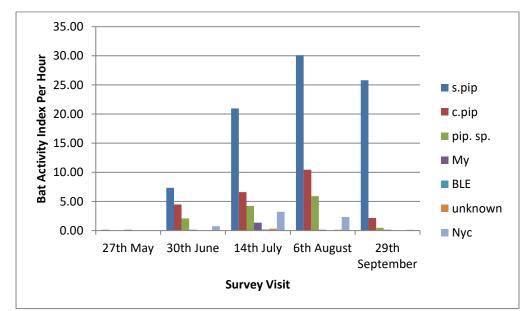
	Activity visit 5 - September 29/09/2015											
Rec. time	Rec. time s. pip. c. pip. pip sp. My BLE Nyc Unkr											
6:26:00	166	14	3	1	0	1	0					
	25.80	2.18	0.47	0.16	0.00	0.16	0.00					
Total bat re	egistrations	18	35	Total	BAI/hr	28	3.76					

(Abbreviations: s.pip – soprano pipistrelle; c.pip - common pipistrelle; pip. sp. pipistrelle species; My – Myotis sp.; ble – brown long-eared bat; Nyc - Nyctalus sp.)



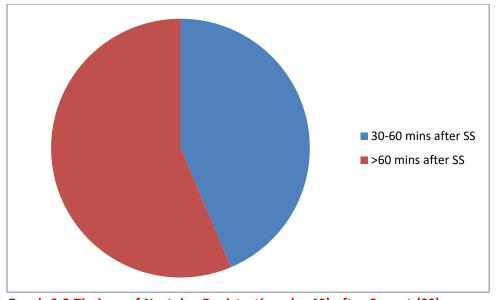


Graph 6-1 Spatial Survey Results: Species Composition within the study area (BAI/hr).



Graph 6-2 Spatial Activity in study area (BAI/hr).

Nyctalus spp., which are considered to be high risk species at both the collision and the population level, were recorded during the June, July, August and September surveys. A total of 40 *Nyctalus* registrations were recorded across all survey visits. Five *Nyctalus* registrations were recorded during the June survey visit. The majority of the registrations were recorded in July, with 19 registrations recorded. In August, 11 registrations were recorded, followed by a single registration during the September survey. Table 6-8 and Graph 6-3 show the timings of the recordings of *Nyctalus* species during the survey period in relation to sunset (SS). The timing of the bat registrations indicate that *Nyctalus* sp. are not roosting adjacent to the study area as the majority of registrations were recorded more than 60 minutes after sunset (see Graph 6-3). The earliest registration, which was in August, was recorded 00:33 to 00:39 minutes after dusk (see Table 6-8). The locations of the *Nyctalus* registrations recorded during the spatial surveys are illustrated in Figure 8.7.



Graph 6-3 Timings of Nyctalus Registrations (n=40) after Sunset (SS).

Table 6-8 Nyctalus Species Registrations Recorded across all Spatial Survey Visits.

Date	Time of Recording	Dusk	Passes	Time of Recording from Dusk (+/-)
30/06/2015	22:46	22:03	1	+00:43
30/06/2015	23:26	22:03	2	+01:23
30/06/2015	23:30	22:03	1	+01:27
30/06/2015	00:22	22:03	1	+02:19
14/07/2015	22:43	21:51	2	+00:52
14/07/2015	23:04	21:51	1	+01:13
14/07/2015	23:21	21:51	1	+01:30
14/07/2015	23:22	21:51	1	+01:31
14/07/2015	23:25	21:51	1	+01:34
14/07/2015	22:33	21:51	1	+00:42
14/07/2015	22:34	21:51	2	+00:43
14/07/2015	22:36	21:51	1	+00:45
14/07/2015	22:38	21:51	1	+00:47
14/07/2015	23:17	21:51	1	+01:26
14/07/2015	23:35	21:51	1	+01:44
14/07/2015	23:36	21:51	2	+01:45
14/07/2015	00:01	21:51	1	+02:10
14/07/2015	00:03	21:51	1	+02:12
14/07/2015	00:04	21:51	2	+02:13
06/08/2015	21:46 – 21:52	21:13	3	+ 00:33 – 00:39
06/08/2015	21:52 – 21:57	21:13	1	+ 00:39 - 00:44
06/08/2015	22:12	21:13	1	+00:59
06/08/2015	22:23	21:13	1	+01:10
06/08/2015	22:24	21:13	2	+01:11
06/08/2015	22:25	21:13	2	+01:12
06/08/2015	22:48	21:13	1	+01:35
06/08/2015	21:51	21:13	1	+00:38
06/08/2015	21:57	21:13	1	+00:44



Date	Time of Recording	Dusk	Passes	Time of Recording from Dusk (+/-)
06/08/2015	21:59	21:13	1	+00:46
06/08/2015	22:00	21:13	1	+00:47
29/09/2015	20:31	19:01	1	+01:30

6.4 **Temporal Surveys – Static Detectors**

The total BAI/hr recorded for each species is shown in Table 6-9 and is illustrated on Graph 6-4 and Figure 8.3B-2. In total five bat species were recorded during the surveys: soprano pipistrelle, common pipistrelle, brown-long eared, Myotis sp.; and Nyctalus sp., with a total BAI/hr of 6.78 for the study area. As with the spatial survey results, unknown bat and Pipistrelle sp. are not included in the overall number of species recorded for the study area. The most commonly recorded species, by BAI/hr, was soprano pipistrelle (4.26 BAI/hr), followed by common pipistrelle (2.39 BAI/hr), nyctalus spp. (0.05 BAI/hr), pipistrelle species (0.05 BAI/hr), Myotis sp. (0.03 BAI/hr) and brown long-eared bat (0.01 BAI/hr). The habitat type that recorded the greatest BAI per hour was location 4 (forest-ride) (20.63 BAI/hr), followed by: location 3 (forest ride) (10.97 BAI/hr); location 2 (forest ride) (6.69 BAI/hr); location 1 (open forest ride near burn) (0.89 BAI/hr); location 5 (forest ride near burn) (0.44 BAI/hr); and location 6 (clear-fell near burn) (0.34 BAI/hr).

A summary of the temporal data results recorded during all survey visits are shown in Table 6-9. Analysis of the temporal data for each survey visit is shown in Table 6-14 and are illustrated in Graph 6-5. The bat activity index remained consistently low throughout all the survey visits apart from the final visit. Activity peaked during visit five (September/October) with 21.79 BAI/hr. This was mainly attributed to the bat activity that was recorded at location 4 (forest ride) and location 3 (forest ride) which recorded 60.5 BAI/hr and 44.7 BAI/hr, respectively.

Loc.	Habitat type	time	c. pip.	s. pip.	pip. sp.	Му	BLE	Nyc	Unk.	Total Reg.	BAI/hr
1	Open forestry ride near burn	228:56:04	47	135	5	2	1	13	0	203	0.89
2	Forestry ride	253:46:13	475	1176	19	14	5	6	2	1697	6.69
3	Forestry ride	232:31:44	1012	1503	25	9	0	2	0	2551	10.97
4	Forestry ride	229:16:57	1693	2990	22	9	0	17	0	4731	20.63
5	Forestry ride near burn	213:25:52	37	19	0	0	2	34	1	93	0.44
6	Clear-fell near burn	220:29:20	24	43	1	6	0	2	0	76	0.34
	Total Registrations	1378:26:10	3288	5866	72	40	8	74	3	9351	6.78
	Total BAI/hr		2.39	4.26	0.05	0.03	0.01	0.05	0.002	6.78	

Table 6-9 Summary of temporal surveys results.

(Abbreviations: s.pip - c.pip - common pipistrelle; soprano pipistrelle; pip. sp. - pipistrelle species; My - Myotis sp.; BLE - brown long-eared bat; Nyc - Nyctalus sp.; Unk. - unknown bat; Reg. - registrations)

Table 6-10 Summary of activity totals May- June 27/05-03/06/2015.

			Activity visit 1 -	May to June 27/05	-03/06/2015						
Loc.	Habitat type	time	c. pip.	s. pip.	pip. sp.	Му	BLE	Nyc	Unk.	Total Reg.	BAI/hr
1	Open forestry ride near burn	32:32:58	0	0	0	0	0	0	0	0	0.00
2	Forestry ride	57:16:39	0	1	0	0	5	0	0	6	0.10
3	Forestry ride	57:16:53	0	1	0	0	0	0	0	1	0.02
4	Forestry ride	16:17:49	0	0	0	0	0	0	0	0	0.00
5	Forestry ride near burn	35:10:54	1	0	0	0	0	0	0	1	0.03
6	Clear-fell near burn	57:16:53	0	0	0	3	0	0	0	3	0.05
	Total Registrations		1	2	0	3	5	0	0	11	
	Total BAI/hr		0.004	0.01	0.00	0.01	0.02	0.00	0.00		
	Total Bat Passes				1		Total	BAI/hr		(0.04

(Abbreviations: s.pip - c.pip - common pipistrelle; soprano pipistrelle; pip. sp. - pipistrelle species; My - Myotis sp.; BLE - brown long-eared bat; Nyc - Nyctalus sp.; Unk. - unknown bat; Reg. - registrations)



Table 6-11 Summary of activity totals June- July 30/06-06/07/2015.

			Activity visit 2	2 - June - July 30/06-0	06/07/2015						
Loc.	Habitat type	time	c. pip.	s. pip.	pip. sp.	My	BLE	Nyc	Unk.	Total Reg.	BAI/hr
1	Open forestry ride near burn	46:05:53	37	59	5	1	1	12	0	115	2.49
2	Forestry ride	46:05:54	260	321	9	5	0	0	1	596	12.9
3	Forestry ride	26:10:56	23	39	1	3	0	1	0	67	2.56
4	Forestry ride	46:05:42	76	68	0	2	0	11	0	157	3.41
5	Forestry ride near burn	46:05:42	16	6	0	0	2	9	0	33	0.72
6	Clear-fell near burn	0:00:00	0	0	0	0	0	0	0	0	0.00
	Total Registrations		412	493	15	11	3	33	1	968	
	Total BAI/hr		1.96	2.34	0.07	0.05	0.01	0.16	0.005		
	Total Bat Passes				968		Total	BAI/hr	•		4.60

(Abbreviations: s.pip - c.pip - common pipistrelle; soprano pipistrelle; pip. sp. - pipistrelle species; My - Myotis sp.; BLE - brown long-eared bat; Nyc - Nyctalus sp.; Unk. - unknown bat; Reg. - registrations)

risk (Nyctalus spp.), and low for species at low risk (Myotis spp. and brown long-eared bat). For medium risk species (common pipistrelle, soprano pipistrelle and pipistrelle species) activity levels were seen to be moderate.

Nyctalus are an early emerging species. The closest time to dusk that Nyctalus species were recorded during the spatial surveys was 38 minutes after sunset, which would be considered a late emergence for Nyctalus spp., and this would suggest that a roost is not immediately adjacent to the study area. The temporal surveys recorded *Nyctalus* species at all locations.

The greatest activity (brph) seen throughout the spatial and temporal survey was from medium risk species such as common pipistrelle and soprano pipistrelle. The overall brph for common and soprano pipistrelle species was seen to be moderate with a value of 7.08 brph.

Table 6-12 Summary of activity totals July 14-20/07/2015.

			Activity v	isit 3 - July 14-20/07	/2015						
Loc.	Habitat type	time	c. pip.	s. pip.	pip. sp.	Му	BLE	Nyc	Unk.	Total Reg.	BAI/hr
1	Open forestry ride near burn	48:41:54	1	23	0	1	0	0	0	25	0.51
2	Forestry ride	48:41:52	60	232	1	2	0	1	0	296	6.08
3	Forestry ride	48:41:48	27	55	0	0	0	1	0	83	1.70
4	Forestry ride	48:41:42	143	65	0	0	0	3	0	211	4.33
5	Forestry ride near burn	48:41:48	14	5	0	0	0	22	1	42	0.86
6	Clear-fell near burn	48:41:48	10	20	0	0	0	2	0	32	0.66
	Total Registrations		255	400	1	3	0	29	1	689	
	Total BAI/hr		0.87	1.37	0.003	0.01	0.00	0.1	0.003		
	Total Bat Passe			689		Total	BAI/hr			2.36	

(Abbreviations: s.pip - c.pip - common pipistrelle; soprano pipistrelle; pip. sp. - pipistrelle species; My - Myotis sp.; BLE - brown long-eared bat; Nyc - Nyctalus sp.; Unk. - unknown bat; Reg. - registrations)

Table 6-13 Summary of activity totals August 06-11/08/2015.

			Activity vis	it 4 - August 06-11/(08/2015						
Loc.	Habitat type	time	c. pip.	s. pip.	pip. sp.	My	BLE	Nyc	Unk.	Total Reg.	BAI/hr
1	Open forestry ride near burn	47:04:50	4	3	0	0	0	1	0	8	0.17
2	Forestry ride	47:04:50	68	128	2	1	0	5	1	205	4.35
3	Forestry ride	47:04:45	13	6	0	1	0	0	0	20	0.42
4	Forestry ride	47:04:55	50	7	0	0	0	1	0	58	1.23
5	Forestry ride near burn	47:04:55	3	4	0	0	0	1	0	8	0.17
6	Clear-fell near burn	47:04:55	13	19	1	0	0	0	0	33	0.70
	Total Registrations		151	167	3	2	0	8	1	332	



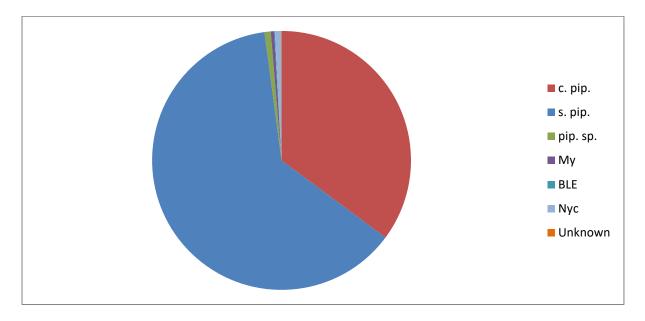
			Activity vis	it 4 - August 06-11/(08/2015										
Loc.	Loc. Habitat type fine time c. pip. s. pip. pip. sp. My BLE Nyc Unk. Total Reg. BAI/hr														
	Total BAI/hr		0.53	0.59	0.01	0.01	0.00	0.03	0.004						
	Total Bat Passes	;			332		Total	BAI/hr			1.18				

(Abbreviations: s.pip - c.pip - common pipistrelle; soprano pipistrelle; pip. sp. - pipistrelle species; My - *Myotis* sp.; BLE - brown long-eared bat; Nyc - *Nyctalus* sp.; Unk. - unknown bat; Reg. - registrations)

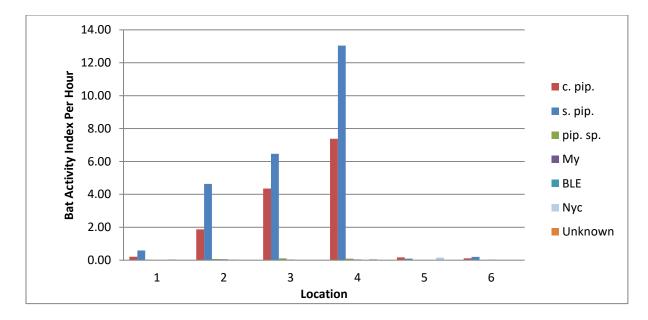
Table 6-14 Summary of activity totals September-October 29/09-06/10/2015.

			Activity visit 5 - Sept	tember - October 29/09	-06/10/2015						
Loc.	Habitat type	Rec. time	c. pip.	s. pip.	pip. sp.	Му	BLE	Nyc	Unk	Total Reg.	BAI/hr
1	Open forestry ride near burn	54:30:29	5	50	0	0	0	0	0	55	1.01
2	Forestry ride	54:36:58	87	494	7	6	0	0	0	594	10.9
3	Forestry ride	53:17:22	949	1402	24	5	0	0	0	2380	44.7
4	Forestry ride	71:06:49	1424	2850	22	7	0	2	0	4305	60.5
5	Forestry ride near burn	36:22:33	3	4	0	0	0	2	0	9	0.25
6	Clear-fell near burn	67:25:44	1	4	0	3	0	0	0	8	0.12
	Total Registrations		2469	4804	53	21	0	4	0	7351	
	Total BAI/hr		7.32	14.2	0.16	0.06	0.00	0.01	0.00		
	Total Bat Passes		·	735	1		Total	BAI/hr			21.79

(Abbreviations: s.pip - c.pip - common pipistrelle; soprano pipistrelle; pip. sp. - pipistrelle species; My - Myotis sp.; BLE - brown long-eared bat; Nyc - Nyctalus sp.; Unk. - unknown bat; Reg. - registrations)



Graph 6-4 Temporal Survey Results: Species Composition of study area (BAI/hr).

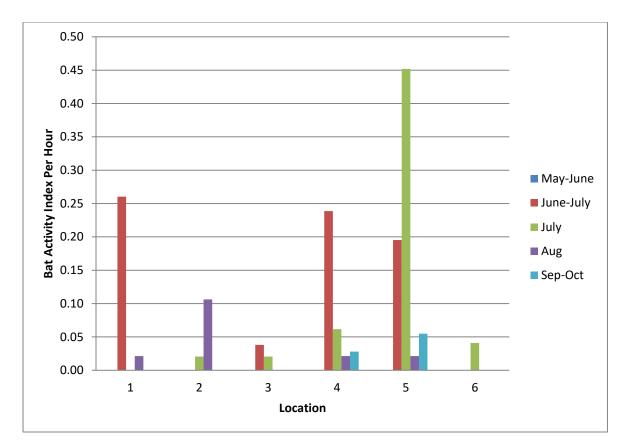


Graph 6-5 Temporal Activity of study area (BAI/hr)

All static locations deployed within the study area recorded *Nyctalus* registrations (Figure 8.3B-2). Temporal activity of *Nyctalus* sp. per location is shown in Graph 6-6. Low levels of *Nyctalus* sp. were recorded from visit two onwards. The location with the most registrations was location 5 which recorded registrations in visit two (June/July), visit three (July), visit four (August) and visit five (September/October). The temporal activity of *Nyctalus* sp. per survey visit is outlined within Table 6-15, below.

Table 6-15 Temporal Activity of Nyctalus sp. as BAI/hr per visit.

Location	Visit 1 May/June	Visit 2 June/July	Visit 3 July	Visit 4 August	Visit 5 September/October	Total BAI/hr per Location
1	0.00	0.26	0	0.02	0.00	0.28
2	0.00	0.00	0.02	0.11	0.00	0.13
3	0.00	0.04	0.02	0.00	0.00	0.06
4	0.00	0.24	0.06	0.02	0.03	0.35
5	0.00	0.20	0.45	0.02	0.05	0.72
6	0.00	0.00	0.04	0.00	0.00	0.04
Total BAI/hr per Visit	0.00	0.74	0.59	0.17	0.08	



Graph 6-6 Temporal Activity of Nyctalus spp. per visit (BAI/hr).

6.5 Collision Risk

Table 6-16 represents the total BAI per hour for high, medium and low risk species. The total BAI for individual bat species has been achieved by combining the temporal and static survey results; the total BAI/hr for which is then calculated to total survey time. The combined total BAI/hr figure for unknown bat species is 0.004 which is not represented in the table below as it cannot be assigned a risk level..

Species	High Risk (BAI/hr)	Medium Risk (BAI/hr)	Low Risk (BAI/hr)
s. pipistrelle		4.54	
c. pipistrelle		2.44	
Pipistrelle sp.		0.11	
Myotis sp.			0.04
Brown long-eared			0.006
Nyctalus sp.	0.08		
Total BAI/hr	0.08	7.08	0.04

Table 6-16 Overall BAI/hr for Species at Risk of Collision

7 DISCUSSION

7.1 Survey Overview

In total five bat species were recorded during the temporal and spatial surveys: soprano pipistrelle; common pipistrelle; brown-long eared; *Myotis* sp. and *Nyctalus* sp. Records such as pipistrelle species (pip. sp.) and unknown bat (Unk.) are not included in the overall number of species recorded for the study area. The most commonly recorded bat species within the study area were common and soprano pipistrelles.



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The spatial surveys recorded bat activity as 25.7 BAI/hr which is considered to be a high activity rate. Bat species are most active at dusk and dawn, with the average time spent outside the roost in northeast Scotland varying between 2 and 5 hours during the summer for common pipistrelles (Swift, 1980). This activity is a result of the correlation with the activity of a bat's bimodal prey species.

The results of the spatial surveys show that the highest BAI/hr present throughout the study area was concentrated around the following habitat types; Kirkie Loch, Water of Tig, tributary along the forest ride, along forest tracks, along forest rides and along clear-fell habitat. It is worth noting that due to ongoing felling/forestry activity, the aerial imagery shown on the results figures does not accurately portray the status of commercial forestry, e.g. whether it has been felled or re-planted.

The increase and decrease in bat activity during the spatial surveys was mainly attributed to the rise and fall of soprano and common pipistrelle numbers. The peak numbers recorded in August could be attributed to juvenile bats leaving maternity roosts. This, along with the high activity rate recorded overall during the spatial surveys could indicate that maternity roosts are adjacent to the study area, perhaps in Barrhill.

Temporal surveys recorded a total BAI/hr of 6.78 for the study area for all locations. When analysing each location in turn, the results of the temporal surveys show the highest areas of activity (BAI) were present at location 4 with 20.63 BAI/hr (shown in Figure 8.3B-2), followed by location 3 with 10.97 BAI/hr, both of which are present along forest rides and therefore considered edge habitat. The rest of the locations throughout the study area recorded lower activity rates.

When comparing the periods of highest activity during the spatial and temporal surveys, BAI/hr peaked in August during the spatial surveys, whilst for temporal surveys, BAI/hr peaked in September/October.

The spatial surveys, which record only during the length of the transect survey, recorded a much higher total activity (25.7 BAI/hr) than that of the temporal surveys (6.78 BAI/hr), which record bats from 30 minutes before dusk to 30 minutes after dawn. This difference is attributed to the difference in survey effort between the two survey types. Although a direct comparison of the activity between the two survey types cannot be made, the spatial surveys suggest that there is a high amount of activity at the times the surveys were conducted i.e. the time around dusk. This is to be expected as bats emerge at dusk and often feed for a few hours before returning to their roost. They may also reemerge and feed before dawn. Activity studies on common pipistrelle bats in north east Scotland showed that during pregnancy in May and June, most bats leave the roost once each night soon after dusk and return between midnight and dawn (Swift, 1980). After parturition in late June, the activity pattern becomes bimodal and the number of bats outside the roost show peaks after dusk and immediately before dawn. After weaning in August, the activity pattern gradually ceases to be bimodal, and the number of flights per bat falls to between one and two. The average time spent outside the roost varies between 2 and 5 hours during the summer (Swift, 1980).

Variation in bat activity existed between survey visits and between location for both the spatial and temporal surveys. Much of the variation in activity can be accounted for by changes in weather but also by the fidelity of bats to particular foraging areas and commuting routes.

Nyctalus species were recorded in low numbers during the spatial and temporal surveys. Nyctalus are considered to be an early emerging species. The closest time to dusk that Nyctalus species were recorded during the spatial surveys. was 38 minutes after sunset, which would be considered a late emergence for Nyctalus spp., and this would suggest that a roost is not immediately adjacent to the study area. The temporal surveys recorded Nyctalus species at all locations. The location with the greatest Nyctalus BAI/hr was location 5 (forest ride close to a burn) which recorded registrations in June/July, August and September/October. Nyctalus species are known to fly high above woodlands but are also known to perform deep diving close to the water surface to hunt for insects (Russ, 2012).

When considering all of the results of the surveys undertaken within the study area, the BAI/hr for high and low collision risk species is considered to be low. For medium collision risk species, BAI/hr is considered to be moderate.

All of the species recorded within the study area are on the Scottish Biodiversity List: all pipistrelle species, Daubenton's bat (Myotis daubentonii), noctule (Nyctalus noctula), and brown long-eared bat. Three are UK Biodiversity Action Plan (UKBAP) species; noctule bats, brown long-eared bat, and soprano pipistrelle. Noctule, common pipistrelle are also recognised as priority species under the Local Biodiversity Action Plan (LBAP) for South Ayrshire (2007 - 2010) (South Ayrshire Council, 2008).

High Collision Risk Species 7.2

Nyctalus species are classed as being at high risk of collision and at high risk at their population level (Natural England, 2014). This is because their flight behaviour means that they often fly fast and straight, high above the ground (Russ, 2012).

Leisler and noctule bats predominantly feed in open woodland, parkland, pasture, woodland edge and above water (Waters et al., 1999; Mackie and Racey, 2007).

Studies in southern Britain have shown Leisler's to fly up to 4.2 km from their roosts (Waters et al. 1999), while studies in Ireland have shown Leisler's to commute directly to foraging sites up to 13.4 km away at speeds often exceeding 40 km/h (Shiel et al., 1999).

Noctule bats can forage up to 10 km from their roost, and Mackie and Racey (2007) found a mean maximum foraging range of about 4 km where noctules were feeding over deciduous woodland and pasture in Britain.



Nyctalus sp. were recorded during the spatial and temporal surveys. The overall BAI/hr for Nyctalus species as seen in Table 6-16 is low at 0.08 BAI/hr. The results show that Nyctalus species are present within the study area frequently, but at low numbers.

7.3 **Medium Collision Risk Species**

The greatest activity (BAI/hr) seen throughout the spatial and temporal survey was from medium risk species such as common pipistrelle and soprano pipistrelle. These bat species are classed as being at medium risk of collision but are at low risk at the population level due to their distribution and abundance within the UK (Natural England, 2014). Population estimates for common pipistrelle and soprano pipistrelle bats in the UK in 2005 were 2,430,000 and 1,300,000 respectively (JNCC, 2007).

Bat activity for these species was recorded around edge habitat such as burns, lochs, clear-fell and forest rides.

The overall BAI/hr for common and soprano pipistrelle species is seen to be moderate with a value of 7.08 BAI/hr (refer to Table 6-16).

7.4 **Low Collision Risk Species**

Only low numbers of *Myotis* sp. which were mainly Daubenton's bats were recorded within the study area with an overall BAI/hr of 0.08, as seen in Table 6-16.

Brown long-eared bats were also recorded within the study area. The overall BAI for this species is seen to be low at 0.006 BAI/hr, as shown in Table 6-16. However, due to the echolocation of this species only being detected at a close range, it is likely that it is under recorded throughout the study area.

Myotis species favour habitats such as burns, plantation edge and woodland while brown long-eared bats are associated with woodland habitats. These species are less likely to be recorded in open habitats.

Myotis species and brown long-eared bats are at low risk for collision and also at low risk at the population level (Natural England, 2014).

8 **MITIGATION PROPOSALS**

8.1 **Potential Bat Roosts**

If it is proposed to place turbines within 200m of the three buildings (TNs 1 to 3) that have bat roost potential then further survey will be required to ascertain if a roost is present (following Collins, 2016). If a roost is present mitigation measures are likely to be required and any licencing requirements must be discussed with Scottish Natural Heritage.

8.2 **Buffers from Turbines**

Following Natural England guidance (2014), it is recommended that a 50m buffer from turbine blade tip to habitat feature is adhered to in areas with edge habitat such as burns, lochs, or woodland edges, including forest rides.

As medium risk species recorded a moderate BAI per hour, and activity was distributed throughout the study area, no descriptive buffer zones will be allocated and instead any edge habitat must be 50m away from the tip of a turbine blade as discussed above.

Furthermore, on-going research work at Stirling University is finding that bat activity increases in felled forest habitat (Lucinda Kirkpatrick, BCT Conference 2013, pers. comms.) as well as around key-holed turbines. In line with best practice guidelines (Natural England, 2014), the 50m buffer from turbine blade tip to the surrounding edge habitat must also be adhered to when felling and replanting, including habitat plans for turbine key holes.

The calculation to determine the distance between the turbine and the habitat feature in order to maintain this buffer is shown below and is illustrated in Annex 5.

The edge of the rotor-swept area needs to be at least 50m from the nearest part, usually the highest point, of the habitat feature. Guidelines (Natural England, 2014) suggest a calculation, as shown below:

 $b = \sqrt{(50m + bl)^2 - (hh - fh)^2}$ blade length (bl), the hub height (hh) and feature height (fh)



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Annex 1. Protected Species Legal Status

All bat species receive protection under the Conservation Regulations (1994) (as amended) only⁵.

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

Under Regulation 39 (1) it is an offence to:

- a) deliberately or recklessly to capture, injure or kill a wild animal of a European protected species;
- b) deliberately or recklessly:
- to harass a wild animal or group of wild animals of a European protected species; i.
- to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection; ii.
- iii. to disturb such an animal while it is rearing or otherwise caring for its young;
- to obstruct access to a breeding site or resting place of such an animal, or otherwise to deny the animal use of the breeding site or resting place (i.e. roost sites); iv.
- to disturb such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs; or ν.
- to disturb such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young; vi.
- c) deliberately or recklessly to take or destroy the eggs of such an animal; or
- d) to damage or destroy a breeding site or resting place of such an animal.

Regulation 44 (2e) allows a licence to be granted for the activities noted in Regulation 39 such that:

Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.

⁵ The Conservation Amendment (Scotland) Regulations (2007) removed EPA from Schedule 5 and 8 of the Wildlife and Countryside Act.



Legal and Conservation Status of UK Bat Species taken from Bat Conservation Trust

Source: http://www.bats.org.uk

							Legislation	Convention						
Species	Bern Convention Appendix II	Bonn Convention Appendix II	WCA	Habitats Directive Annex IV	Habitats Directive Annex II	Habs Regs 1994 (as amended) <i>Scotland</i>	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	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	LC	\checkmark
Lesser horseshoe bat	\checkmark	✓	✓	✓	\checkmark	✓	\checkmark	\checkmark	 ✓ 	✓	\checkmark	~	LC	✓
Daubenton's bat	✓	✓	✓	~		✓	 ✓ 	✓	 ✓ 	✓	✓		LC	✓
Natterer's bat	✓	✓	✓	~		✓	✓	 ✓ 	 ✓ 	✓	✓		LC	✓
Whiskered bat	✓	✓	✓	~		✓	~	 ✓ 	 ✓ 	✓	✓		LC	✓
Brandt's bat	✓	✓	✓	✓		✓	~	✓	 ✓ 	✓	✓		LC	✓
Bechstein's bat	✓	✓	 Image: A set of the set of the	✓	✓	✓	~	~	 ✓ 	✓	✓	~	NT	✓
Alcathoe bat	✓	✓	✓	✓		✓	\checkmark	~	✓	✓	\checkmark		DD	✓
Noctule	✓	✓	✓	✓		✓	~	✓	 ✓ 	✓	✓	~	LC	✓
Leisler's bat	✓	✓	✓	✓		✓	~	~	 ✓ 	✓	\checkmark		LC	✓
Serotine	✓	✓	✓	✓		✓	✓	✓	 ✓ 	✓	✓		LC	~
Common pipistrelle	✓	✓	✓	~		✓	~	~	 ✓ 	✓	✓		LC	✓
Soprano pipistrelle	✓	✓	✓	✓		✓	~	~	✓	✓	\checkmark	~	LC	✓
Nathusius' pipistrelle	✓	✓	~	✓		~	✓	✓	 ✓ 	✓	✓		LC	✓
Brown long-eared bat	✓	✓	~	✓		✓	✓	✓	 ✓ 	✓	\checkmark	~	LC	✓
Grey long-eared bat	✓	✓	~	~		~	✓	✓	 ✓ 	✓	\checkmark		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.



Annex 2. Determining Site Risk

(Sourced from Hundt, 2012)

Factors to	consider when determining the survey effort a	nd site risk	
Quality of habitat and number of habitat features likely to affect bat mortality rates if altered by development*	Species likely to use the site*	Importance of roosts, of species likely to use site, which may be affected by development*	Potential risk level of development
No potential habitat for roosting, foraging or commuting bats.	None	Local	Lowest
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.	Low number, single low risk species. High number, several low risk species.	Parish	Low
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.	Low number, medium risk species. High number, medium risk species.	District County	Medium
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.	High number, single high risk species. High number, several high risk species. High number, all high risk species.	National International	High

*As outlined in current scientific research, SNCO guidance and illustrated in (Wray et al, 2010).

Annex 3. Risk Level and Minimum Survey Requirements

(Taken from Hundt, 2012)

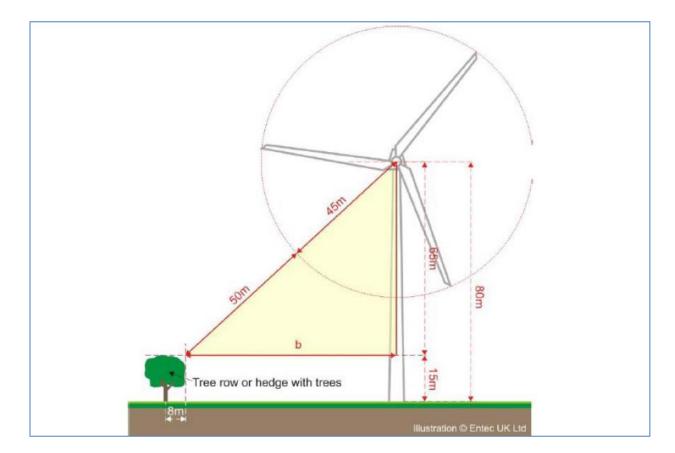
		Site Risk Level	
	Low risk	Medium risk	High risk
		Roost survey	
Selection of roosts requiring further survey	-	by medium or high-risk species a her survey should follow SNCO gu guidelines wherever possible.	
Survey period	Surveys shou	Ild provide data for one season as	s a minimum.
Survey area	Up to 200m + rotor radius from turbine locations or potential turbine locations	Up to 200m + rotor radius from turbine locations or potential turbine locations	Up to 200m + rotor radius from turbine locations or potential turbine locations
Ground level transect surveys	One visit per transect each season (spring, summer and autumn)	One visit per transect each month (April-Oct)	Up to two visits per transect each month may be required (April-Oct)
Automated surveys at ground level	5 consecutive nights for each single or pair of locations within the survey area, per season	5 consecutive nights for each single or pair of locations within the survey area, per month	Up to 2 sets of 5 consecutive nights for each single or pair of locations within the survey area, per month
Automated surveys at height		ght survey may be appropriate Fonast or other) survey effort is as o for surveys at ground level.	

Annex 4. Target Notes

TN	Feature	Date	Surveyor	Description/Sign	Grid Ref	Assessment
1	Buildings	21/05/2015	EM	Small building near railway. Seen at a distance. Assessment not possible. Proposed turbines not within 200m of a so no further survey work required.	NX21010 80243	Unknown potential
2	Buildings	21/05/2015	EM	Small building near railway. Seen at a distance. Assessment not possible. Proposed turbines not within 200m of a so no further survey work required.	NX20244 79472	Unknown potential
3	Buildings	21/05/2015	EM	Small building near railway. Seen at a distance. Assessment not possible. Proposed turbines not within 200m of a so no further survey work required.	NX20044 78256	Unknown potential

Annex 5. Illustration to Show 50 m Buffer Zone

(Taken from Natural England, 2014)





Annex 6. Spatial Raw Data

Site name:		eoch Windfa Extension	arm	Date:	27/05/ 2015							Transe ct 1	Trans ect 2				Ente red by		Murray 5/2015																		
Recorde r(s):		LC + LNF		Sunset :	20:50		Sunri	se			Start time	21:20	21:22				QA		anne 2/2015																		
Survey Type:		Dusk		SS param eter	20:20		SR parar	neter	00:30		Finish time	00:25	00:42			Fin Anaba			-																		
Point	Recor		sta rt tim	finish	Total	Total deci mal	pipistr	bp	pipistr	bp	pygmg		nathu	bp	leisl	bp	noct	bp	nycta	bp	myo tis		dauben	bp	natte	bp	mystac	bp	bran	bp	mys/br	bp	Pleco	bp	Unkn ow bat	bp To	t Total
count	der	Date	e	time	time	time	elle sp	ph	ellus	ph	eus	bpph	sius	ph	eri	ph	ula	ph	lus	ph	sp	bpph	tonii	ph	reri	ph	inus	ph	dtii	ph	andt	ph	tus	ph	sp	ph al pa	
		27/05/	21:				pass		pass		pass		pass		pass		pass		pass		pass		pass		pass		pass		pass	-	pass		pass		pass	s	
1 Betwee	LC	2015	20	21:25	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
n 1 and 2	LC	27/05/ 2015	21: 25	21:30	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
2	LC	27/05/ 2015	21: 30	21:35	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
Betwee n 2 and		27/05/	21:																																		
3	LC	2015	35 21:	21:43	00:08	0.13		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
3 Betwee	LC	2015	43	21:48	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
n 3 and 4	LC	27/05/ 2015	21: 48	22:00	00:12	0.20		0		0		0		0		0		0		0		0		0		0		0		0		0		0		o o	0
4	LC	27/05/ 2015	22: 00	22:05	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
Betwee n 4 and		27/05/	22:													-		-								-		-		-				-			
5	LC	2015 27/05/	05	22:13	00:08	0.13		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
5 Betwee	LC	2015	13	22:18	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
n 5 and 6	LC	27/05/ 2015	22: 18	22:26	00:08	0.13		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
6	LC	27/05/ 2015	22: 26	22:31	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
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7	LC	2015 27/05/	31 22:	22:40	00:09	0.15		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
7 Betwee	LC	2015	40	22:45	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
n 7 and 8	LC	27/05/ 2015	22: 45	22:53	00:08	0.13		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
8	LC	27/05/ 2015	22: 53		00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
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9 Betwee	LC	2015	00	23:05	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
n 9 and 10	LC	27/05/ 2015	23: 05	23:13	00:08	0.13		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
10	LC	27/05/ 2015	23: 13	23:18	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	
Betwee n 10	-	27/05/	23:											-				-				-												-			
and 11	LC	2015 27/05/	18 23:	23:24	00:06	0.10		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
11 Betwee	LC	2015	23.	23:29	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
n 11 and 12	LC	27/05/ 2015	23: 29	23:32	00:03	0.05		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	0
12	LC	27/05/ 2015	23: 32			0.03		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0 0	
12	LU	2013	32	23.37	00.05	0.00		5		5		0	1	0		0		U		0		U		0		0		U	1			0		U		- U	U



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und 15	20	27/05/	23:	23.41	00.04	0.07		0		Ŭ			Ŭ	Ű	Ű		Ű				Ű		Ť	
13	LC	2015	41	23:46	00:05	0.08		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0	0
Betwee n 13		27/05/	23:																					
and 14	LC	2015	46	23:50	00:04	0.07		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(o 0	0
		27/05/	23:																					
14	LC	2015	50	23:55	00:05	0.08	-	0	0	0	 0	0	0	0	0	0	0	0	0	0	0	(0 0	0
Betwee n 14		27/05/	23:																					
and 15	LC	2015	55	00:01	00:06	0.10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15		27/05/	00:	00.05	00.05	0.00																		
15 Betwee	LC	2015	01	00:06	00:05	0.08		0	0	0	 0	0	0	0	0	0	0	0	0	0	0	(0 0	0
n 15		27/05/	00:																					
and 16	LC	2015	06	00:13	00:07	0.12		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0 0	0
16	LC	27/05/ 2015	00: 13	00:18	00:05	0.08		0	0	0	0	0	0	0	1 12	0	0	0	0	0	0		0 1	12
Betwee	20	2015	10	00.10	00.05	0.00		Ū					Ŭ				- U				Ű		<u> </u>	
n 16		27/05/	00:																		_			
and 17	LC	2015 27/05/	18 00:	00:20	00:02	0.03		0	0	0	 0	0	0	0	0	0	0	0	0	0	0	(0 0	0
17	LC	2015	20	00:25	00:05	0.08		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(o 0	0
		27/05/	21:																					
18 Betwee	LNF	2015	22	21:27	00:05	0.08		0	0	0	 0	0	0	0	0	0	0	0	0	0	0	(0 0	0
n 18		27/05/	21:																					
and 19	LNF	2015	27	21:36	00:09	0.15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0	0
10		27/05/	21:	21.41	00.05	0.08		0	0	0	0	0	0	0	0		0	0		0	0			0
19 Betwee	LNF	2015	36	21:41	00:05	0.08		0	0	0	0	0	0	0	0	0	0	0	0	0	0		0 0	0
n 19		27/05/	21:																					
and 20	LNF	2015	41	21:47	00:06	0.10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0 0	0
20	LNF	27/05/ 2015	21: 47	21:52	00:05	0.08		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	o o	0
Betwee				-																				
n 20	1.515	27/05/	21:	21.50	00.00	0.10		0	0	0					0						0			0
and 21	LNF	2015 27/05/	52 21:	21:58	00:06	0.10		0	0	0	 0	0	0	0	0	0	0	0	0	0	0	(0 0	0
21	LNF	2015	58	22:03	00:05	0.08		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0	0
Betwee																								
n 21 and 22	LNF	27/05/ 2015	22: 03	22:08	00:05	0.08		0	0	0	0	0	0	0	0	0	0	0	0	0	0		o	0
0110 22	LINI	27/05/	22:	22.00	00.05	0.00		Ū					Ŭ		0		- U				Ű			
22	LNF	2015	08	22:13	00:05	0.08		0	0	0	 0	0	0	0	0	0	0	0	0	0	0	(0	0
Betwee n 22		27/05/	22:																					
and 23	LNF	2015	13	22:18	00:05	0.08		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0 (0
22		27/05/	22: 18	22.22	00.05	0.00																		
23 Betwee	LNF	2015	18	22:23	00:05	0.08		0	0	0	 0	0	0	0	0	0	0	0	0	0	0	(0 0	0
n 23		27/05/	22:																					
and 24	LNF	2015		22:28	00:05	0.08		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0 0	0
24	LNF	27/05/ 2015	22: 28	22:33	00:05	0.08		0	0	0	0	0	0	0	0	0	0	0	0	0	0		o	0
Betwee	LINI	2015	20	22.55	00.05	0.00		Ŭ					Ŭ		0		- U				Ű			
n 24		27/05/	22:																					
and 25	LNF	2015 27/05/	33 22:	22:38	00:05	0.08		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0 0	0
25	LNF	2015	38	22:43	00:05	0.08		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(o 0	0
Betwee																								
n 25	LNF	27/05/ 2015	22:	22:53	00:10	0.17		0	0	0	0	0	0	0	0	0	0	0	0	0	0		o 0	0
and 26	LINF	2015	43 22:	22.33	00.10	0.17		0	0	0	U		U	0	U	0	U	0		0	U			0
26	LNF	2015		22:58	00:05	0.08		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0	0
Betwee		27/05/	22:																					
n 26 and 27	LNF	27/05/ 2015	22: 58	23:04	00:06	0.10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(o 0	0
		27/05/	23:																					
27 Potwoo	LNF	2015	04	23:09	00:05	0.08		0	0	0	 0	0	0	0	0	0	0	0	0	0	0	(0 0	0
Betwee n 27		27/05/	23:																					
and 28	LNF	2015	09	23:15	00:06	0.10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(o	0
20		27/05/	23:	22.20	00.05	0.00		0	0	0	0	0		0	0				0	0	0		o 0	
28	LNF	2015	15	23:20	00:05	0.08		0	U	0	U	0	0	0	0	0	0	0	U	U	U	(0 0	0



								-																				-										
Betwee																																						
n 28		27/05/	23:																																			
and 29	LNF	2015	20	23:27	00:07	0.12		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
		27/05/	23:																																			
29	LNF	2015	27	23:32	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
Betwee																																						
n 29		27/05/	23:																																			
and 30	LNF	2015	32	23:38	00:06	0.10		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
-		27/05/	23:																																			
30	LNF	2015	38	23:43	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
Betwee								-		_				-		-				-		-		-				-		-						-	-	
n 30		27/05/	23:																																			
and 31	LNF	2015	43	23:51	00:08	0.13		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
		27/05/	23:	20:01	00.00	0.20		Ť		Ť				Ť		Ũ		Ť		Ŭ		Ť				Ť		Ŭ		Ť				Ť		Ũ	-	
31	LNF	2015	23. 51	23:58	00:07	0.12		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
Betwee	LINI	2015	51	23.30	00.07	0.12		0		0		0		0		0		0		0		0				0		0		0		0		0		0	•	
n 31		27/05/	23:																																			
and 32	LNF	2015	23: 58	00:01	00:03	0.05		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
anu 32	LINF			00:01	00:03	0.05		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	U	0
22	1.515	27/05/	00:	00.00	00.05	0.00		0		0	1	10		0		0		0		0		0		0		0		0		0		0		0		0		12
32	LNF	2015	01	00:06	00:05	0.08		0		0	1	12		0		0		0		0		0		0		0		0		0		0		0		0	1	12
Betwee																																						
n 32		27/05/	00:					_		_		_		_								_				_		_		_		_					_	
and 33	LNF	2015	06	00:12	00:06	0.10		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
		27/05/	00:																																			
33	LNF	2015	12	00:17	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
Betwee																																						
n 33		27/05/	00:																																			
and 34	LNF	2015	17	00:25	00:08	0.13		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
		27/05/	00:																																			
34	LNF	2015	25	00:30	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
Betwee																																						
m34		27/05/	00:																																			
and 35	LNF	2015	30	00:37	00:07	0.12		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
		27/05/	00:																																			
35	LNF	2015	37	00:42	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
	1																					1		1					1									
								Tot		Tot				Tot		Tot		Tot		Tot				Tot		Tot		Tot		Tot		Tot		Tot	Unkn		Tot	
						total		al		al				al		al		al		al	myo			al		al		al		al		al		al	ow	al	al	
					decimal	hrs/	pipistr	bp	pipistr	bp	pygmg	Total	nathu	bp	leisl	bp	noct	bp	nycta	bp	tis	Total	dauben	bp	natte	bp	mystac	bp	bran	bp	mys/br	bp	Pleco	bp	bat	bp	bat	Total
					time	min	elle sp	ph	ellus	ph	eus	bpph	sius	ph	eri	ph	ula	ph	lus	ph	sp	bpph	tonii	ph	reri	ph	inus	ph	dtii	ph	andt	ph	tus	ph	sp	ph	s	bpph
						06:2						0.1558										0.1558																0.31168
					6.42	5	0	0	0	0	1	442	0	0	0	0	0	0	0	0	1	442	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8312

	Arecle	eoch Wind	farm									Trans	Trans				Enter	Lei	anne Co	oke																<u> </u>		
Site name:		Extension	-	Date:	30/06	5/2015						ect 1	ect 2				ed by		0/12/20																			
Recorder(s						Í					Start							As	hleigh W	/ylie																		
):		LC & EM		Sunset:	22:03		Sun	rise	04:43		time	21:33	21:33				QA		.0/12/20:																			ł
				SS																																		
Survey				parame	21:33		SR para	ameter	05:13		Finish					Final	Anabat																					1
Type:		Dusk		ter							time	01:21	00:26			0	QA																					
Point count	Reco rder	Date	sta rt ti me	finish time	Total time	Total decima I time	pipist relle sp	bpph	pipistr ellus	bpph	pygm geus	bpph	nathu sius	bp ph	leis leri	bp ph	noctul a	bp ph	nyct alus	bpp h	my otis sp	bpph	daube ntonii	bp ph	natt ereri	bp ph	mysta cinus	bpph	bran dtii	bp ph	mys/b randt	bpph	Plec	bpph	Unk now bat sp	bp ph	Total	Total bpph
count	ruer	Date	me	une	ume	Tunie	sh	nhhu	enus	nhhu	geus	oppii	sius	рп	pas	pn	d	pii	aius		pas	oppii	ntonn	рп	eren	pii	cinus	nhhu		рп	Tanut	ophu	otus	phhu	sh	рп	TOLAI	phbu
							pass		pass		pass		pass		yas S		pass		pass		s pas		pass		pass		pass		pass		pass		pass		pass		pass	ł
		30/06/	01:																																			
1	LC	2015	16	01:21	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
Between 1		30/06/	01:																																			
and 2	LC	2015	11	01:16	00:05	0.08	2	24		0		0		0		0		0		0		0		0		0		0		0		0		0		0	2	24
2	LC	30/06/ 2015	01: 06	01:11	00:05	0.08		0	2	24		0		0		0		0		0		0		0		0		0		0		0		0		0	2	24
Between 2		30/06/	00:																																			
and 3	LC	2015	50	01:06	00:16	0.27	2	7.5		0	13	48.75		0		0		0		0		0		0		0		0		0		0		0		0	15	56.25
3	LC	30/06/ 2015	00: 45	00:50	00:05	0.08	2	24	3	36		0		0		0		0		0		0		0		0		0		0		0		0		0	5	60
Between 3		30/06/	00:																																			
and 4	LC	2015	37	00:45	00:08	0.13	1	7.5	1	7.5	1	7.5		0		0		0		0		0		0		0		0		0		0		0		0	3	22.5
		30/06/	00:																																			l
4	LC	2015	32	00:37	00:05	0.08		0	1	12		0		0		0		0		0	1	12		0		0		0		0		0		0		0	2	24
Between 4		30/06/	00:																																			
and 5	LC	2015	23	00:32	00:09	0.15		0		0		0		0		0		0		0		0		0		U		0		0		0		0		0	U	0
5	LC	30/06/ 2015	00: 18	00:23	00:05	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0



				1	1												_		[]	 						 			
Between 5 and 6	LC	30/06/ 2015	00: 09	00:18	00:09	0.15	1	6.66 6667	1	6.6666 66667		0	0	0		0		0	0	0	0	0	C		0	0	0	2	13.33 333
6	LC	30/06/ 2015	00: 04	00:09	00:05	0.08		0		0		0	0	0		0		0	0	0	0	0	C		0	0	0		0
Between 6		30/06/	23:							4.6153		-								-	-	-				-			4.615
and 7	LC	2015 30/06/	51 23:	00:04	00:13	0.22		0	1	84615		0	0	0		0		0	0	0	0	0	C		0	0	0	1	385
7 Between 7	LC	2015 30/06/	46 23:	23:51	00:05	0.08		0	1	12 9.2307		0	0	0		0		0	0	0	0	0	C		0	 0	0	1	12 9.230
and 8	LC	2015	33	23:46	00:13	0.22		0	2	69231		0	0	0	_	0		0	0	0	0	0	C		0	0	0	2	769
8	LC	30/06/ 2015	23: 28	23:33	00:05	0.08	2	24		0		0	0	0		0		0	0	0	0	0	C		0	0	0	2	24
Between 8 and 9	LC	30/06/ 2015	23: 18	23:28	00:10	0.17		0		0	8	48	0	0		0		0	0	0	0	0	c		0	0	0	8	48
9	LC	30/06/ 2015	23: 13	23:18	00:05	0.08		0		0		0	0	0		0		0	0	0	0	0	c		0	0	0		0
Between 9		30/06/	23:																		-	-							
and 10	LC	2015 30/06/	02 22:	23:13	00:11	0.18		0		0		0	0	0		0		0	0	0	0	0	C		0	0	0		0
10 Between	LC	2015 30/06/	57 22:	23:02	00:05	0.08		0		0		0	0	0	-	0		0	0	0	0	0	C		0	 0	0	0	0
10 and 11	LC	2015	50 22:	22:57	00:07	0.12		0		0		0	0	0	-	0		0	0	0	0	0	C		0	0	0	0	0
11	LC	2015	45	22:50	00:05	0.08		0		0		0	0	0		0		0	0	0	0	0	C		0	0	0	0	0
Between 11 and 12	LC	30/06/ 2015	22: 40	22:45	00:05	0.08		0		0		0	0	0		0		0	0	0	0	0	c		0	0	0	0	0
12	LC	30/06/ 2015	22: 35	22:40	00:05	0.08		0		0		0	 0	0		0		0	0	0	0	0	C		0	0	0	0	0
Between 12 and 13	LC	30/06/ 2015	22: 29	22:35	00:06	0.10		0		0		0	0	0		0		0	0	0	0	0	C		0	0	0		0
		30/06/	22:																		-	-							
13 Between	LC	2015 30/06/	24 22:	22:29	00:05	0.08		0		0		0	0	0		0		0	0	0	0	0	C	·	0	0	0	0	0
13 and 14	LC	2015 30/06/	17 22:	22:24	00:07	0.12		0		0		0	0	0	-	0		0	0	0	0	0	C		0	0	0	0	0
14 Potwoon	LC	2015 30/06/	12 22:	22:17	00:05	0.08		0		0		0	0	0	-	0		0	0	0	0	 0	C		0	0	0	0	0
Between 14 and 15	LC	2015	04	22:12	00:08	0.13		0		0		0	0	0		0		0	0	0	0	0	C		0	 0	0	0	0
15	LC	30/06/ 2015	21: 59	22:04	00:05	0.08		0		0		0	0	0		0		0	0	0	0	0	C		0	0	0	0	0
Between 15 and 16	LC	30/06/ 2015	21: 49	21:59	00:10	0.17		0		0		0	0	0		0		0	0	0	0	0	C		0	0	0	0	0
16	LC	30/06/ 2015	21: 44	21:49	00:05	0.08		0		0		0	0	0		0		0	0	0	0	0	C		0	0	0	0	0
Between		30/06/	21:									-								-	-	-							
16 and 17	LC	2015 30/06/	38 21:	21:44	00:06	0.10		0		0		0	0	0	-	0		0	0	0	0	0	C		0	0	0	0	0
17	LC	2015 30/06/	33 00:	21:38	00:05	0.08		0		0		0	0	0	-	0		0	0	0	0	0	C		0	 0	0	0	0
18 Between	EM	2015	21	00:26	00:05	0.08		0	1	12		0	0	0	-	0	1	12	0	0	0	 0	C		0	0	0	2	24
	EM	2015	16	00:21	00:05	0.08		0	3	36	2	24	0	0		0		0	0	0	0	0	C		0	 0	0	5	60
19	EM	30/06/ 2015		00:16	00:05	0.08		0		0		0	0	0		0		0	0	0	0	0	C		0	0	0	0	0
Between 19 and 20	EM	30/06/ 2015	00: 07	00:11	00:04	0.07		0	2	30	3	45	0	0		0		0	0	0	0	0	C		0	0	0	5	75
20	EM	30/06/ 2015	00: 02	00:07	00:05	0.08		0		0		0	0	0		0		0	0	0	0	0	c		0	0	0	0	0
Between		30/06/	23:						-																				
20 and 21	EM	2015 30/06/	58 23:	00:02	00:04	0.07		0	5	75		0	0	0		0		0	0	0	0	0	C		0	0	0		75
21 Between	EM	2015 30/06/	53 23:	23:58	00:05	0.08	1	12 8.57	3	36	3	36	0	0	-	0		0	0	0	0	0	C		0	0	0	7	84 8.571
21 and 22	EM	2015 30/06/	46 23:	23:53	00:07	0.12	1	1429		0		0	0	0	_	0		0	0	0	0	0	C		0	 0	0	1	429
22	EM	2015	41	23:46	00:05	0.08		0		0		0	0	0		0		0	0	0	0	0	C		0	0	0	0	0
Between 22 and 23	EM	30/06/ 2015	23: 37	23:41	00:04	0.07		0		0		0	0	0		0		0	0	0	0	0	C		0	0	0	0	0
23	EM	30/06/ 2015	23: 32	23:37	00:05	0.08	2	24	1	12		0	0	0		0		0	0	0	0	0	C		0	0	0	3	36
Between 23 and 24	EM	30/06/ 2015	23: 28	23:32	00:04	0.07		0		0		0	0	0		0	1	15	0	0	0	0	C		0	0	0	1	15
		30/06/	23:																			-							
24 Between	EM	2015 30/06/	23 23:	23:28	00:05	0.08		0		0		0	 0	0		0	2	24	0	0	0	0	C		0	0	0		24
24 and 25	EM	2015 30/06/	18 23:	23:23	00:05	0.08		0		0	4	48	0	0	-	0		0	0	0	0	0	C		0	0	0	4	48
25	EM	2015		23:18	00:05	0.08		0		0	12	144	0	0		0		0	0	0	0	0	C		0	0	0	12	144

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25 and 26	EM	2015 05	23:13	00:08	0.13		0	3	22.5	3	22.5		0	()	0		0		0	0	1	0		0		0		0		0		0	6	45
		30/06/ 23	:																																
26	EM	2015 00	23:05	00:05	0.08		0		0		0		0	()	0	1	0		0	0		0		0		0		0		0		0	0	0
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26 and 27	EM	2015 54		00:06	0.10		0		0		0		0	()	0	1	0		0	0		0		0		0		0		0		0	0	0
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27	EM	2015 49		00:05	0.08		0		0		0		0	()	0		0		0	0		0		0		0		0		0		0	0	0
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27 and 28	EM	2015 45		00:04	0.07		0		0		0		0			0	1	15		0	0		0		0		0		0		0		0	1	15
27 0110 20		30/06/ 22		00.04	0.07										, 	0		15		Ū	0				0										
28	EM	2015 40		00:05	0.08		0		0		0		0			0		0		0	0		0		0		0		0		0		0	0	0
				00.05	0.08		0		0		0		0	`	,	0				0	0		0		0		0		0				0		
Between	EM	30/06/ 22 2015 35		00.05	0.08		0		0		0		0			0	1	0		0	0		0		0		0		0		0		0	0	0
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29	EM	2015 30		00:05	0.08	_	0		0		0		0	(,	0	_	0		0	0		0		0		0		0		0		0	0	0
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29 and 30	EM	2015 25		00:05	0.08	_	0		0		0		0	()	0	_	0	_	0	0		0		0		0		0		0		0	0	0
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30 and 31	EM	2015 1		00:05	0.08		0		0		0		0	()	0		0		0	0	1	0		0		0		0		0		0	0	0
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31	EM	2015 10	22:15	00:05	0.08		0		0		0		0	()	0		0		0	0	1	0		0		0		0		0		0	0	0
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31 and 32	EM	2015 06	22:10	00:04	0.07		0		0		0		0	()	0		0		0	0	1	0		0		0		0		0		0	0	0
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32	EM	2015 02	. 22:06	00:05	0.08		0		0		0		0	()	0	1	0		0	0	I	0		0		0		0		0		0	0	0
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32 and 33	EM	2015 57	22:01	00:04	0.07		0		0		0		0	()	0		0		0	0		0		0		0		0		0		0	0	0
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33	EM	2015 52		00:05	0.08		0		0		0		0	()	0		0		0	0		0		0		0		0		0		0	0	0
Between		30/06/ 21															-																		
33 and 34	EM	2015 48		00:04	0.07		0		0		0		0	()	0	1	0		0	0		0		0		0		0		0		0	0	0
		30/06/ 21							-		-		-			-				-					-		-		-				-		
34	EM	2015 43		00:05	0.08		0		0		0		0)	0	1	0		0	0		0		0		0		0		0		0	0	0
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34 and 35	EM	2015 38		00:05	0.08		0		0		0		0)	0		0		0	0		0		0		0		0		0		0	0	0
54 010 55	LIVI	30/06/ 21		00.05	0.00		0				0		U			0		0			0				0				0		0		3	<u> </u>	
35	EM	2015 33		00:05	0.08		0		0		0		0	(,	0		0		0	0		0		0		0		0		0		0	0	0
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				l time	n n	sp	bpph	ellus	bpph	geus	bpph	sius		leri p					sp	bpph	ntonii pł		ph	cinus	bpph		ph	randt	bpph	otus	bpph				bpph
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				6.68	06:41	14	2.09	30	4.49	49	7.33	0	0	0 0		0	5	813	1	9626	0 0	0	0	0	0	0	0	0	0	0	0	0	0	99	297
	I	1 1		0.08	00.41	14	2.05	30	4.47	43	7.55	U	U	5 1		U		013	_ _	3020	0 0	0	v	U	U	v	0	U	U	U	<u> </u>	U	9	53	231

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Site	Arecle	eoch Windfa	arm									Trans	Trans				red	Leanne (Cooke																			
name:	E	Extension		Date:	14/07	/2015						ect 1	ect 2				by	10/12/2	2015																			
Record er(s):		EM & LC		Sunset :	21:5		Sun	rico	04:58		Start time	21:21	21:21					Ashleig h Wylie 10/12/ 2015																				
er(s).		EIVI & LC		SS	1		Suit	liise	04.56		ume	21.21	21.21				QA	2015																				
Survey				param	21:2		SR para	ameter	05:28		Finish					Fina	al																					
Type:		Dusk		eter	1		-				time	00:22	00:15			Anabat	t QA																					
			sta rt			Total deci															myo														Unkn ow			
Point	Recor		tim	finish	Total	mal	pipistr		pipistr		pygm		nathu	bp	leisl	bp	noct		nyct		tis	bp	dauben	bp	natte	bp	mystac	bp		bp	mys/br	bp	Pleco		bat	bp	Tot	Total
count	der	Date	е	time	time	time	elle sp	bpph	ellus	bpph	geus	bpph	sius	ph	eri	ph	ula	bpph	alus	bpph	sp	ph	tonii	ph	reri	ph	inus	ph	dtii	ph	andt	ph	tus	bpph	sp	ph	al	bpph
							pass		pass		pass		pass		pas s		pass		pass		pass		pass		pass		pass		pass		pass		pass		pass		pa ss	
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1	EM	2015	21	21:26	5	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
Betwee																																						
n 1 and		14/07/	21:		00:0																																	
2	EM	2015	26	21:32	6	0.10		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
2	514	14/07/	21:	24.27	00:0	0.00				0		0		~		0		0		0		_		0				0		0		0		0		0	•	0
2	EM	2015	32	21:37	5	0.08		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0
Betwee n 2 and		14/07/	21:		00:0																																	
3	EM	2015	37	21:44	7	0.12		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	0	0



	14/07/	21:		00:0																							
3 EM Betwee	2015	44	21:49	5	0.08		0	0		0		0	0	-	0		0	0		0	0	0	0	0	0	0	0 0
n 3 and	14/07/		24.54	00:0	0.00												0							2			
4 EM	2015 14/07/	49 21:	21:54	5 00:0	0.08		0	0		0		0	0		0		0	0		0	0	0	0	 0	0	0	0 0
4 EM Betwee	2015	54	21:59	5	0.08		0	0		0		0	0		0		0	0		0	0	0	0	 0	0	0	0 0
n 4 and 5 EM	14/07/ 2015	21: 59	22:04	00:0 5	0.08		0	0		0		0	0		0		0	0		0	0	0	0	0	0	0	0 0
5 EM	14/07/ 2015	22: 04	22:09	00:0 5	0.08		0	0		0		0	0		0		0	0		0	0	0	0	0	0	0	0 0
Betwee n 5 and	14/07/	22:		00:0													-										
6 EM	2015	09	22:15	6	0.10		0	0		0		0	0	_	0		0	0		0	0	0	0	 0	0	0	0 0
6 EM	14/07/ 2015	22: 15	22:20	00:0 5	0.08		0	0		0		0	0		0		0	0		0	0	0	0	0	0	0	0 0
Betwee n 6 and	14/07/	22:		00:0																							
7 EM	2015 14/07/	20 22:	22:28	8 00:0	0.13		0	0		0		0	0		0		0	0		0	0	0	0	 0	0	0	0 0
7 EM Betwee	2015	28	22:33	5	0.08		0	0		0		0	0	-	0		0	0		0	0	0	0	0	0	0	0 0
n 7 and 8 EM	14/07/ 2015	22: 33	22:44	00:1 1	0.18		0	0		0		0	0		0	2	10.90 909	0		0	o	0	0	0	0	0	10.90 2 909
8 EM	14/07/ 2015	22: 44	22:49	00:0 5	0.08		0	0	1	12		0	0		0		0	7 84		0	0	0	0	 0	0	0	8 96
Betwee			22.45		0.00		0		-						0		0	/ 0-	r	0			0	 0	0		
n 8 and 9 EM	14/07/ 2015	22: 49	22:56	00:0 7	0.12		0	0	16	137.1 429		0	0		0		0	0		0	0	0	0	0	0	0	137.1 16 429
9 EM	14/07/ 2015	22: 56	23:01	00:0 5	0.08	2	24	0		0		0	0		0		0	0		0	0	0	0	0	0	0	2 24
Betwee n 9 and	14/07/	23:		00:0																							
10 EM	2015 14/07/	01 23:	23:07	6 00:0	0.10		0	1 10		0		0	0		0	1	10	0		0	0	0	0	0	0	0	2 20
10 EM Betwee	2015	07	23:12	5	0.08	2	24	0	11	132		0	0	-	0		0	0		0	0	0	0	 0	0	0	13 156
n 10 and 11 EM	14/07/ 2015	23: 12	23:16	00:0 4	0.07	1	15	2 30		0		0	0		0		0	0		0	0	0	0	0	0	0	3 45
11 EM	14/07/ 2015	23: 16	23:21	00:0 5	0.08	4	48	0		0		0	0		0		0	0		0	0	0	0	0	0	0	4 48
Betwee			25.21		0.00		40			0					0		0			0			0	 0	0		4 40
n 11 and 12 EM	14/07/ 2015	23: 21	23:25	00:0 4	0.07		0	1 15	1	15		0	0		0	3	45	0		0	0	0	0	 0	0	0	5 75
12 EM	14/07/ 2015	23: 25	23:30	00:0 5	0.08	1	12	0		0		0	0		0		0	0		0	0	0	0	0	0	0	1 12
Betwee n 12	14/07/	23:		00:0																							
and 13 EM	2015 14/07/	30 23:	23:35	5 00:0	0.08		0	0	2	24		0	0		0		0	0		0	0	0	0	 0	0	0	2 24
13 EM Betwee	2015	35	23:40	5	0.08	2	24	0	18	216		0	0	-	0		0	0		0	0	0	0	 0	0	0	20 240
n 13 and 14 EM	14/07/ 2015		23:45	00:0 5	0.08	1	12	12 144	17	204		0	0		0		0	0		0	o	0	0	0	0	0	30 360
14 EM	14/07/			00:0 5		-	0	6 72		204		0	0		0		0	0		0	0	0	0	0	0	0	23 276
Betwee			23.30		0.08		0		1/	204			0		U		0						0	U		0	23 270
n 14 and 15 EM	14/07/ 2015	50	23:56	00:0 6	0.10	1	10	0	9	90		0	0		0		0	0		0	0	0	0	0	0	0	10 100
15 EM	14/07/ 2015	23: 56	00:01	00:0 5	0.08	1	12	0		0		0	0		0		0	0		0	0	0	0	0	0	0	1 12
Betwee n 15	14/07/	00:		00:0						25.71																	25.71
and 16 EM	2015 14/07/	01 00:	00:08	7 00:0	0.12		0	0	3	429		0	0		0		0	0		0	0	0	0	0	0	0	3 429
16 EM Betwee	2015	08	00:13	5	0.08	1	12	4 48	2	24		0	0		0		0	1 12	2	0	0	0	0	0	0	0	8 96
n 16 and 17 EM	14/07/	00: 13	00:17	00:0 4	0.07	2	30	0	6	90		0	0		0		0	0		0	0	0	0	0	0	0	8 120
	14/07/	00:		00:0																							
17 EM	14/07/			5 00:0		1	12	0	2	24		0	0		0		0	0		0	0	0	0	0	0	0	3 36
18 LC Betwee		21	21:26	5	0.08		0	0		0		0	0		0		0	0		0	0	0	0	0	0	0	0 0
n 18 and 19 LC	14/07/ 2015	21: 26	21:31	00:0 5	0.08		0	0		0		0	0		0		0	0		0	0	0	0	0	0	0	0 0
		•		•							•																



		14/07/ 21:		00:0																											<u> </u>	
19 Betwee	LC	2015 31	21:36	5	0.08	-	0	-	0		0		0	0	-	0		0		0		0	0	0	0		0	0		0	0	0
n 19 and 20	LC	14/07/ 21: 2015 36	21:42	00:0 6	0.10		0		0		0		0	0		0		0		0		0	0	0	0		0	0		0	0	0
20	LC	14/07/ 21: 2015 42	21:47	00:0 5	0.08		0		0		0		0	0		0		0		0		0	0	0	0		0	0		0	0	0
Betwee n 20		14/07/ 21:		00:0																												
and 21	LC	2015 47 14/07/ 21:	21:52	5 00:0	0.08		0		0		0		0	0		0		0		0		0	0	0	0		0	0		0	0	0
21 Betwee	LC	2015 52	21:57	5	0.08	-	0		0		0		0	0	-	0		0		0		0	0	0	0		0	0		0	0	0
n 21 and 22	LC	14/07/ 21: 2015 57	22:02	00:0 5	0.08		0		0		0		0	0		0		0		0		0	0	0	0		0	0		0	o	0
22	LC	14/07/ 22: 2015 02	22:07	00:0 5	0.08		0		0		0		0	0		0		0		0		0	0	0	0		0	0		0	0	0
Betwee n 22		14/07/ 22:		00:0			-																									
and 23	LC	2015 07 14/07/ 22:	22:13	6 00:0	0.10		0		0		0		0	0		0		0		0		0	0	0	0		0	0		0	0	0
23 Betwee	LC	2015 13	22:18	5	0.08		0		0		0		0	0		0		0		0		0	0	0	0		0	0		0	0	0
n 23 and 24	LC	14/07/ 22: 2015 18	22:23	00:0 5	0.08		0		0		0		0	0		0		0		0		0	0	0	0		0	0		0	0	0
24	LC	14/07/ 22: 2015 23		00:0 5	0.08		0		0		0		0	0		0		0		0		0	0	0	0		0	0		0	0	0
Betwee n 24		14/07/ 22:	22.20	00:0	0.00						25.71							25.71														51.42
and 25	LC	2015 28 14/07/ 22:	22:35	7	0.12		0		0	3	429		0	0	-	0	3	429		0		0	0	0	0		0	0		0	6	857
25 Betwee	LC	2015 35	22:40	5	0.08	1	12	1	12	1	12		0	0	-	0	2	24		0		0	0	0	0		0	0		0	5	60
n 25 and 26	LC	14/07/ 22: 2015 40	22:50	00:1 0	0.17	2	12	1	6	1	6		0	0		0		0		0		0	0	0	0		0	0		0	4	24
26	LC	14/07/ 22: 2015 50	22:55	00:0 5	0.08		0	-	0	-	0		0	0		0		0		0		0	0	0	0		0	0		0	0	0
Betwee n 26		14/07/ 22:	22.55	00:0	0.00				Ŭ		Ū																Ū					
and 27	LC	2015 55 14/07/ 23:	23:01	6 00:0	0.10	-	0		0		0		0	0	-	0		0		0		0	0	0	0		0	0		0	o	0
27 Betwee	LC	2015 01	23:06	5	0.08		0		0		0		0	0	-	0		0		0		0	0	0	0		0	0	2	24	2	24
n 27 and 28	LC	14/07/ 23: 2015 06	23:11	00:0 5	0.08		0		0	1	12		0	0		0		0		0		0	0	0	0		0	0		0	1	12
28	LC	14/07/ 23: 2015 11	23:16	00:0 5	0.08	2	24		0	1	12		0	0		0		0		0		0	0	0	0		0	0		0	3	36
Betwee n 28		14/07/ 23:	23.10	00:0	0.00	-	24		Ŭ	-																	Ū					
and 29	LC	2015 16	23:22	6 00:0	0.10		0		0		0		0	0	-	0	1	10		0		0	0	0	0		0	0		0	1	10
29 Betwee	LC	14/07/ 23: 2015 22	23:27	5	0.08		0	8	96	2	24		0	0	-	0		0		0		0	0	0	0		0	0		0	10	120
n 29 and 30	LC	14/07/ 23: 2015 27	23:35	00:0 8	0.13		0		0		0		0	0		0		0		0		0	0	0	0		0 1	7.5		0	1	7.5
30	LC	14/07/ 23: 2015 35		00:0 5	0.08		0		0		0		0	0		0	3	36		0		0	0	0	0		0	0		0	3	36
Betwee n 30		14/07/ 23:	23.40	00:0	0.00		Ť		Ť		Ŭ		~	0				50					5	-						Ť	Ē	
and 31	LC	2015 40 14/07/ 23:	23:47		0.12		0		0		0		0	0	_	0		0		0		0	0	0	0		0	0		0	0	0
31 Betwee	LC	2015 47	23:52	5	0.08		0		0		0		0	0		0		0		0		0	0	0	0		0	0		0	0	0
n 31 and 32		14/07/ 23: 2015 52	23:59	00:0 7	0.12	1	8.571 429	2	17.1428 5714	5	42.85 714		0	0		0		0		0		0	0	0	0		0	0		0	8	68.57 143
32	LC	14/07/ 23: 2015 59		00:0	0.08	-	0	1	12	1	12		0	0		0	4	48		0		0	0	0	0		0	0		0	6	72
Betwee n 32		14/07/ 00:		00:0	0.08					-	12			0			-	40					5	-								
and 33	LC	14/07/ 00. 2015 04 14/07/ 00:		6 00:0	0.10		0		0	3	30		0	0		0		0		0		0	0	0	0		0	0		0	3	30
33	LC	2015 10	00:15	5	0.08		0		0	1	12		0	0		0		0		0		0	0	0	0		0	0		0	1	12
													Tot	Tot	-					Tot		Tot	Tot	ot	Tot		Tot		Unkn	Tot	Tot	
				deci mal	total hrs/	pipistr	Total	pipistr	Total	pygm	Total	nathu	al	al leisl bp	noct	Total	nyct	Total	myo tis	al		al bp natte	al	al op bran	al	mys/br	al bp Ple	co Total	ow	al	al	Total
				time	min	elle sp			bpph	geus	bpph	sius	ph	eri ph	ula	bpph	alus	bpph	sp	ph	tonii	ph reri	ph	oh dtii	ph	andt	ph tu		sp	ph		bpph

MacArthur Green

 <u> </u>	r –	05:5		Т				20.95		T						3.211	r 1	12						1						0.169		0.2	21	26.94
		05:5						20.95								3.211		1.5												0.169		0.3	21 :	50.84
	5.92	5	25	4.23	39	6.59	124	775	0	0	0	0	0	0	19	268	8	5	0	0	0	0	0	0	0	0	0	0	1	014	2	4	8	507

															Ent		hleigh																	<u>т</u>]
Site name:		eoch Windf Extension	farm	Date:	06/08/ 2015							Trans ect 1	Trans ect 2		rec		Vylie 09/2015																		
Record er(s):		MH + LC		Sunse t:	21:13		Sur	nrise	05:38		Start time	21:06	20:43		QA																				
Survey				SS param	20:43			ameter	06:08		Finish				Final																				
Type: Point	Recor	Dusk	sta rt tim	eter finish	Total	Tota I deci mal	pipist relle		pipistr		time	00:45	23:37 nathu	bp leisl	Anabat Q/		nyct		my otis		dauben	bp	natte	bp	mysta	bp	bran bp	mys/br	bp	Plec	bp	Unkn ow bat		То	Total
count	der	Date	e	time	time	time	sp pass	bpph	ellus pass	bpph	geus pass	bpph	sius pass	ph eri pas s			alus pass	bpph	sp pas s	bpph	tonii pass	ph	reri pass	ph	cinus pass	ph	dtii ph pass	andt pass	ph	otus pass	ph	sp pass	bpph	tal pa ss	bpph
1	мн	06/08/ 2015	00: 40	00:45	00.05	0.08	pass	0	1	12	pass	0	pass	0	0	, 0	pass	0	3	0	pass	0	pass	0	pass	0	0	pass	0	pass	0	pass	0	1	12
1 Betwee n 1 and		06/08/	00:	00.43	00:05	0.08		0	1	12		0				0		0		0		0		0		0	0		0		0		0		12
2	МН	2015 06/08/	31 00:	00:40	00:09	0.15		0		0		0		0	0	0		0		0		0		0		0	0		0		0		0	0	0
2	МН	2015	26	00:31	00:05	0.08		0		0	1	12		0	0	0		0		0		0		0		0	0		0		0		0	1	12
Betwee n 2 and 3	МН	06/08/ 2015	00: 09	00:26	00:17	0.28	1	3.529 4118	1	3.529 4118	17	60		0	0	0		0	1	3.529 4118		0		0		0	0		0		0		0	20	70.5882 3529
3	МН	06/08/ 2015	00: 04	00:09	00:05	0.08	8	96	1	12	8	96		0	0	0		0		0		0		0		0	0		0		0		0	17	204
Betwee n 3 and 4	мн	06/08/ 2015	23: 54	00:04	00:10	0.17	1	6	10	60	25	150		0	0	0		0		0		0		0		0	0		0		0		0	36	216
4	мн	06/08/ 2015	23: 49	23:54	00:05	0.08	10	120	10	0	23	0		0	0	0		0		0		0		0		0	0		0		0		0	10	120
Betwee n 4 and 5	мн	06/08/ 2015	23: 41	23:49	00:08	0.13		0		0		0		0	0	0		0		0		0		0		0	0		0		0		0	0	0
5	мн	06/08/ 2015	23: 36	23:45	00:05	0.08		0		0		0		0	0	0		0		0		0		0		0	0		0		0		0	0	0
Betwee n 5 and	мн	06/08/ 2015	23: 25			0.18		0		0	3	16.36 3636		0	0	0		0		0		0		0		0	0		0		0		0	3	16.3636 3636
6	MH	06/08/ 2015	23: 20	23:36 23:25	00:11	0.18		0		0	3	0		0	0	0		0		0		0		0		0	0		0		0		0	0	0
Betwee n 6 and		06/08/	23:									9.230																					0		9.23076
7	MH	2015 06/08/	07 23:	23:20	00:13	0.22		0		0	2	7692		0	0	0		0		0		0		0		0	0		0		0		0	2	9231
7 Betwee n 7 and	MH	2015	02	23:07	00:05	0.08	1	12		0		0		0	0	0		0		0		0		0		0	0		0		0		0	1	12
8	МН	2015 06/08/	52 52	23:02	00:10	0.17		0	2	12	1	6		0	0	0		0		0		0		0		0	0		0		0		0	3	18
8 Betwee	МН	2015	47	22:52	00:05	0.08		0	3	36	3	36		0	0	0	1	12		0		0		0		0	0		0		0		0	7	84
n 8 and 9	МН	06/08/ 2015		22:47	00:09	0.15		0		0	2	13.33 3333		0	0	0		0		0		0		0		0	0		0		0		0	2	13.3333 3333
9	МН	06/08/ 2015	22: 33	22:38	00:05	0.08		0		0		0		0	0	0		0		0		0		0		0	0		0		0		0	0	0
Betwee n 9 and 10	мн	06/08/ 2015	26	22:33	00:07	0.12		0		0		0		0	0	0		0		0		0		0		0	0		0		0	1	8.57142 8571		8.57142 8571
10	МН	06/08/ 2015		22:26	00:05	0.08		0		0		0		0	0	0	6	72		0		0		0		0	0		0		0		0	6	72
Betwee n 10 and 11	мн	06/08/ 2015		22:21	00:04	0.07		0		0	1	15		0	0	0		0		0		0		0		0	0		0		0		0	1	15
11	мн	06/08/ 2015	22:	22:17				0		0		0		0	0	0	1	12		0		0		0		0	0		0		0		0	1	12
Betwee n 11		06/08/	22:																																
and 12	МН	2015	22:	22:12				0		0	1	12		0	0	0		0		0		0	<u> </u>	0		0	0		0		0		0	1	12
12	MH	2015	02	22:07	00:05	0.08		0		0		0		0	0	0		0		0		0		0		0	0		0		0		0	0	0

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Betwee																										
n 12 and 13	мн	06/08/ 2015	21: 57	22:02	00:05	0.08		0		0		0	0	0	0		0	0	0	0	0	0	0		0	o o
	мн	06/08/	21: 52	21:57		0.08		0	6	72	6	72	0	0	0	1	12	0	0	0	0	0	0			
13 Betwee	IVIH	2015		21:57	00:05	0.08		0	0	72	6	12	0	0	0	1	12	0	0	0	0	0	0	,	0 1	.3 156
n 13 and 14	МН	06/08/ 2015	21: 46	21:52	00:06	0.10	1	10		0	2	20	0	0	0	3	30	0	0	0	0	0	0	5	0	6 60
14	МН	06/08/ 2015	21: 41	21:46	00:05	0.08	1	12		0	2	24	0	0	0		0	0	0	0	0	0	0		0	3 36
Betwee n 14		06/08/	21:																							
and 15	MH	2015 06/08/	32 21:	21:41	00:06	0.10		0		0		0	0	0	0		0	0	0	0	0	0	0)	0	0 0
15	МН	2015	21.	21:32	00:05	0.08		0		0		0	0	0	0		0	0	0	0	0	0	0)	0	0 0
Betwee n 15		06/08/	21:																							
and 16	MH	2015 06/08/	20 21:	21:27	00:07	0.12		0		0		0	0	0	0		0	0	0	0	0	0	0)	0	0 0
16 Betwee	MH	2015	15	21:20	00:05	0.08		0		0		0	0	0	0		0	0	0	0	0	0	0)	0	0 0
n 16 and 17	МН	06/08/ 2015	21: 11	21:15	00:04	0.07		0		0		0	0	0	0		0	0	0	0	0	0	0		0	o 0
17	мн	06/08/ 2015	21: 06	21:11	00:05	0.08		0		0		0	0	0	0		0	0	0	0	0	0	0	,		0 0
18	LC	06/08/ 2015	23: 32	23:37		0.08		0		0		0	0	0	0		0	0	0	0	0	0	0			0 0
Betwee	LU			23.37	00:05	0.08		0		U		0	0	0	0		0	0	0	0	0	0	0		0	0
n 18 and 19	LC	06/08/ 2015	23: 25	23:32	00:07	0.12		0	7	60	21	180	0	0	0		0	0	0	0	0	0	0	5	0 2	240
19	LC	06/08/ 2015	23: 20	23:25	00:05	0.08	1	12		0	23	276	0	0	0		0	0	0	0	0	0	0	5	0 2	288
Betwee n 19		06/08/	23:																							
and 20	LC	2015 06/08/	14 23:	23:20	00:06	0.10	1	10		0	5	50	0	0	0		0	0	0	0	0	0	0)	0	6 60
20 Betwee	LC	2015	09	23:14	00:05	0.08		0	3	36	1	12	0	0	0		0	0	0	0	0	0	0)	0	4 48
n 20	10	06/08/	23:	22.00	00.00	0.10	1	10	2	20		0	0		0		0	0	0		0	0	0			
and 21	LC	2015 06/08/	03 22:	23:09	00:06	0.10	1	10	3	30		0		0						0)		4 40
21 Betwee	LC	2015	57	23:03	00:06	0.10		0	4	40	5	50	0	0	0		0	0	0	0	0	0	0)	0	9 90
n 21 and 22	LC	06/08/ 2015	22: 52	22:57	00:05	0.08		0	2	24		0	0	0	0		0	0	0	0	0	0	0	5	0	2 24
22	LC	06/08/ 2015	22: 47	22:52	00:05	0.08		0		0	4	48	0	0	0		0	0	0	0	0	0	0	5	0	4 48
Betwee n 22		06/08/	22:																							
and 23	LC	2015 06/08/	42	22:47	00:05	0.08		0	3	36	5	60	0	0	0		0	0	0	0	0	0	0)	0	8 96
23 Dotwoo	LC	2015	22: 37	22:42	00:05	0.08		0		0	20	240	0	0	0		0	0	0	0	0	0	0)	0 2	240
Betwee n 23		06/08/	22:	22.27	00.05	0.00		10		0																
and 24	LC	2015 06/08/	22:	22:37	00:05	0.08	4	48		0		0	0	0	0		0	0	0	0	0	0	0)		4 48
24 Betwee	LC	2015	27	22:32	00:05	0.08		0		0		0	0	0	0		0	0	0	0	0	0	0		0	0 0
n 24 and 25	LC	06/08/ 2015	22: 20	22:27	00:07	0.12	2	17.14 2857		0		0	0	0	0		0	0	0	0	0	0	0		0	17.1428 2 5714
25	LC	06/08/ 2015	22: 15	22:20	00:05	0.08	1	12		0		0	0	0	0		0	0	0	0	0	0	0	5	0	1 12
Betwee n 25		06/08/	22:							-							-							-		
and 26	LC	2015	10	22:15	00:05	0.08		0		0	12	144	0	0	0		0	0	0	0	0	0	0	<u> </u>	0 1	.2 144
26	LC	06/08/ 2015	22: 05	22:10	00:05	0.08	2	24	12	144	11	132	0	0	0		0	0	0	0	0	0	0)	0 2	.5 300
Betwee n 26		06/08/	21:					13.33		33.33		66.66					13.33									126.666
and 27	LC	2015 06/08/	56 21:	22:05	00:09	0.15	2	3333	5	3333	10	6667	0	0		2	3333	0	0	0	0	0	0)	0 1	.9 6667
27 Betwee	LC	2015		21:56	00:05	0.08	1	12	2	24	1	12	0	0	0	1	12	0	0	0	0	0	0)	0	5 60
n 27 and 28	LC	06/08/ 2015	21: 46	21:51	00:05	0.08		0	2	24	1	12	0	0	0		0	0	0	0	0	0	0	5	0	3 36
		06/08/ 2015	21:					0	2	0	-	0	0	0	0		0		0	0	0	0	0			0 0
28	LC	2015	41	21:46	00:05	0.08		0		U		0		0	U		0	0	U		0	U	U		0	



				0																_				_													
Betwee																																					
n 28		06/08/	21:																																		
and 29	LC	2015	35	21:41	00:06	0.10		0		0		0		0	()	()	0	_	0		0		0		0		0	()		0		0	0	0
		06/08/	21:																																		
29	LC	2015	30	21:35	00:05	0.08		0		0		0		0	()	()	0	_	0		0		0		0		0)		0		0	0	0
Betwee																																					
n 29		06/08/	21:																																		
and 30	LC	2015	21	21:30	00:09	0.15		0		0		0		0	()	(0		0		0		0		0		0	()		0		0	0	0
		06/08/	21:																																		
30	LC	2015	16	21:21	00:05	0.08		0		0		0		0	()	0)	0		0		0		0		0		0	()		0		0	0	0
Betwee																																					
n 30		06/08/	21:																																		
and 31	LC	2015	06	21:16	00:10	0.17		0		0		0		0	(2	(0		0		0		0		0		0	()		0		0	0	0
		06/08/	21:																																		
31	LC	2015	01	21:06	00:05	0.08		0		0		0		0	(2	()	0		0		0		0		0		0	()		0		0	0	0
Betwee																																					
n 31		06/08/	20:																																		
and 32	LC	2015	58	21:01	00:03	0.05		0		0		0		0	(2	()	0		0		0		0		0		0	()		0		0	0	0
		06/08/	20:																																		
32	LC	2015	53	20:58	00:00	0.00		0		0		0		0	(2	0		0		0		0		0		0		0	()		0		0	0	0
Betwee																																					
n 32		06/08/	20:																																		
and 33	LC	2015	48	20:53	00:05	0.08		0		0		0		0	(C	()	0		0		0		0		0		0	()		0		0	0	0
		06/08/	20:																																		
33	LC	2015	43	20:48	00:05	0.08		0		0		0		0	()	()	0		0		0		0		0		0	()		0		0	0	0
			+		<u> </u>	+				ł				То	т	o	т				+		То		То		То		То	т	0		то	Unkn		То	
						total	pipist							tal	t		ta			mv			tal		tal		tal		tal		al		tal			tal	
					decima	hrs/	relle	Total	pipistr	Total	nyam	Total	nathu		leisl b				Total	my otis	Total	dauben	bp	natte		musta		bran	bp				bp	ow bat	Total		Total
					l time	min	sp	bpph	ellus	bpph	pygm geus	bpph	sius	ph		h ula			bpph	sp	bpph	tonii	ph		ph	mysta cinus	bp ph	dtii	ph	andt p			ph	sp	bpph	ba ts	bpph
					- tunie	06:2	34	5.922	Citus	10.44	geus	30.07	5105	P.1	cn p				2.337	- 46	0.155	tonin	Pil	Ten	P''	cinus	Pii		P.1	and p		5145	P''	эр	0.15584	31	49.0909
					6.42	5	38	0779	67	1558	193	7922	0	0	0			15	6623	1	8442	0	0	0	0	0	0	0	0	0		0	0	1	4156	5	0909
					0.42	2	30	0//9	- 57	1320	193	1922	5	J		, ,		, 15	0025	1 1	0442	U	U	U	v	v	0	U	J		,	v	U	-	4130	5	0303

Site		eoch Windfa	arm									Trans	Trans			Ente red	LC 09/10																				
name:	E	Extension		Date:	29/09	/2015						ect 1	ect 2			by	/15																				
Record				Sunset	19:0		_	_			Start																										
er(s):	l	LC & LNF		:	1		Suni	rise	07:19		time	18:31	18:31			QA																					
Survey Type:		Dusk		SS param eter	18:3 1		SR para	ameter	07:49		Finish time	22:15	21:13			inal bat QA																					
Point	Recor		sta rt tim	finish	Total	Total deci mal	pipistr		pipistr		pygmg		nathu	op le	eisl bp	noct		nycta		myo tis		dauben	bp	natte	bp	mystac	bp	bran	bp 1	mys/br	bp	Pleco	bp	Unkn ow bat	bp	Tot	Total
count	der	Date	е	time	time	time	elle sp	bpph	ellus	bpph	eus	bpph			eri ph	ula	bpph	lus	bpph	sp	bpph	tonii	ph	reri	ph	inus	ph			andt	ph	tus	ph	sp	ph	al	bpph
																																	- I			ра	
							pass		pass		pass		pass	p	ass	pass		pass		pass		pass		pass		pass		pass		pass		pass		pass		ss	
		29/05/	18:		00:0																																
1	LnF	2015	31	18:36	5	0.08		0		0		0		0	0		0		0		0		0		0		0		0		0		0		0	0	0
Betwee																																					
n 1 and		29/05/	18:		00:0																																
2	LnF	2015	36	18:43	7	0.12		0		0		0		0	0		0		0		0		0		0		0		0		0		0		0	0	0
		29/05/	18:		00:0																																
2	LnF	2015	43	18:48	5	0.08		0		0		0		0	0		0		0		0		0		0		0		0		0		0		0	0	0
Betwee																																					
n 2 and		29/05/	18:		00:0																																
3	LnF	2015	48	18:57	9	0.15		0		0		0		0	0		0		0		0		0		0		0		0		0		0		0	0	0
		29/05/	18:		00:1																																
3	LnF	2015	57	19:07	0	0.17		0		0		0		0	0	-	0		0		0		0		0		0		0		0		0		0	0	0
Betwee																																					
n 3 and		29/05/	19:		00:0																																
4	LnF	2015	07	19:10	3	0.05		0		0		0		0	0		0		0		0		0		0		0		0		0		0		0	0	0
4	LnF	29/05/ 2015	19: 10	10.15	00:0	0.08		0		0		0		0	0		0		0		0		0		0		0		0		0		0		0	0	0
4 Rotwor		2015	10	19:15	5	0.08		0		U		0		0	0		U		0		U		0		U		0		0		0		U		0	U	U
Betwee n 4 and		29/05/	19:		00:0																																
n 4 anu 5	LnF	29/05/ 2015	19.	19:22	7	0.12		0		0		0		0	0		0		0		0		0		0		0		0		0		0		0	0	0
5		2013	19:	13.22	00:0	0.12		0		0		0			0	-	0		0		U		0		U		0		5		U		U		0	0	U
5	LnF	29/03/ 2015	22	19:27	5	0.08		0		0		0		0	0		0		0		0		0		0		0		0		0		0		0	0	0
Betwee		2015		10.27		0.00		, , , , , , , , , , , , , , , , , , ,						-			Ť		Ŭ		v						Ű		-		•		Ť		Ű,	-	-
n 5 and		29/05/	19:		00:0																																
6	LnF	2015	27	19:36	9	0.15		0		0		0		0	0		0		0		0		0		0		0		0		0		0		0	0	0
-		29/05/	19:		00:0					-							-								-												-
6	LnF	2015	36	19:41	5	0.08		0		0		0		0	0		0		0		0		0		0		0		0		0		0		0	0	0



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Betwee n 6 and		29/05/	19:		00:1																							
7	LnF	2015	41	19:53	2	0.20		0		0	1	5		0	0	0		0		0	0	0	0	0	0	0	0	1 5
7	LnF	29/05/ 2015	19: 53	19:58	00:0 5	0.08		0		0	3	36		0	0	0		0		0	0	0	0	0	0	0	0	3 36
Betwee	LIII	2015	55	15.50	5	0.00		0		0	5	50		<u> </u>	0	0		0		0	0			0	0	0	0	, 50
n 7 and	L	29/05/	19:	20.10	00:1	0.20		F	1	F	4	20				0			1	-						0	0	7 25
8	LnF	2015 29/05/	58 20:	20:10	2 00:0	0.20	1	5	1	5	4	20		0	0	0		0	1	5	0	0	0	0	0	0	0	7 35
8	LnF	2015	10	20:15	5	0.08		0		0	6	72		0	0	0		0		0	0	0	0	0	0	0	0	6 72
Betwee		29/05/	20.		00:1							122.0																122.0
n 8 and 9	LnF	29/05/ 2015	20: 15	20:28	00:1 3	0.22		0		0	29	133.8 462		0	0	0		0		0	0	0	0	0	0	0	0	133.8 29 462
		29/05/	20:		00:0																							
9 Betwee	LnF	2015	28	20:33	5	0.08		0		0	24	288		0	0	0	1	12		0	0	0	0	0	0	0	0	25 300
n 9 and		29/05/	20:		00:0							102.8																102.8
10	LnF	2015	33	20:40	7	0.12		0		0	12	571		0	0	0		0		0	0	0	0	0	0	0	 0 :	l 2 571
10	LnF	29/05/ 2015	20: 40	20:45	00:0 5	0.08		0	4	48		0		0	0	0		0		0	0	0	0	0	0	0	0	4 48
Betwee								-						-				-		-				-			-	
n 10	l n F	29/05/	20:	20.51	00:0	0.10		0		0	2	20			0	0		0		0	0		0	o	0	0	0	a 20
and 11	LnF	2015 29/05/	45 20:	20:51	6 00:0	0.10		0		0	3	30		0	0	0		0		0	0	0	0	0	0	0	0	3 30
11	LnF	2015	51	20:56	5	0.08		0		0	5	60		0	0	0		0		0	0	0	0	0	0	0	0	5 60
Betwee n 11		29/05/	20:		00:0																							
and 12	LnF	2015	56	21:02	6	0.10		0		0	4	40		0	0	0		0		0	0	0	0	0	0	0	0	4 40
42	1.5	29/05/	21:		00:0	0.00				_	-					_										_		-
12 Betwee	LnF	2015	02	21:07	5	0.08		0		0	5	60		0	0	0		0	├	0	0	0	0	0	0	0	0	5 60
n 12		29/05/	21:		00:0			6.666				106.6																113.3
and 13	LnF	2015	07	21:16	9	0.15	1	667		0	16	667		0	0	0		0		0	0	0	0	 0	0	0	0 :	L 7 333
13	LnF	29/05/ 2015	21: 16	21:21	00:0 5	0.08	1	12	7	84	7	84		0	0	0		0		0	0	0	0	0	0	0	0	L 5 180
Betwee																												
n 13 and 14	LnF	29/05/ 2015	21: 21	21:29	00:0 8	0.13		0	1	7.5	15	112.5		0	0	0		0		0	0	0	0	o	0	0	0	16 120
allu 14	LIIF	29/05/	21	21.29	00:0	0.15		0	1	7.5	15	112.5		0	0	0		0		0	0	0	0	0	0	0	0.	0 120
14	LnF	2015	29	21:34	5	0.08		0		0	3	36		0	0	0		0		0	0	0	0	0	0	0	0	3 36
Betwee n 14		29/05/	21:		00:0																							
and 15	LnF	2015	34	21:42	8	0.13		0		0	1	7.5		0	0	0		0		0	0	0	0	0	0	0	0	1 7.5
45		29/05/	21:		00:0	0.00		0		0																		
15 Betwee	LnF	2015	42	21:47	5	0.08		0		0		0		0	0	0		0		0	0	0	0	0	0	0	0	0 0
n 15		29/05/	21:		00:1																							
and 16	LnF	2015 29/05/	47 21:	21:57	0:00	0.17		0		0	9	54		0	0	0		0		0	0	0	0	0	0	0	0	9 54
16	LnF	2015	57	22:02	5	0.08		0		0	8	96		0	0	0		0		0	0	0	0	0	0	0	0	8 96
Betwee																												
n 16 and 17	LnF		22: 02	22:10	00:0 8	0.13		0	1	7.5	7	52.5		0	0	0		0		0	0	0	0	0	0	0	0	8 60
		29/05/	22:		00:0																							
17	LnF			22:15	5 00:0	0.08		0		0	2	24		0	0	0		0	-	0	0	0	0	0	0	0	0	2 24
18	LC	29/09/ 2015	18: 31	18:36	00:0 5	0.08		0		0		0		0	0	0		0		0	0	0	0	0	0	0	0	o 0
Betwee													1															
n 18 and 19	LC		18: 36	18:40	00:0 4	0.07		0		0		0		0	0	0		0		0	0	0	0	0	0	0	0	o 0
310 13		29/09/	18:		00:0			0				0			0	0		0		<u> </u>			0		0	0		
19 Datum	LC		40	18:45	5	0.08		0		0		0		0	0	0		0		0	0	0	0	0	0	0	0	0 0
Betwee n 19		29/09/	18:		00:0																							
and 20	LC	2015	45	18:49	4	0.07		0		0		0		0	0	0		0		0	0	0	0	0	0	0	0	o 0
20	LC		18: 49	18:54	00:0 5	0.08		0		0		0		0	0	0		0		0	0	0	0	0	0	0	0	o 0
Betwee		2015	43	10.34	5	0.08		0		U		0		5	0	0		0		0	0	0	0	0	0	U	0	, 0
n 20			18:		00:0																							_
and 21	LC	2015 29/09/	54 18:	18:58	4 00:0	0.07		0		0		0		0	0	0		0	├	0	0	0	0	0	0	0	0	0 0
21	LC		18. 58	19:03	5	0.08		0		0		0		0	0	0		0		0	0	0	0	0	0	0	0	0 0
Betwee		20/02/	10		00.0																							
n 21 and 22	LC		19: 03	19:07	00:0 4	0.07		0		0		0		0	0	0		0		0	0	0	0	0	0	0	0	o 0
		29/09/	19:		00:0																							
22	LC	2015	07	19:12	5	0.08		0		0		0		0	0	0		0		0	0	0	0	0	0	0	0	0 0



					1								r																						
Betwee n 22		29/09/	19:		00:0																														
and 23	LC	2015	12	19:16	4	0.07		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
		29/09/	19:		00:0																														
23	LC	2015	16	19:21	5	0.08		0		0		0	0		0	0		0	-	0		0	0		0		0		0		0		0	0	0
Betwee n 23		29/09/	19:		00:0																														
and 24	LC	29/09/ 2015	21	19:25	4	0.07		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
		29/09/	19:		00:0							-			-					-					-				-		-		-	-	
24	LC	2015	25	19:30	5	0.08		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
Betwee		20/00/	10.		00.1																														
n 24 and 25	LC	29/09/ 2015	19: 30	19:43	00:1 3	0.22		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
0110 25	20	29/09/	19:	15.45	00:0	0.22		0		0		Ŭ	Ŭ			Ŭ		Ŭ		Ŭ		Ŭ			Ŭ		Ű		0				0	-	-
25	LC	2015	43	19:48	5	0.08		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
Betwee																																			
n 25 and 26	LC	29/09/ 2015	19: 48	19:55	00:0 7	0.12		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
anu 20		29/09/	19:	19.95	00:0	0.12		0		U		0			0	5		0				0	0		0		0		0		0		0		0
26	LC	2015	55	20:00	5	0.08		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
Betwee																																			
n 26 and 27	LC	29/09/ 2015	20: 00	20:06	00:0 6	0.10		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	o	0
ailu 27		2015	20:	20.00	00:0	0.10		0		U		0			0	0		0		0		0	0		0		U		0		0		0	0	0
27	LC	2015	06	20:11	5	0.08		0		0	1	12	0		0	0		0		0		0	0		0		0		0		0		0	1	12
Betwee																																			
n 27	10	29/09/	20:	20.17	00:0	0.10		0		0		10				0						0			0		~		0		0		0		10
and 28	LC	2015 29/09/	11 20:	20:17	6 00:0	0.10		0		0	1	10	0		0	0		0		0		0	0		0		0		0		0		0	1	10
28	LC	2015	17	20:22	5	0.08		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
Betwee																																			
n 28		29/09/	20:		00:0																														
and 29	LC	2015 29/09/	22 20:	20:25	3 00:0	0.05	-	0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
29	LC	2015	25	20:30	5	0.08		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
Betwee																																			
n 29		29/09/	20:		00:0																														
and 30	LC	2015 29/09/	30 20:	20:35	5 00:0	0.08		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
30	LC	2015	35	20:40	5	0.08		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
Betwee																																			
n 30		29/09/	20:		00:0																														
and 31	LC	2015 29/09/	40 20:	20:44	4 00:0	0.07		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
31	LC	29/09/ 2015	20: 44	20:50	00:0 6	0.10		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
Betwee																											-							-	
n 31		29/09/	20:		00:1																														
and 32	LC	2015	50	21:00	0	0.17		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
32	LC	29/09/ 2015	21: 00	21:05	00:0 5	0.08		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
Betwee		2013		22.00		0.00		<u> </u>		5						Ű		5									Ť		5		Ť			-	
n 32		29/09/	21:		00:0																														
and 33	LC	2015	05	21:08	3	0.05		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
33	LC	29/09/ 2015	21: 08	21:13	00:0 5	0.08		0		0		0	0		0	0		0		0		0	0		0		0		0		0		0	0	0
		2015	00	21.13	5	0.00		5		5		5			0	, v							5				~		5		v		•	-	~
															.							T			T		Tei		T . 1		T	11-2	Tet	T -1	
					deci	total							Tot al		Tot al				myo			Tot al	Tot al		Tot al		Tot al		Tot al		Tot al	Unkn ow	Tot al	Tot al	
					mal	hrs/	pipistr	Total	pipistr	Total	pygmg	Total	nathu bp	leisl	-	noct Total	nycta	Total	tis	Total	dauben	bp	natte bp	mystac		bran	bp	mys/br	bp	Pleco	bp	bat	bp		Total
					time	min	elle sp	bpph	ellus	bpph	eus	bpph	sius ph	eri	ph	ula bpph	lus	bpph	sp	bpph	tonii	ph	reri ph	inus	bp ph	dtii	ph	andt	ph	tus	ph	sp	ph	s	bpph
					6.42	06:2	2	0.466	14	2.176	100	25.80						0.15		0.15	0						0	0				0	•	18 Г	28.75 648
	1				6.43	6	3	321	14	166	166	311	0 0	0	0	0 0	1	544	1	544	0	0	0 0	0	0	0	U	0	0	0	0	0	0	5	648



Annex 7. Weather Data (Spatial Surveys)

Criteria used in Recording Weather Conditions during the Spatial Surveys

Wind Spee	:d			Wind Direction (using 16- point compass)	Rain		Cloud Cover eighth	(in s)	Cloud Height	(m)	Moon Ph	ase	
Calm	0	Moderat e gale	7	N	None	0	No clou ds	0/ 8	<150 m	0	New Moon	0	
Light air	1	Fresh gale	8	NNE	Drizzle/ Mist	1	Half Sky	4/ 8	150- 500 m	1	Wanin g Cresce nt	1	
Light breeze	2	Strong gale	9	NNW	Light showers	2	Full Sky	8/ 8	>500 m	2	Last Quarte r	2	waxing gibbous waxing crescent
Gentle breeze	3	Whole gale	10	NE	Heavy showers	3	Etc.				Wanin g Gibbou s	3	full moon
Moderat e breeze	4	Storm	11	NW	Heavy rain	4					Full Moon	4	
Fresh breeze	5	Hurrican e	12	Etc.							Waxing Gibbou s	5	waning gibbous waning crescent
Strong breeze	6										First Quarte r	6	
											Waxing Cresce nt	7	

Weather Data Recorded During Spatial Surveys (see Table above for condition criteria)

Date	Tran sect	Surv eyor	St art Ti m e	Fin ish Ti m e	H ou r	Tempe rature	Rela tive Hum idity	Wind Speed	Win d Dire ctio n	Moon phase	Rain	Cl ou d Co ve r	Cloud Height	Notes
27/05 /2015	1	LC	21 :2 0	00: 25	1	8.3	89.1	0 calm	n/a	first quarter	0 none	4/ 8'	2 >500m	Gusting to 7
27/05 /2015	1	LC	21 :2 0	00: 25	2	8.1	87.2	0 calm	n/a	first quarter	0 none	4/ 8'	2 >500m	Gusting to 7
27/05 /2015	1	LC	21 :2 0	00: 25	3	7.9	88.1	0 calm	n/a	first quarter	0 none	5/ 8'	2 >500m	Shower at 23:33 heavy for 20 mins
27/05 /2015	1	LC	21 :2 0	00: 25	4	7.9	89.9	0 calm	n/a	first quarter	0 none	7/ 8'	2 >500m	
27/05 /2015	2	LNF	21 :2 2	00: 42	1	8.3	89.1	5 fresh breeze	SE	first quarter	0 none	5/ 8'	2 >500m	
27/05 /2015	2	LNF	21 :2 2	00: 42	2	8.1	87.2	4 moderate breeze	SE	first quarter	0 none	6/ 8'	2 >500m	Wind gusts at 5
27/05 /2015	2	LNF	21 :2 2	00: 42	3	7.9	88.1	3 gentle breeze	SE	first quarter	0 none	7/ 8'	2 >500m	3 times rain showers at 3, 5 mins each

Date	Tran sect	Surv eyor	St art Ti m e	Fin ish Ti m e	H ou r	Tempe rature	Rela tive Hum idity	Wind Speed	Win d Dire ctio n	Moon phase	Rain	Cl ou d Co ve r	Cloud Height	Notes
27/05 /2015	2	LNF	21 :2 2	00: 42	4	7.9	89.9	3 gentle breeze	SE	first quarter	1 drizzle /mist	8/ 8'	2 >500m	Wind gusts to 4
06/08			21	00:						third		7/	2	
/2015	1	МН	:0 6	00: 45	1	12.3	92.7	0 calm	n/a	third quarter	0 none	7/ 8'	2 >500m	
06/08 /2015	1	мн	21 :0 6	00: 45	2	10.9	97.6	0 calm	n/a	third quarter	0 none	6/ 8'	2 >500m	
06/08 /2015	1	МН	21 :0 6	00: 45	3	11	96.1	0 calm	n/a	third quarter	0 none	7/ 8'	2 >500m	
06/08 /2015	1	МН	21 :0 6	00: 45	4	-	-	0 calm	n/a	third quarter	0 none	7/ 8'	2 >500m	
06/08 /2015	2	LC	20 :4 3	23: 37	1	12.3	92.7	0 calm	n/a	third quarter	0 none	8/ 8'	2 >500m	Rain at 2055, very light 5 minutes. Lots of midges.
06/08 /2015	2	LC	20 :4 3	23: 37	2	10.9	97.6	0 calm	n/a	third quarter	0 none	8/ 8'	2 >500m	Some midges
06/08 /2015	2	LC	20 :4 3	23: 37	3	11	96.1	0 calm	n/a	third quarter	0 none	8/ 8'	2 >500m	
29/09 /2015	1	LNF	18 :3 1	22: 15	1	14.9	66.2	0 calm	n/a	waning gibbous	0 none	1/ 8'	2 >500m	
29/09 /2015	1	LNF	18 :3 1	22: 15	2	14.3	79.4	0 calm	n/a	waning gibbous	0 none	1/ 8'	2 >500m	
29/09 /2015	1	LNF	18 :3 1	22: 15	3	10.6	83.2	0 calm	n/a	waning gibbous	0 none	1/ 8'	2 >500m	
29/09 /2015	2	LC	18 :3 1	21: 13	1	13	82.1	1 Light air	n/a	waning gibbous	0 none	1/ 8'	2 >500m	Sunny day, evening temp. dropping, midges about
29/09 /2015	2	LC	18 :3 1	21: 13	2	9.1	92.3	1 Light air	n/a	waning gibbous	0 none	1/ 8'	2 >500m	
29/09 /2015	2	LC	18 :3 1	21: 13	3	8.6	94.6	1 Light air	n/a	waning gibbous	0 none	1/ 8'	2 >500m	
30/06 /2015	1	LC	21 :3 3	01: 21	1	18.6	82.7	2 light breeze	n/a	full moon	0 none	1/ 8'	2 >500m	Warm - midges
30/06 /2015	1	LC	21 :3 3	01: 21	2	17.1	85.7	1 Light air	n/a	full moon	0 none	1/ 8'	2 >500m	Warm - midges
30/06 /2015	1	LC	21 :3 3	01: 21	3	16.8	86.1	1 Light air	n/a	full moon	0 none	1/ 8'	2 >500m	Warm - midges
30/06 /2015	1	LC	21 :3 3	01: 21	4	16.5	90.5	0 calm	n/a	full moon	0 none	1/ 8'	2 >500m	Warm - midges
30/06 /2015	2	EM	21 :3 3	00: 26	1	19.6	76.7	0 calm	n/a	full moon	0 none	1/ 8'	2 >500m	Gust 1 from NE

MacArthur Green

Technical Appendix 8.3B. Arecleoch Wind

Date	Tran sect	Surv eyor	St art Ti m e	Fin ish Ti m e	H ou r	Tempe rature	Rela tive Hum idity	Wind Speed	Win d Dire ctio n	Moon phase	Rain	Cl ou d Co ve r	Cloud Height	Notes
30/06 /2015	2	EM	21 :3 3	00: 26	2	18	83	1 Light air	S	full moon	0 none	1/ 8'	2 >500m	
30/06 /2015	2	EM	21 :3 3	00: 26	3	17.5	90.8	0 calm	n/a	full moon	0 none	1/ 8'	2 >500m	Sheltered
14/07 /2015	1	EM	21 :2 1	00: 22	1	14.9	68.3	0 calm	n/a	third quarter	0 none	4/ 8'	2 >500m	
14/07 /2015	1	EM	21 :2 1	00: 22	2	10.2	79.6	0 calm	n/a	third quarter	0 none	3/ 8'	2 >500m	Gust from 1 to South
14/07 /2015	1	EM	21 :2 1	00: 22	3	9	86	1 Light air	W	third quarter	0 none	3/ 8'	2 >500m	
14/07 /2015	1	EM	21 :2 1	00: 22	4	9.6	82.1	0 calm	n/a	third quarter	0 none	4/ 8'	2 >500m	
14/07 /2015	2	LC	21 :2 1	00: 15	1	11.4	79.5	0 calm	n/a	third quarter	0 none	3/ 8'	2 >500m	Lots of midges
14/07 /2015	2	LC	21 :2 1	00: 15	2	9.3	89.5	0 calm	n/a	third quarter	0 none	1/ 8'	2 >500m	Midges but not lots
14/07 /2015	2	LC	21 :2 1	00: 15	3	8.8	92.3	0 calm	n/a	third quarter	0 none	1/ 8'	2 >500m	Midges but not lots

Annex 8. Behavioural Data (Spatial Surveys)

Vi si	Date	Tra nsec	Point count	Surv eyor	Species	pass no.	Behavio ur	Dire ctio	Heig ht	Notes
V1	27/05 /2015	1	16	LC	Myotis	1	unknow n	unk now n	unk now n	Taken from Analook data
V1	27/05 /2015	2	32	EM	55 pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V2	30/06 /2015	1	2-1	LC	Pipistre lle sp	2	unknow n	unk now n	unk now n	Not seen
V2	30/06 /2015	1	2-3	LC	55 pip	13	feeding	unk now n	unk now n	Not seen. Changed passes Analook data
V2	30/06 /2015	1	2-3	LC	Pipistre lle sp	2	uknown	unk now n	unk now n	Taken from Analook data
V2	30/06 /2015	1	4-3	LC	Pipistre lle sp	1	unknow n	unk now n	unk now n	Not seen
V2	30/06 /2015	1	4-3	LC	45pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V2	30/06 /2015	1	4-3	LC	55pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V2	30/06 /2015	1	4	LC	45pip	1	unknow n	unk now n	unk now n	Taken from Analook data

Date	Tra nsec	Point count	Surv eyor	Species	pass no.	Behavio ur	Dire ctio	Heig ht	Notes
30/06 /2015	1	4	LC	Myotis sp	1	unknow n	unk now n	unk now n	Taken from Analook data
30/06 /2015	1	2	LC	45pip	2	unknow n	unk now n	unk now n	Not seen. Changed species from pip sp. Analook data
30/06 /2015	1	3	LC	45pip	3	feeding	unk now	unk now	Not seen. Changed from 55pip. Analook data
30/06 /2015	1	3	LC	Pipistre lle sp	2	unknow n	unk now	ukn own	Taken from Analook data
30/06 /2015	1	5-6	LC	45pip	1	unknow n	unk now	unk now	Taken from Analook data
30/06 /2015	1	5-6	LC	Pipistre Ile sp	1	unknow n	unk now	unk now	Taken from Analook data
30/06	1	6-7	LC	45 pip	1	unknow n	unk now	unk now	Taken from Analook data
30/06	1	8-7	LC	45 pip	1	unknow	unk now	unk now	Not seen. Changed species data Analook
30/06	1	8-7	LC	Pipistre Ile sp	1	unknow	n unk now	unk now	Not seen
30/06	1	8	LC	Pipistre	1	unknow	n unk now	n unk now	Not seen
30/06	1	9	LC	Pipistre	1	unknow	n unk now	n unk now	Not seen
30/06	1	9-8	LC	55 pip	8	unknow	n unk now	n unk now	Not seen. Changed species data Analook
30/06	2	28-27	EM	Nyctalu	1	unknow	n unk now	n unk now	Not seen. Changed species from pip sp Analook
30/06	2	28-27	EM	55pip	3	unknow	n unk now	n unk now	Taken from Analook data
30/06	2	26-25	EM	45pip	3	feeding	n unk now	n unk now	Not seen. Changed passes data Analook
30/06	2	25	EM	Pip 55	12	feeding	n NE	n 0- 5m	2 metres flight height. Then circled
30/06 /2015	2	25-24	EM	55pip	4	unknow n	unk now n	unk now	Not seen
30/06 /2015	2	24	EM	Pipistre Ile sp	2	unknow n	unk now	unk now	2 short calls; not seen
30/06 /2015	2	24-23	EM	Nyctalu s sp	1	uknown	unk now	unk now	Taken from Analook data
30/06 /2015	2	23	EM	Pip 45	1	unknow n	unk now	unk now	Not seen
30/06 /2015	2	23	EM	Pipistre lle sp	2	unknow n	unk now	unk now	Not seen
30/06 /2015	2	22-21	EM	Pipistre lle sp	1	unknow n	unk now n	unk now n	
	30/06 30/06 /2015 </td <td>Date nsec 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 1 30/06 2 30/06 2 30/06 2 30/06 2 30/06 2 30/06 2 30/06 2 30/06 2 30/06 2 30/06 2 30/06 2 30/06 2 30/06 2 30/06 2 30/06 2 30/06<td>Date nsec Point count 30/06 1 4 30/05 1 2 30/06 1 3 30/06 1 3 30/06 1 3 30/06 1 3 30/06 1 3 30/06 1 5-6 30/06 1 5-6 30/06 1 5-6 30/06 1 5-6 30/06 1 8-7 30/06 1 8-7 30/06 1 9-8 30/06 1 9-8 30/06 1 9-8 30/06 1 9-8 30/06 2 28-27 30/06 2 25-24 30/06 2 24-23 30/06 2 24-23 30/06 2 23 30/06 2 23 30/06 2 23</td><td>Datensec countPoint countSurve eyor30/0614LC30/0512LC30/0613LC30/0613.LC30/0615-6LC30/0615-6LC30/0615-6LC30/0616-7LC30/0618-7LC30/0618-7LC30/0618-7LC30/0618-7LC30/0619-8LC30/0619-8LC30/0619-8LC30/06228-27EM30/06225-24EM30/06225-24EM30/06224-23EM30/06224-23EM30/06223-21EM30/06223-21EM</td><td>DatensecFont countSurve eyorSpecies30/0614LCMyotis sp30/0612LC45pip30/0613LC45pip30/0613LCPipistre lle sp30/0615-6LCPipistre lle sp30/0615-6LCPipistre lle sp30/0616-7LC45 pip30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0619LCPipistre lle sp30/0619-8LCS5 pip30/06228-27EMS5pip30/06225-24EMPip stre lle sp30/06225-24EMPipistre lle sp30/06224-23EMPip stre lle sp30/06223EMPip stre lle sp30/06223EMPip stre lle sp30/06224-23EMPip stre lle sp<</td><td>Datensec countPoint eyorSpeciespass no.30/0614LCMyotis sp130/0612LC45pip230/0613LC45pip330/0613LC45pip330/0613LCPipistre lle sp130/0615-6LC45pip130/0615-6LC45pip130/0616-7LC45pip130/0618-7LCPipistre lle sp130/0618-7LCPipistre lle sp130/0618-7LCPipistre lle sp130/0618-7LCPipistre lle sp130/0618-7LCPipistre lle sp130/0618-7LCPipistre lle sp130/0619-8LCS5 pip830/0619-8LCS5 pip330/06228-27EMMyctalu sp130/06225-24EM55pip130/06225-24EMS5pip130/06224-23EMNyctalu sp130/06224-23EMPipistre lle sp130/06223EMPipistel sp130/062<</td><td>Date necc Count Surve eyon Species pass no. 30/06 1 1 4 LC Myotis spin 1 unknow n 30/06 1 3 LC 45pip 3 feeding 30/06 1 5-6 LC 45pip 1 unknow n 30/06 1 5-6 LC 45pip 1 unknow n 30/06 1 6-7 LC 45 pip 1 unknow n 30/06 1 8-7 LC 45 pip 1 unknow n 30/06 1 8-7 LC Pipistre lie sp 1 unknow n 30/06 1 8-7 LC Pipistre lie sp 1 unknow n 30/06 1 9 LC Pipistre lie sp 1 unknow n 30/06</td><td>Date nec count surversion species paces Delayor ction 30/06 1 4 LC Myotis 1 unknow now 30/06 1 2 LC 45pip 2 unknow now 30/06 1 3 LC 45pip 3 feeding now 30/06 1 3 LC 45pip 3 feeding now 30/06 1 5-6 LC 45pip 1 unknow now 30/06 1 5-6 LC 45pip 1 unknow now 30/06 1 6-7 LC 45pip 1 unknow now 30/06 1 8-7 LC 45pip 1 unknow now 30/06 1 8-7 LC 45pip 1 unknow now 30/06 1 8-7 LC 5pip 1</td><td>Date nee count surv species pass no. cell of no. cuto filt no. 30/06 /2015 1 4 LC Myotis sp 1 unknow n 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sp30/0612LC45pip30/0613LC45pip30/0613LCPipistre lle sp30/0615-6LCPipistre lle sp30/0615-6LCPipistre lle sp30/0616-7LC45 pip30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0618-7LCPipistre lle sp30/0619LCPipistre lle sp30/0619-8LCS5 pip30/06228-27EMS5pip30/06225-24EMPip stre lle sp30/06225-24EMPipistre lle sp30/06224-23EMPip stre lle sp30/06223EMPip stre lle sp30/06223EMPip stre lle sp30/06224-23EMPip stre lle sp<</td> <td>Datensec countPoint eyorSpeciespass no.30/0614LCMyotis sp130/0612LC45pip230/0613LC45pip330/0613LC45pip330/0613LCPipistre lle sp130/0615-6LC45pip130/0615-6LC45pip130/0616-7LC45pip130/0618-7LCPipistre lle sp130/0618-7LCPipistre lle sp130/0618-7LCPipistre lle sp130/0618-7LCPipistre lle sp130/0618-7LCPipistre lle sp130/0618-7LCPipistre lle sp130/0619-8LCS5 pip830/0619-8LCS5 pip330/06228-27EMMyctalu sp130/06225-24EM55pip130/06225-24EMS5pip130/06224-23EMNyctalu sp130/06224-23EMPipistre lle sp130/06223EMPipistel sp130/062<</td> <td>Date necc Count Surve eyon Species pass no. 30/06 1 1 4 LC Myotis spin 1 unknow n 30/06 1 3 LC 45pip 3 feeding 30/06 1 5-6 LC 45pip 1 unknow n 30/06 1 5-6 LC 45pip 1 unknow n 30/06 1 6-7 LC 45 pip 1 unknow n 30/06 1 8-7 LC 45 pip 1 unknow n 30/06 1 8-7 LC Pipistre lie sp 1 unknow n 30/06 1 8-7 LC Pipistre lie sp 1 unknow n 30/06 1 9 LC Pipistre lie sp 1 unknow n 30/06</td> <td>Date nec count surversion species paces Delayor ction 30/06 1 4 LC Myotis 1 unknow now 30/06 1 2 LC 45pip 2 unknow now 30/06 1 3 LC 45pip 3 feeding now 30/06 1 3 LC 45pip 3 feeding now 30/06 1 5-6 LC 45pip 1 unknow now 30/06 1 5-6 LC 45pip 1 unknow now 30/06 1 6-7 LC 45pip 1 unknow now 30/06 1 8-7 LC 45pip 1 unknow now 30/06 1 8-7 LC 45pip 1 unknow now 30/06 1 8-7 LC 5pip 1</td> <td>Date nee count surv species pass no. cell of no. cuto filt no. 30/06 /2015 1 4 LC Myotis sp 1 unknow 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8-7 LC Pipistre lie sp 1 unknow n 30/06 1 8-7 LC Pipistre lie sp 1 unknow n 30/06 1 9 LC Pipistre lie sp 1 unknow n 30/06	Date nec count surversion species paces Delayor ction 30/06 1 4 LC Myotis 1 unknow now 30/06 1 2 LC 45pip 2 unknow now 30/06 1 3 LC 45pip 3 feeding now 30/06 1 3 LC 45pip 3 feeding now 30/06 1 5-6 LC 45pip 1 unknow now 30/06 1 5-6 LC 45pip 1 unknow now 30/06 1 6-7 LC 45pip 1 unknow now 30/06 1 8-7 LC 45pip 1 unknow now 30/06 1 8-7 LC 45pip 1 unknow now 30/06 1 8-7 LC 5pip 1	Date nee count surv species pass no. cell of no. cuto filt no. 30/06 /2015 1 4 LC Myotis sp 1 unknow n unknow n unk now n unk now n<



dfarm Extension: Bat Survey Report (2015 Surveys)

Vi si	Date	Tra nsec	Point count	Surv eyor	Species	pass no.	Behavio ur	Dire ctio	Heig ht	Notes
V2	30/06 /2015	2	21	EM	Pip 55	3	likely commuti ng	w	0- 5m	2 metres flight height. Changed number of passes from Analook data
V2	30/06 /2015	2	21	EM	Pip 45	3	unknow n	unk now n	unk now n	Taken from Analook data
V2	30/06 /2015	2	21	EM	Pip sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V2	30/06 /2015	2	21-20	EM	Pip45	5	unknow n	unk now n	unk now n	Not seen. Changed from pip sp Analook data
V2	30/06 /2015	2	20-19	EM	45pip	2	unknow n	unk now n	unk now n	Not seen. Changed from pip sp Analook data
V2	30/06 /2015	2	20-19	EM	55 pip	3	unknow n	unk now n	unk now n	Changed from pip sp Analook data
V2	30/06 /2015	2	19-18	EM	Pip 55	2	feeding buzz	unk now n	unk now n	Not seen. Changed number of passes from Analook data
V2	30/06 /2015	2	19-18	EM	Pip45	3	uknown	unk now n	unk now n	Taken from Analook data
V2	30/06 /2015	2	18	EM	Pip 45	1	feeding buzz	unk now n	unk now n	Not seen. Changed from 55 pip from Analook data
V2	30/06 /2015	2	18	EM	Nyctalu s sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	1	7-8	EM	Nyctalu s sp	2	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	1	8	EM	55pip	1	likely commuti ng	SE	0- 5m	3m flight height. Changed from pip sp Analook data
V3	14/07 /2015	1	8	EM	Myotis sp	7	unknow n	unk now n	unk now n	Not seen.
V3	14/07 /2015	1	8-9	EM	55 pip	15	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	1	8-9	EM	55pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	1	9	EM	Pipistre lle sp	2	unknow n	unk now n	unk now n	Not seen.
V3	14/07 /2015	1	9-10	EM	Nyctalu s sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	1	9-10	EM	45pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	1	10	EM	2	11	unknow n	unk now n	unk now n	
V3	14/07 /2015	1	10	EM	Pipistre lle sp	2	likely commuti ng	E	0- 5m	2m flight height
V4	15/07 /2015	1	10-11	EM	45pip	2	unknow n	unk now n	unk now n	Taken from Analook data

Vi si	Date	Tra nsec +	Point count	Surv eyor	Species	pass no.	Behavio ur	Dire ctio	Heig ht	Notes
V5	16/07 /2015	1	10-11	EM	Pipistre Ile sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	1	11	EM	Pipistre Ile sp	2	unknow n	unk now n	unk now n	Not seen - faint
V3	14/07 /2015	1	11	EM	Pip 55	2	likely commuti ng	S	0- 5m	5m flight height
V3	14/07 /2015	1	11-12	EM	Nyctalu s sp	3	unknow n	unk now n	unk now n	Taken from Analook data
√3	14/07 /2015	1	11-12	EM	45pip	1	unknow n	unk now	unk now	Taken from Analook data
√3	14/07 /2015	1	11-12	EM	55pip	1	unknow n	n unk now	n unk now	Taken from Analook data
V3	14/07 /2015	1	12	EM	Pipistre Ile sp	1	unknow n	n unk now	n unk now	Not seen
V3	14/07 /2015	1	12-13	EM	55pip	2	unknow n	n unk now	n unk now	Taken from Analook data
V3	14/07 /2015	1	13	EM	Pipistre Ile sp	2	unknow	n unk now	n unk now	Not seen
V3	14/07 /2015	1	13	EM	Pip 55	18	unknow	n unk now	n unk now	Not seen - 2+ bats
V3	14/07 /2015	1	13-14	EM	45pip	12	unknow n	n unk now	n unk now	Taken from Analook data
V3	14/07 /2015	1	13-14	EM	55pip	17	unknow	n unk now	n unk now	Taken from Analook data
V3	14/07	1	13-14	EM	Pipistre	1	n unknow	n unk now	n unk now	Taken from Analook data
V3	/2015	1	14	EM	lle sp Pip 55	17	n feeding	n unk now	n unk now	Not seen - 2 bats
V3	/2015	1	14	EM	Pip 45	6	buzz unknow	n unk now	n unk now	Not seen. Changed from pip sp from Analook
V3	/2015 14/07	1	14-15	EM	55pip	9	n unknow	n unk now	n unk now	Taken from Analook data
V3	/2015 14/07	1	14-15	EM	Pipistre	1	n unknow	n unk now	n unk now	Taken from Analook data
	/2015 14/07				lle sp Pipistre		n unknow	n unk	n unk	
V3	/2015 14/07	1	15	EM	lle sp	1	n unknow	now n unk	now n unk	Not seen
V3	/2015	1	15-16	EM	55pip	3	n unknow	now n unk	now n unk	Taken from Analook data
V3	/2015 15/07	1	16	EM	Pip 55	2	n	now n unk	now n unk	Not seen
V4	/2015	1	16	EM	Pip 45	4	n	now n unk	now n unk	Taken from Analook data
V3	14/07 /2015	1	16	EM	Pipistre lle sp	1	unknow n	now n	now n	Not seen. Changed passes data Analook



Vi si	Date	Tra nsec	Point count	Surv eyor	Species	pass no.	Behavio ur	Dire ctio	Heig ht	Notes
V3	14/07 /2015	1	16	EM	Myotis sp	1	unknow n	unk now n	unk now n	Not seen
V3	14/07 /2015	1	16-17	EM	55pip	6	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	1	16-17	EM	Pipistre lle sp	2	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	1	17	EM	Pipistre lle sp	1	unknow n	unk now n	unk now n	Short call. Changed from unknown sp Analook
V3	14/07 /2015	1	17	EM	Pip 55	2	unknow n	unk now n	unk now n	Not seen
V3	14/07 /2015	2	24-25	LC	55 pip	3	feeding buzz	unk now n	6- 10m	6m flight height. 2 bats
V3	14/07 /2015	2	24-25	LC	Nyctalu s spp	3	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	2	25	LC	55 pip	1	feeding buzz	unk now n	6- 10m	8m flight height. 2 bats. Changed passes from Analook
V4	15/07 /2015	2	25	LC	45 pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V5	16/07 /2015	2	25	LC	Pipistre lle sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V6	17/07 /2015	2	25	LC	Nyctalu s sp	2	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	2	25-26	LC	55pip	1	feeding buzz	unk now n	6- 10m	8m flight height. Changed passes from Analook
V3	14/07 /2015	2	25-26	LC	45pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	2	25-26	LC	Pipistre lle sp	2	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	2	27	LC	Unkno wn bat	2	unknow n	unk now n	unk now n	Bat? Faint call
V3	14/07 /2015	2	28	LC	Pip 55	1	feeding buzz	unk now n	6- 10m	7m flight height
V3	14/07 /2015	2	28	LC	Pipistre lle sp	2	unknow n	unk now n	unk now n	
V3	14/07 /2015	2	28-29	LC	Nyctalu s sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	2	29	LC	Pip 45	8	feeding buzz	unk now n	unk now n	
V3	14/07 /2015	2	29	LC	Pip 55	2	unknow n	unk now n	unk now n	Faint call. Changed species from unknown bat - Analook data
V3	14/07 /2015	2	29-30	LC	ble	1	unknow n	unk now n	unk now n	Taken from Analook data
V3	14/07 /2015	2	30	LC	Nyctalu s sp	3	unknow n	unk now n	unk now n	Taken from Analook data

Vi si	Date	Tra nsec	Point count	Surv eyor	Species	pass no.	Behavio ur	Dire ctio	Heig ht	Notes		
V3	14/07 /2015	2	31-32	LC	Pip 55	6	feeding buzz	unk now n	unk now n			
V3	14/07 /2015	2	32	LC	45pip	1	unknow n	unk now n	unk now n	Taken from Analook data		
V3	14/07 /2015	2	32	LC	55pip	1	unknow n	unk now n	unk now n	Taken from Analook data		
V3	14/07 /2015	2	32	LC	Nyctalu s sp	4	unknow n	unk now n	unk now n	Taken from Analook data		
V3	14/07 /2015	2	32-33	LC	55pip	3	unknow n	unk now n	unk now n	Changed from 45pip - Analook data		
V3	14/07 /2015	2	33	LC	55pip	1	unknow n	unk now n	unk now n	Changed from pip sp Analook data		
V4	06/08 /2015	1	14	мн	Unkno wn bat	2	likely commuti ng	NW	6- 10m	Heading from southeast to northwest. 7 metres flight height		
V4	06/08 /2015	1	14-13	МН	Nyctalu s sp	3	feeding buzz	unk now n	0- 5m	4 metres flight height		
V4	06/08 /2015	1	14-13	МН	Pipistre lle sp	1	unknow n	unk now n	unk now n	Unseen. Changed passes - Analook data		
V4	06/08 /2015	1	14-13	МН	55pip	2	unknow n	unk now n	unk now n	Taken from Analook data		
V4	06/08 /2015	1	13	МН	Pip 55	6	feeding buzz	unk now n	6- 10m	Feeding/commuting. Numerous - constant activity hard to ID		
V4	06/08 /2015	1	13	МН	Pip 45	6	feeding buzz	unk now n	6- 10m	Feeding/commuting. Numerous - constant activity hard to ID		
V4	06/08 /2015	1	13	МН	Nyctalu s sp	1	unknow n	unk now n	6- 10m	Unseen		
V4	06/08 /2015	1	12-11	МН	Pip 55	1	likely commuti ng	unk now n	unk now n	Unseen (commuting)		
V4	06/08 /2015	1	11	МН	Nyctalu s sp	1	unknow n	unk now n	unk now n	Taken from Analook data		
V4	06/08 /2015	1	11-10	МН	Pip 55	1	feeding buzz	unk now n	unk now n			
V4	06/08 /2015	1	10	МН	Nyctalu s sp	6	unknow n	unk now n	unk now n	Unseen. Changed from unknown sp. Analook data		
V4	06/08 /2015	1	10-9	МН	Unkno wn bat	1	unknow n	unk now n	unk now n	Unseen. Brief encounter		
V4	06/08 /2015	1	9-8	МН	55pip	2	unknow n	unk now n	unk now n	Unseen. Changed from pip sp.		
V4	06/08 /2015	1	8	МН	Pip 45	3	feeding buzz	unk now n	unk now n			
V4	06/08 /2015	1	8	МН	Pip 55	3	unknow n	unk now n	unk now n			



Vi si	Date	Tra nsec	Point count	Surv eyor	Species	pass no.	Behavio ur	Dire ctio	Heig ht	Notes
V4	06/08 /2015	1	8	МН	Nyctalu s sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	1	8-7	МН	45pip	2	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	1	8-7	MH	55pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	1	7	MH	Pipistre lle sp	1	unknow n	unk now n	unk now n	Unseen
V4	06/08 /2015	1	7-6	MH	55pip	2	unknow n	unk now n	unk now n	Unseen. Changed from pip sp Analook data
V4	06/08 /2015	1	6-5	MH	Pip 55	3	feeding buzz	unk now n	unk now n	
V4	06/08 /2015	1	4	МН	Pipistre lle sp	10	unknow n	unk now n	unk now n	
V4	06/08 /2015	1	4-3	МН	Pipistre lle sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	1	4-3	МН	45pip	10	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	1	4-3	МН	55pip	25	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	1	3	МН	Pip 55	8	feeding buzz	unk now n	6- 10m	Height 5-10 metres
V4	06/08 /2015	1	3	МН	45pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	1	3	МН	Pipistre lle sp	8	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	1	3-2	МН	Pipistre lle sp	1	unknow n	unk now n	unk now n	pips between point 3-2. Unable to count passes etc due to concentrating on footing. Passes according to analook data
V4	06/08 /2015	1	3-2	МН	45pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	1	3-2	МН	55pip	17	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	1	3-2	МН	Myotis sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	1	2-1	МН	Pipistre lle sp	unk now n	unknow n	unk now n	unk now n	pips between point 2-1. Unable to count passes etc due to concentrating on footing
V4	06/08 /2015	1	2	МН	55pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	1	1	МН	45pip	1	unknow n	unk now n	unk now n	Changed from unknown sp Analook data
V4	06/08 /2015	2	28-27	LC	45pip	2	feeding buzz	unk now n	unk now n	Changed from unknown sp Analook data
V4	06/08 /2015	2	28-27	LC	55pip	1	unknow n	unk now n	unk now n	Changed from unknown sp Analook data

Vi	Date	Tra nsec	Point count	Surv eyor	Species	pass no.	Behavio ur	Dire ctio	Heig ht	Notes
si V4	06/08 /2015	• 2	27	LC	Pipistre Ile sp	1	feeding	Circli	6- 10m	4 bats feeding over clear fell. 9 metres flight height. Changed
V4	06/08 /2015	2	27	LC	45pip	2	buzz unknow n	ng unk now n	unk now n	passes - Analook data Changed from pip sp passes Analook data
V4	06/08 /2015	2	27	LC	55pip	1	unknow n	unk now n	unk now n	Changed from pip sp passes Analook data
V4	06/08 /2015	2	27	LC	Nyctalu s sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	2	27-26	LC	Pipistre Ile sp	2	feeding buzz	Circli	6- 10m	4 bats feeding over clear fell. 9 metre flight height. Changed passes Analook data
V4	06/08 /2015	2	27-26	LC	45pip	5	unknow	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	2	27-26	LC	55pip	10	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	2	27-26	LC	Nyctalu s sp	2	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	2	26	LC	Pipistre Ile sp	2	feeding buzz	Circli	6- 10m	Approx 4 bats feeding over clear fell. Changed passes Analook data
V4	06/08 /2015	2	26	LC	45pip	12	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	2	26	LC	55pip	11	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	2	26-25	LC	55pip	12	feeding buzz	Circli	6- 10m	Flight height 7 - 10 metres. Changed from pip sp Analook data
V4	06/08 /2015	2	25	LC	Pipistre Ile sp	1	unknow n	unk now n	unk now n	
V4	06/08 /2015	2	25-24	LC	Pipistre lle sp	2	unknow n	unk now n	unk now n	
V4	06/08 /2015	2	24-23	LC	Pipistre lle sp	4	feeding buzz	unk now n	unk now n	Not seen
V4	06/08 /2015	2	23	LC	pip 55	20	feeding buzz	Circli	6- 10m	Flight height 7 - 10 metres. More than one bat
V4	06/08 /2015	2	23-22	LC	45pip	3	unknow n	unk now n	unk now n	Changed passes Analook data
V4	06/08 /2015	2	23-22	LC	55pip	5	unknow n	unk now n	unk now n	Taken from Analook data
V4	06/08 /2015	2	22	LC	55pip	4	unknow n	unk now n	unk now n	Not seen. Changed from pip sp Analook data
V4	06/08 /2015	2	22-21	LC	45pip	2	unknow n	unk now n	unk now n	Not seen. Changed from pip sp Analook data
V4	06/08 /2015	2	21	LC	55pip	5	unknow n	unk now n	unk now n	Changed passes Analook data
V4	06/08 /2015	2	21	LC	45pip	4	unknow n	unk now n	unk now n	Changed passes Analook data
V4	06/08 /2015	2	21-20	LC	Pipistre Ile sp	1	unknow n	unk now n	unk now n	Not seen - too dark. Changed number of passes Analook data
V4	06/08 /2015	2	21-20	LC	55pip	3	unknow n	unk now n	unk now n	Taken from Analook data



Vi si	Date	Tra nsec	Point count	Surv eyor	Species	pass no.	Behavio ur	Dire ctio	Heig ht	Notes
V4	06/08 /2015	2	20	LC	45pip	3	feeding buzz	unk now n	unk now n	Not seen - too dark. Changed number of passes from pip sp Analook data
V4	06/08 /2015	2	20	LC	55pip	1	unknow n	unk now n	unk now n	Not seen - too dark. Changed number of passes from pip sp Analook data
V4	06/08 /2015	2	20-19	LC	55pip	5	unknow n	unk now n	unk now n	Taken from Analook data
v4	06/08 /2015	2	20-19	LC	Pipistre lle sp	1	feeding buzz	unk now n	unk now n	Not seen - too dark. Changed from passes Analook data
V4	06/08 /2015	2	19	LC	55 pip	23	feeding buzz	unk now n	unk now n	More than 4 bats. Changed from pip sp
V4	06/08 /2015	2	19	LC	Pipistre lle sp	1	unknow n	unk now n	unk now n	Changed number of passes Analook data
V4	06/08 /2015	2	19-18	LC	45pip	7	unknow n	unk now n	unk now n	Changed from pip sp Analook data
V4	06/08 /2015	2	19-18	LC	55pip	21	feeding buzz	unk now n	0- 5m	More than 4 bats. Flight height 4 metres. Changed from pip sp and passes. Analook data
V5	29/09 /2015	1	6-7	LnF	55pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V5	29/09 /2015	1	7	LnF	Pip 55	3	feeding buzz	unk now n	unk now n	Feeding/commuting. Heard not seen
V5	29/09 /2015	1	7-8	LnF	Pip 55	4	likely commuti ng	unk now n	unk now n	Changed passes Analook data
V5	29/09 /2015	1	7-8	LnF	Pip 45	1	unknow n	unk now n	unk now n	Changed passes Analook data
V5	29/09 /2015	1	7-8	LnF	Pipistre lle sp	1	unknow n	unk now n	unk now n	Changed passes Analook data
V5	29/09 /2015	1	7-8	LnF	Myotis sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V5	29/09 /2015	1	8	LnF	Pip 55	6	feeding buzz	unk now n	unk now n	Feeding/commuting. 1 bat possibly a second bat
V5	29/09 /2015	1	8-9	LnF	Pip 55	29	feeding buzz	unk now n	unk now n	Throughout transect and every minute
V5	29/09 /2015	1	9	LnF	Pip 55	24	feeding buzz	unk now n	unk now n	
V5	29/09 /2015	1	9	LnF	Nyctalu s sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V5	29/09 /2015	1	9-10	LnF	Pip 55	12	feeding buzz	unk now n	unk now n	Only in ride from 9 to NE
V5	29/09 /2015	1	10	LnF	Pip 45	4	likely commuti ng	unk now n	unk now n	Very faint signal
V5	29/09 /2015	1	10-11	LnF	Bat + Pip 55	3	likely commuti ng	unk now n	unk now n	Very faint signal

Technical Appendix 8.3B. Arecleoch Windf
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Vi	Date	Tra	Point	Surv	Species	pass	Behavio	Dire	Heig	Notes
si	Date	nsec +	count	eyor	species	no.	ur	ctio	ht	Notes
V5	29/09 /2015	1	11	LnF	Bat + Pip 55	5	likely commuti	unk now	unk now	Very faint signal and 1 very strong
V5	29/09	1	11-12	LnF	Pip 55	4	ng likely commuti	n unk now	n unk now	Faint
	/2015						ng	n	n	
V5	29/09 /2015	1	12	LnF	Pip 55	5	likely commuti ng	unk now n	unk now n	Not seen
V5	29/09 /2015	1	12-13	LnF	Pip 55	16	unknow n	unk now	unk now	Higher activity beside clear fell
V5	29/09 /2015	1	12-13	LnF	Pipistre Ile sp	1	unknow n	n unk now	n unk now	Taken from Analook data
	72015							n	n	
V5	29/09 /2015	1	13	LnF	Pip 55 + 45 pip	14	feeding buzz	unk now n	unk now n	Feeding/commuting beside clear fell
V5	29/09 /2015	1	13	LnF	Pipistre Ile sp	1	unknow n	unk now n	unk now n	Taken from Analook data
V5	29/09 /2015	1	13-14	LnF	Pip 55	15	feeding buzz	unk now n	unk now n	Higher activity beside clear fell. Commuting and 3 bats feeding . Changed passes Analook data
V5	29/09 /2015	1	13-14	LnF	Pip 45	1	unknow n	unk now n	unk now n	Taken from Analook data
V5	29/09 /2015	1	14	LnF	55pip	3	unknow n	unk now n	unk now n	Very faint
V5	29/09 /2015	1	14-15	LnF	Pip 55	1	likely commuti ng	unk now n	unk now n	In ride approaching point 15
V5	29/09 /2015	1	15-16	LnF	Pip 55	9	likely commuti ng	unk now n	unk now n	In ride approaching point 16
V5	29/09 /2015	1	16	LnF	Pip 55	8	likely commuti	unk now n	unk now n	
V5	29/09 /2015	1	16-17	LnF	Pip 55	7	ng unknow n	unk now n	unk now n	
V5	29/09 /2015	1	16-17	LnF	45 pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V5	29/09 /2015	1	17	LnF	55pip	2	unknow n	unk now n	unk now n	Very faint signal. Changed form unknown bat sp Analook data
V5	29/09 /2015	2	27	LC	55pip	1	unknow n	unk now n	unk now n	Taken from Analook data
V5	29/09 /2015	2	27-28	LC	55pip	1	unknow n	unk now n	unk now n	Taken from Analook data

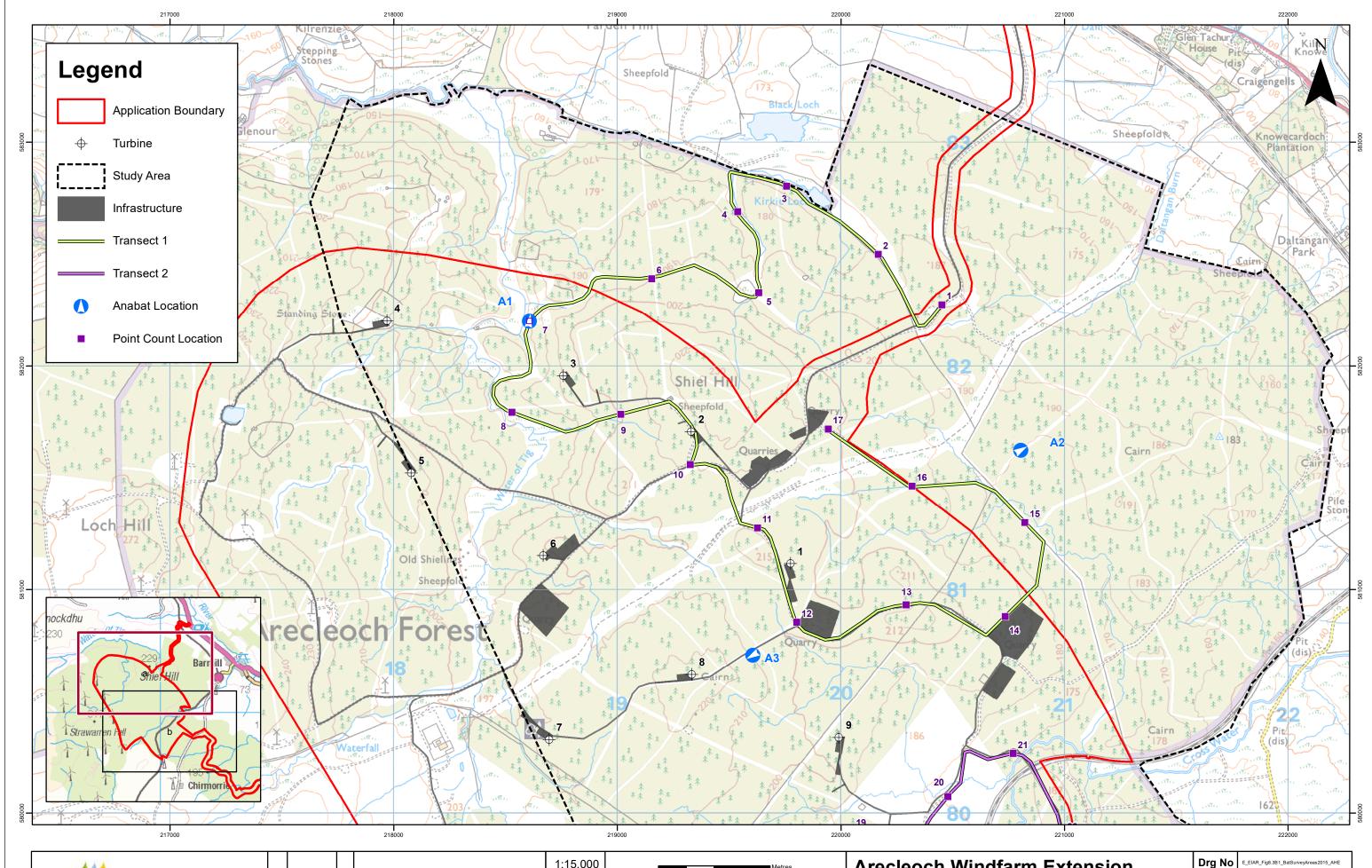


dfarm Extension: Bat Survey Report (2015 Surveys)

Annex 9. Temporal Raw Data

Due to the amount of data recorded during the temporal surveys (9,351 registrations), it has not been included here. If required, this data can be provided upon request.

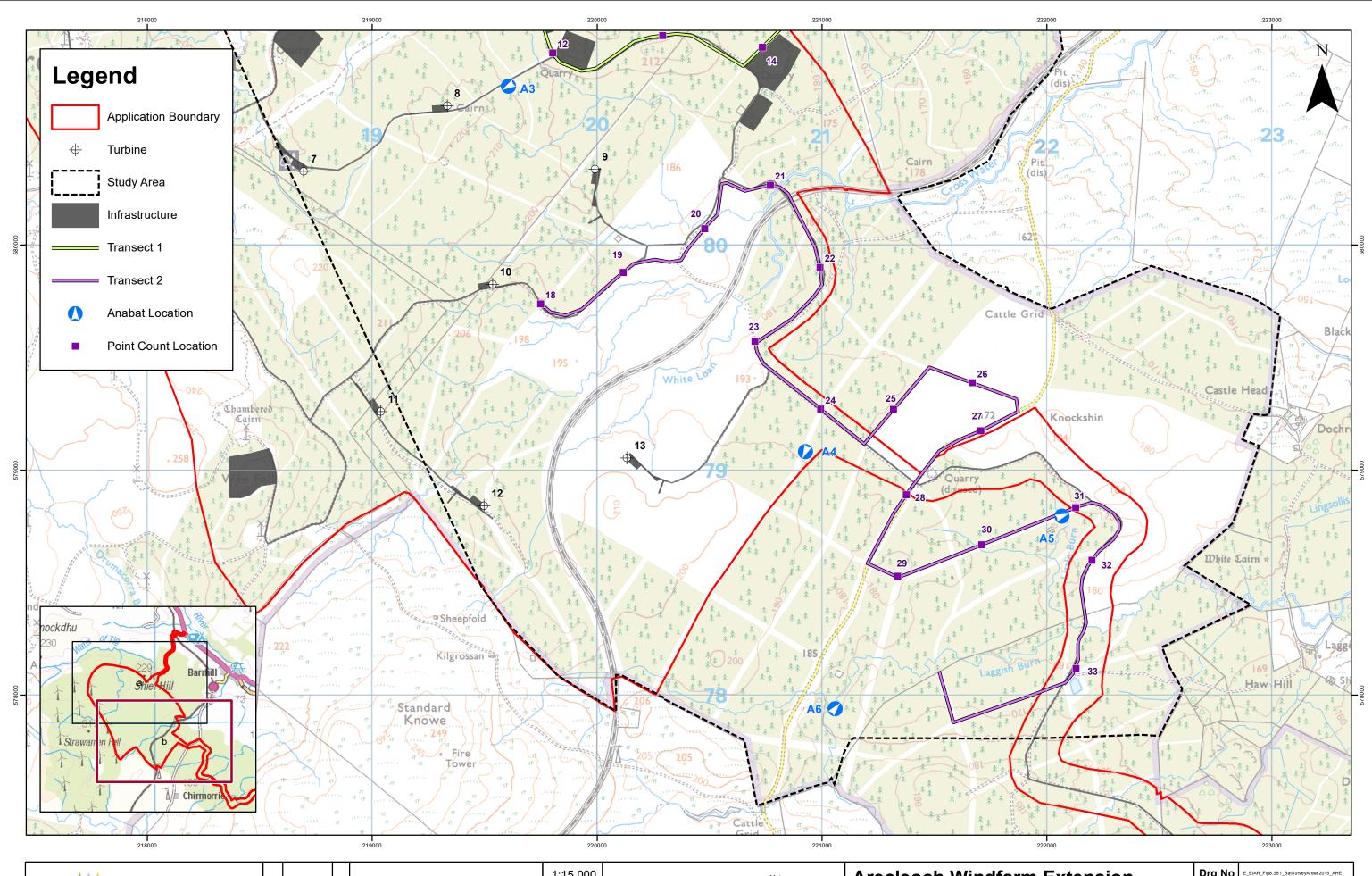




**					1:15,000 Scale @ A3	0 125 250 500	Are Bat
SCOTTISHPOWER	А	15/05/19	ATA	First Issue.	© Crown Copyr	right 2019. All rights reserved. Ordnance Survey Licence 0100031673.	Dai
RENEWABLES	Rev	Date	Ву	Comment	Contains Ordnance Survey data © Crown copyright and database right 2019.		

Arecleoch Windfarm E Bat Survey Study Area:

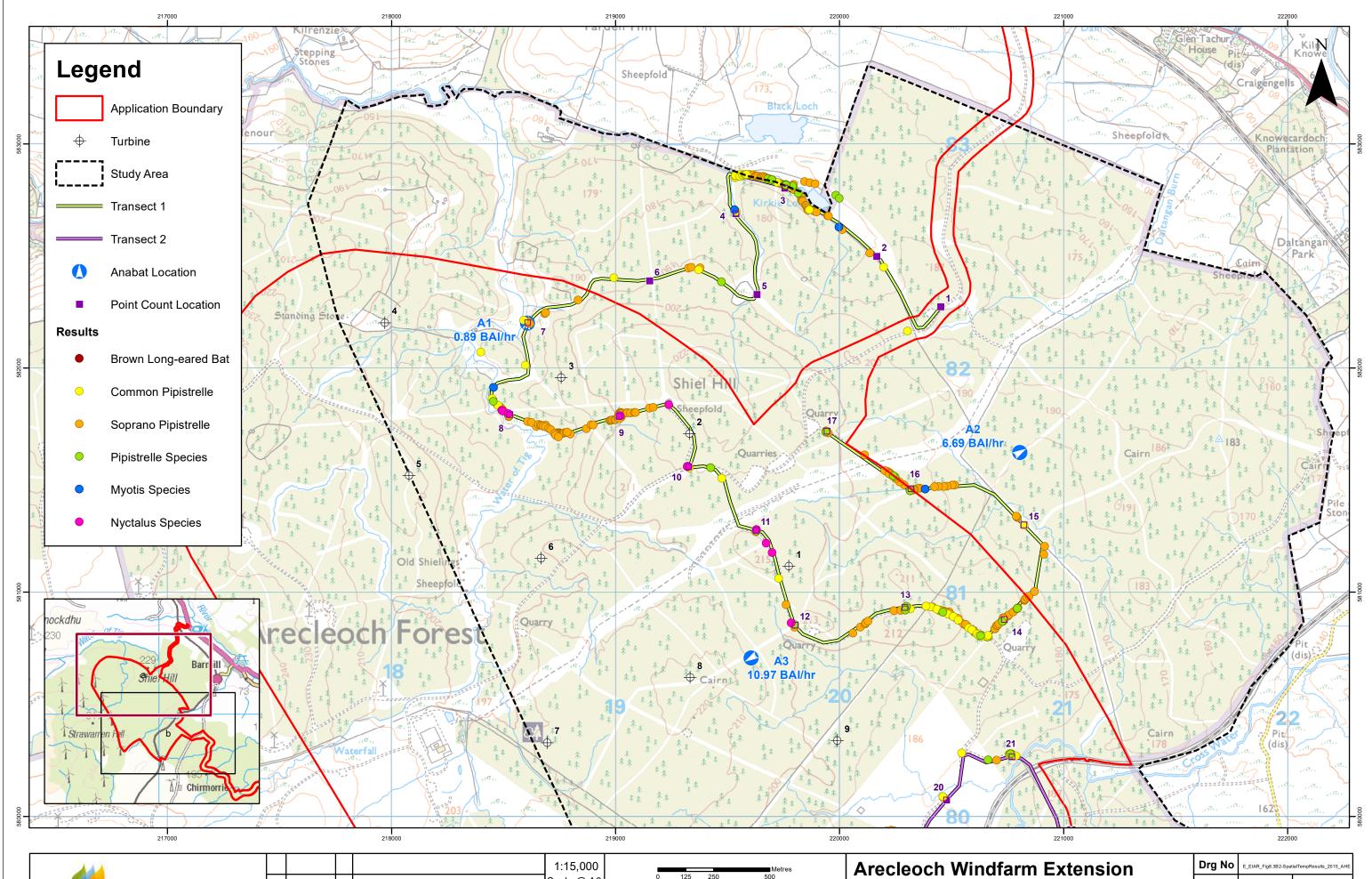
Extension	Drg No	E_EIAR_Fig8.3B1_BatSurveyAreas2015_AHE		
: 2015	Rev	А	Datum:	
. 2013	Date		OSGB36 Projection:	
	Figure	8.3B-1a	OSNG	



RENEWABLES	Rev	Date	Ву	Comment	Contains O	rdnance Survey data © Crown copyright and database right 2019.	
SCOTTISHPOWER	А	15/05/19	ΑΤΑ	First Issue.	© Crown Copyr	right 2019. All rights reserved. Ordnance Survey Licence 0100031673.	Dai
					Scale @ A3	0 125 250 500	Bat
444					1:15,000		Are

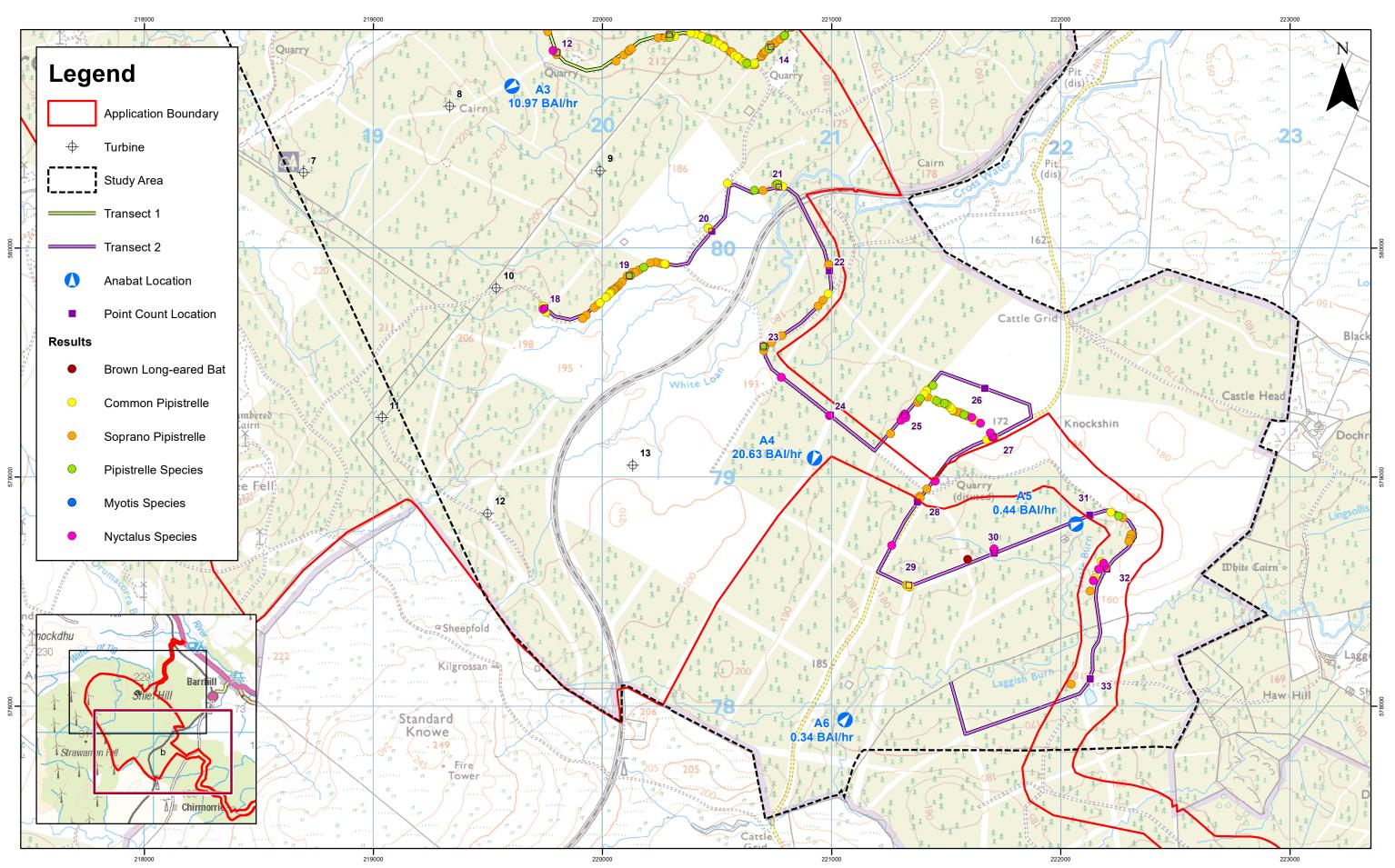
Arecleoch Windfarm Extension Bat Survey Study Area: 2015

Drg NoE_EIAR_Fig8.3B1_BatSurveyAreas2015_AHE2015RevADate15/05/19Datum:
OSGB36
Projection:
OSNG



**					1:15,000 Scale @ A3	0 125 250 500	Arecleoch Windfarm Ex
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RENEWABLES	Rev	Date	Ву	Comment		rvey data © Crown copyright and database right 2019.	Results 2015

Extension	Drg No	E_EIAR_Fig8.3B2-SpatialTempResults_2015_AHE		
	Rev	А	Datum:	
Survey	Date		OSGB36 Projection:	
	Figure	8.3B-2a	OSNG	



	**					1:15,000 Scale @ A3	0 125 250 500	Arecleoch Windfarm Ex
	SCOTTISHPOWER	А	15/05/19	ATA	First Issue.	© Crown Copyright 2019. All rights reserved. Ordnance Survey Licence 0100031673.		Spatial and Temporal Su
		Rev	Date	Ву	Comment		dnance Survey data © Crown copyright and database right 2019.	Results 2015

Extension	Drg No	E_EIAR_Fig8.3B2-SpatialTempResults_2015_AHE	
	Rev		Datum:
Survey	Date	13/03/13	OSGB36 Projection:
	Figure	8.3B-2b	OSNG