Over Hill Wind Farm

Bat Survey Report

Technical Appendix 9.5

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Document Quality Record.

Version	Status	Person Responsible	Date
1	Draft	Leanne Cooke	26/01/2017
2	Reviewed	Claudia Gebhardt	09/03/2017
3	Updated	Claudia Gebhardt	09/03/2017
4	Internal Approval	Claudia Gebhardt	30/03/2017
5	Final Client Approval		

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EXECUTIVE SUMMARY

In total five bat species were recorded for the Study Area: common pipistrelle (*Pipistrellus pipistrellus*) (PIPPIP), soprano pipistrelle (*Pipistrellus pygmaeus*) (PIPPYG), Daubenton's (*Myotis daubentonii*) (MYODAU) brown-long eared bat (*Plecotus auritus*) (PLEAUR) and *Nyctalus sp*. (NYC).

The most commonly recorded species by BAI were soprano (166 registrations/ 0.18 BAI) and common pipistrelle bats (189 registrations/ 0.21 BAI) which accounted for 92.4% of the registrations recorded for the Study Area followed by Daubenton's (9 registrations/ 0.01 BAI), *Nyctalus* sp. (6 registrations/0.01 BAI), *Myotis* sp. (2 registrations/ 0.002 BAI) and brown-long eared bat (1 registration/ 0.001 BAI)

The BAI for location 3 had the highest overall BAI (186 registrations/1.25 BAI) followed by Location 2 (70 registrations/ 0.47 BAI), location 1 (53 registrations/ 0.36 BAI), location 5 (34 registrations/ 0.21 BAI), location 4 (21 registration/ 0.14 BAI) and Location 6 (20 registrations/ 0.13BAI).

High risk species (*Nyctalus sp*.) were recorded during the survey period. *Nyctalus* sp. were recorded at locations 1, 2 and 4 during the surveys in early September. No *Nyctalus* sp. were recorded during the second visit the Study Area in late September.

The BAI activity rates per location for the Study Area in September are considered to be low for high, medium and low risk species.

1 INTRODUCTION

MacArthur Green was commissioned by Energiekontor UK to undertake bat surveys at the proposed Over Hill Wind Farm site (hereafter referred to as the 'Proposed Development').

These surveys were undertaken to aid and inform the ecological assessment for the Over Hill Wind Farm Environmental Statement.

Temporal (static) surveys were conducted between 1st September 2016 and 29th September 2016 (inclusive).

The aim of the surveys was to provide additional information on the activity levels and species composition of bats within the Proposed Development Area as required. Surveys were carried out in September.

2 THE SITE & STUDY AREA

The Study Area in which bat surveys were carried out encompassed the Site as shown in Figure 3.1 in Volume 2 of the ES.

Over Hill is located in East Ayrshire, 4.5km northeast of Dalmellington, to the north of the B741. The topography of the Proposed Development Area varies between 270m to 330m. The Proposed Development Area character is of semi-natural upland habitats with areas of young coniferous plantation.

Self-sown, broadleaved, scattered trees form small thickets over the acid grassland in the south of the Proposed Development Area. Planted broadleaved trees are also present in this area and are found within sheltered situations along the plantation edge.

There are a number of watercourses flowing throughout the Proposed Development Area. The most notably of these are the Burnock Water, Beoch Lane and Old March Burn which flow along the western, eastern and northern boundaries, respectively. The Old March Burn, Broadhag Burn and Otter Sike drain are located in the north western section of the Proposed Development Area and flow into the Burnock Water while the House Burn and West Burn are located in the north western section of the Proposed Development and flow into the Beoach Lane. Numerous unnamed burns are present in the southern part of the Proposed Development Area which flow into the Beoch Lane.

3 BATS AND WIND FARMS POLICY AND GUIDANCE

All bats species are protected under the following legislation shown below:

- The Habitats Directive 92/43/EEC and respective domestic legislation;
- The Wildlife and Countryside Act 1981 (as amended); and
- The Nature Conservation (Scotland) Act 2004 (as amended).

Under the terms of Regulation 39(1), with certain exceptions, 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.

In the UK, guidelines have been produced with regards to assessing the ecological impact upon bats from wind farm 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;
- Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London; and
- Rodrigues L., *et al*. (2015) Guidelines for consideration of bats in wind farm projects, revision 2014. EUROBATS Publication Series No. 6.

3.1 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).

Recent research work which was carried out by Exeter University found most bat fatalities at UK wind farms to be composed of the following bats species; common pipistrelles, soprano pipistrelles and noctule (*Nyctalus noctula*). In addition, a single carcass of a brown long-eared bat, Nathusius' pipistrelle bat and Natterer's bat were recorded (DEFRA, 2016). The estimated casualties of the study ranged from 0 to 5.25 bats per turbine per month, and from 0 to 77 bats per site per month during July to October. This study shows that there is considerable bat fatality variation between sites. The study also found that the percentage casualty rates for soprano pipistrelle, common pipistrelle and noctule, were higher than the relative proportions of their calls recorded from ground level acoustic surveys.

In the UK three taxa groups have been identified as high risk collision species, 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 below). 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.

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	Common pipistrelle	Noctule
Long-eared bats	Serotine	Leisler's
Horseshoe bats	Soprano pipistrelle	Nathusius' pipistrelle
	Barbastelle	

Bats travel between hibernacula sites to summer roosts in spring and autumn and therefore could be impacted negatively if a wind farm was positioned between these two areas.

A synthesis of European and American data by the Swedish Vindval research programme concluded the following habitats to be high risk locations for wind farms; 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).

4 SURVEY METHODS

4.1 Temporal Surveys – Static Detectors

Temporal surveys were carried out for the Study Area. Temporal surveys involved leaving static Anabat SD2 detectors at various locations, including turbine locations in order to record activity overnight and over prolonged periods of time. Static detectors were placed in the same locations as those used in May to October 2014 for the production the Over Hill Environmental Statement (LUC, 2015).

Calibrated Anabat SD2 detectors were left out at these locations seasonally for a minimum of five nights.

Six Anabat detectors were placed at six different locations throughout the Study Area (refer to Figure 9.6 in Volume 3 of the ES). The surveys were undertaken in September covering the autumn season. Each detector recorded bats from dusk to dawn with detectors starting 30 minutes before dusk and finishing 30 minutes after dawn. Table 4-1 below shows a summary breakdown of the temporal survey effort.

Table 4-1 Summary of Temporal Survey Effort

Survey Date	Time Parameter	Locations	Total Survey (hrs:mins:sec)	Total Number of Complete Nights
01/09/16 – 06/09/16	18:57 – 07:32	1	50:20:40	4
		2	50:20:40	4
		3	50:20:40	4
		4	50:20:40	4
		5	64:18:13	5
		6	50:20:40	4
		Total	**316:01:33**	**25**
22/09/16 – 29/09/16	18:00 – 08:37	1	98:01:10	7
		2	98:01:10	7
		3	98:01:10	7
		4	98:01:10	7
		5	98:01:10	7
		6	98:01:10	7
		Total	**490:05:50**	**42**
Total Survey (hrs:mins:secs)	**806:07:23**		**Total Survey (complete nights)**	**67**

4.2 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.

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

BAI (per hour) = Total number of bat registrations / number of hours of recording

Data was analysed using Kaleidoscope 4 Auto ID classifier which assigns a species label to a sound file. The Auto ID classifier identifies species such as soprano and common pipistrelles correctly 96% of the time (Wildlife Acoustics, 2016). This accuracy rate is much lower for other species. To ensure that all non-common and soprano pipistrelle calls were identified correctly they were manually checked with Kaleidoscope Viewer and AnalookW 4.3.19 software. This method of analysis follows recommended guidelines for data analysis which recommends that when using automated methods that all non-*pipistrellus* calls manually checked (Collins, 2016). Sound files labelled as noise were not manually checked.

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 in the region and throughout Scotland.

5 BAT SURVEY LIMITATIONS

Surveys were carried out for September, which covered the autumn bat activity period. Surveys did not cover the spring and summer bat activity periods. Therefore there are seasonal limitations to the survey results.

Anabat detectors are the preferred bat detector for acoustic monitoring at wind farm sites (Kunz *et al*. 2007); however, Anabat detectors have limitations and will only monitor bat activity within a limited area, usually around 30 metres[1]. Furthermore the detection rate of bat calls varies with a bias towards loud bat calls with quieter calls, namely 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.

There is some overlap between the frequency calls of the common and soprano pipistrelles which echolocate at a peak frequency of approximately 45 kHz and 55 kHz respectively.

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.

Some temporal calls were assigned an unknown value (NoID), due to a very faint call or incomplete calls that could not be identified to species level on the spectogram.

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

Kaleidoscope Auto ID classifier correctly identifies soprano and common pipistrelle calls 96% of the time (Wildlife Acoustics, 2016). The error rate was reduced as all other calls were manually checked. This method of analysis follows recommended guidelines for data analysis when using automated methods (Collins, 2016).

It has been found that the Kaleidoscope Auto ID classifier mislabels bat calls as noise files approximately 1% of the time. A 1% loss of data is considered to be small and is not considered to have altered the conclusions of this report.

According to recent research work by Exeter University acoustic recording from the ground underestimates the abundance of soprano pipistrelle and noctule bats within the at risk zone of the turbine rotor sweep (DEFRA, 2016).

[1] Detection distances vary with frequency and loudness (amplitude) of the bat calls and atmospheric attenuation. Many bats are detected over 30 m under typical conditions, while some species such as *Nyctalus* sp. which call at low frequencies may be detectable from as far as 100 m. 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.

The information currently available on bat behaviour in the UK is not sufficient to fully assess the threat that wind turbines may pose to populations. (Natural England, 2014).

6 SURVEY RESULTS

6.1 Temporal Surveys – Static Detectors

Static detectors were deployed at six locations within the Study Area (see Table 4-1 above 9.6 in Volume 3 of the ES). The total bat registrations recorded for each species is shown in

Table 6-1 below and illustrated on Graphs 1 and 2.

In total five bat species were recorded for the Study Area. Species recorded were common pipistrelle (PIPPIP), soprano pipistrelle (PIPPYG), Daubenton's (MYODAU) brown-long eared bat (PLEAUR) and *Nyctalus* species (NYC). Possible unidentified bat species[2] (NoID) is not included in the overall number of species recorded for the Study Area.

A total of 384 registrations equating to a BAI (in bat passes per hour [bpph]) of 0.42 was recorded for the Study Area as shown in Table 6-1 below. The most commonly recorded by BAI was common pipistrelle (189 registrations/ 0.21 BAI), followed by soprano pipistrelle (166 registrations/ 0.18 BAI), NoID (11 registrations/ 0.01 BAI), Daubenton's (9 registrations/ 0.01 BAI), *Nyctalus* sp. (6 registrations/0.01 BAI), *Myotis* sp. (2 registrations/ 0.002 BAI) and brown-long eared bat (1 registration/ 0.001 BAI) as shown in Graph 1. Pipistrelle species accounted for 92.4% of the registrations recorded within the Study Area.

The habitat type that recorded the greatest bat activity index per hour was location 3 (186 registrations/ 1.25 BAI) followed by;

- Location 2 (70 registrations/ 0.47 BAI),
- Location 1 (53 registrations/ 0.36 BAI),
- Location 5 (34 registrations/ 0.21 BAI);
- Location 4 (21 registrations/ 0.14 BAI); and
- Location 6 (20 registrations/ 0.13 BAI).

The BAI per location over the duration of the survey period is illustrated in Graph 2.

Analysis of the temporal data is shown in Table 6-2 to

[2] NoID records are possible bat species that could not be identified. For the purposes of this report it is not included in the overall number of species recorded for the Study Area.

Table 6-3 Summary of Temporal Activity Totals – 22/09/16-29/09/2016The BAI in early September was 1.13 with 356 registrations recorded, this activity decreased in late September with a BAI of 0.05 and 28 registrations recorded.

Table 6-1 Summary of Temporal Activity Totals

Loc.	PIPPIP	BPPN	PIPPYG	BPPN	MY	BPPN	MYODAU	BPPN	NYC	BPPN	PLEAUR	BPPN	NoID	BPPN	Reg.	BAI	BPPN
Loc1	15	1.36	34	3.1	1	0.1	0	0.0	2	0.18	0	0	1	0.09	53	**0.36**	**4.8**
Loc2	5	0.45	60	5.5	0	0.0	1	0.1	3	0.27	0	0	1	0.09	70	**0.47**	**6.4**
Loc3	143	13.00	33	3.0	0	0.0	2	0.2	0	0.00	0	0	8	0.73	186	**1.25**	**16.9**
Loc4	8	0.73	9	0.8	0	0.0	1	0.1	1	0.09	1	0.09	1	0.09	21	**0.14**	**1.9**
Loc5	8	0.67	24	2.0	1	0.1	1	0.1	0	0.00	0	0	0	0.00	34	**0.21**	**2.8**
Loc6	10	0.91	6	0.5	0	0.0	4	0.4	0	0.00	0	0	0	0.00	20	**0.13**	**1.8**
Reg.	189	2.82	166	2.5	2	0.03	9	0.1	6	0.09	1	0.015	11	0.16	384	**0.42**	**5.7**
BAI	**0.21**		**0.18**		**0.002**		**0.01**		**0.01**		**0.001**		**0.01**		**0.42**		

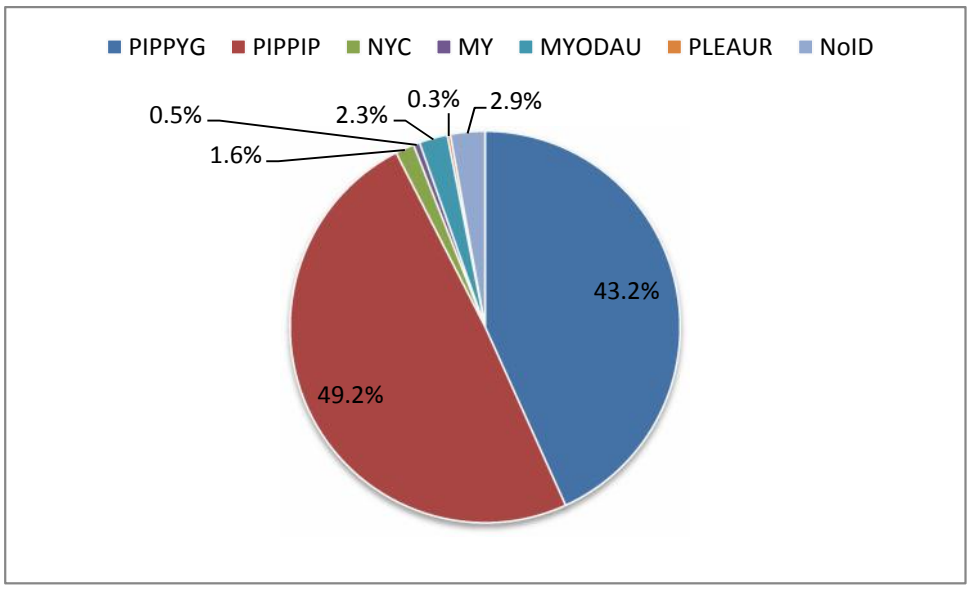
(Abbreviations: PIPPIP – common pipistrelle; PIPPYG– soprano pipistrelle; MY – Myotis; MYODAU – Daubenton's.; PLEAUR – brown-long eared; NoID – possible unidentified bat; Reg. – registrations, BAI – bat Activity Index; BPPN – bat pass per night)

Table 6-2 Summary of Temporal Activity Totals – 01/09/16-06/09/2016

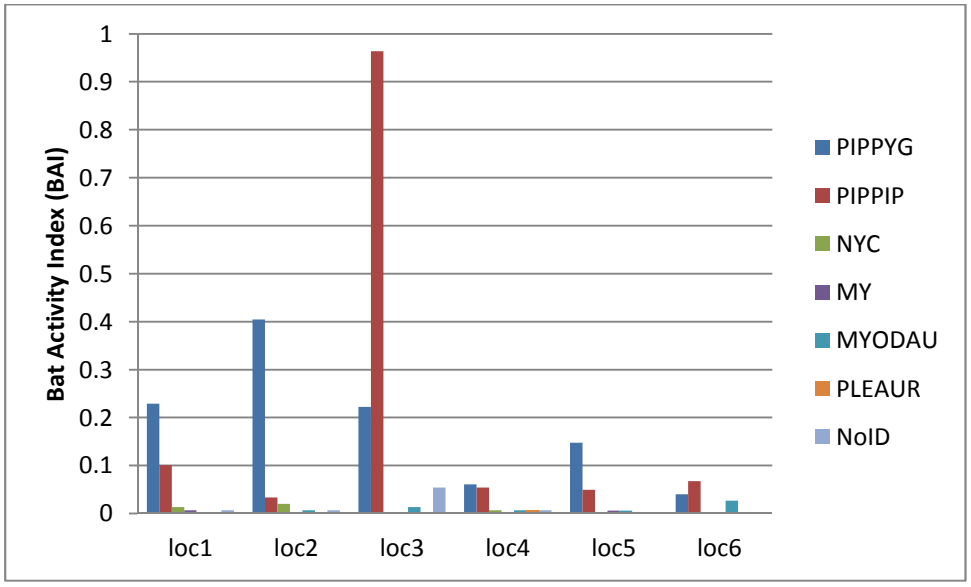
Loc.	PIPPIP	PIPPYG	MY	MYODAU	NYC	NoID	Reg.	BAI	BPPN
Loc1	15	33	1	0	2	1	52	**1.03**	**13**
Loc2	5	57	0	1	3	1	67	**1.33**	**16.8**
Loc3	134	30	0	2	0	8	174	**3.46**	**43.5**
Loc4	8	9	0	1	1	1	20	**0.4**	**5.0**
Loc5	7	23	1	1	0	0	32	**0.5**	**6.4**
Loc6	5	5	0	1	0	0	11	**0.22**	**2.8**
Reg.	174	157	2	6	6	11	356	**1.13**	**14.2**
BAI	**0.55**	**0.50**	**0.01**	**0.02**	**0.02**	**0.03**	**1.13**		
BPPN	**6.96**	**6.28**	**0.08**	**0.24**	**0.24**	**0.44**	**14.24**		

Table 6-3 Summary of Temporal Activity Totals – 22/09/16-29/09/2016

Loc.	PIPPIP	PIPPYG	MYODAU	PLAUR	Reg.	BAI	BPPN
Loc2	0	1	0	0	1	**0.01**	**0.14**
Loc3	0	3	0	0	3	**0.03**	**0.43**
Loc4	9	3	0	0	12	**0.12**	**1.71**
Loc5	0	0	0	1	1	**0.01**	**0.14**
Loc6	1	1	0	0	2	**0.02**	**0.29**
Loc7	5	1	3	0	9	**0.09**	**1.29**
Reg.	15	9	3	1	28	**0.05**	**0.67**
BAI	**0.03**	**0.02**	**0.01**	**0.002**	**0.05**		
BPPN	**0.36**	**0.21**	**0.07**	**0.02**	**0.67**		



Graph 1 Temporal Survey Results: Species Composition of Study Area (BAI)



Graph 2 Temporal Activity: BAI of the Study Area per Location

7 DISCUSSION

7.1 Survey Overview

Five bat species were recorded for the Study Area: common pipistrelle (PIPPIP), soprano pipistrelle (PIPPYG), Daubenton's (MYODAU), *Nyctalus* sp. (NYC) and brown-long eared bat (PLAUR).

The most commonly recorded species by BAI were common (189 registrations/ 0.21 BAI) and soprano pipistrelle bats (166 registrations/ 0.18 BAI), which accounted for 92.4% of the registrations recorded followed by; NoID (11 registrations/ 0.01 BAI), Daubenton's (9 registrations/ 0.01 BAI), *Nyctalus* sp. (6 registrations/0.01 BAI), *Myotis* sp. (2 registrations/ 0.002 BAI) and brown-long eared bat (1 registration/ 0.001 BAI). Possible unidentified bat species[3] (NoID) is not included in the overall number of species recorded for the Study Area.

The BAI for location 3 had the highest overall BAI (186 registrations/1.25 BAI) followed by Location 2 (70 registrations/ 0.47 BAI), location 1 (53 registrations/ 0.36 BAI), location 5 (34 registrations/ 0.21 BAI), location 4 (21 registration/ 0.14 BAI) and Location 6 (20 registrations/ 0.13BAI).

The BAI activity rates per location in September are considered to be low for high, medium and low risk species.

7.2 High Risk Species

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.

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

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

Nyctalus sp. were recorded at locations 1, 2 and 4 during the surveys in early September. No *Nyctalus* sp. were recorded during the second visit the Study Area in late September. Location 1 and location 2 recorded three registrations on the same night (03/09/2016) and within a similar time period of 21:19 to 21:58. These locations also record a single *Nyctalus* registration each on the same night but these recordings were not within a similar time period, with location 2 recording a registration at 22:23 and location 1 recording a registration at 03:11. Location 4 recorded one registration on the 01/09/16 at 02:47.

The BAI activity rates per location for the Study Area in September is considered to be low for high risk species with a BAI value of 0.01 (refer to table 6-1 above).

7.3 Medium Risk Species

The greatest activity (BAI) seen throughout the temporal surveys were due to medium risk species: common pipistrelle and soprano pipistrelle. These bat species are classed as being at medium risk of

[3] NoID records are possible bat species that could not be identified. For the purposes of this report it is not included in the overall number of species recorded for the Study Area.

collision but are at low risk at the population level due to their distribution and abundance within the UK. 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).

Pipistrellus bats were recorded at all locations. The location which recorded the highest number of *pipistrellus* registration was location 3 in early September which recorded 164 registrations over four complete nights.

The BAI activity rates per location for the Study Area in September is considered to be low for medium risk species with a BAI value of 0.21 for common pipistrelle and 0.18 for soprano pipistrelle bats (refer to table 6-1 above).

7.4 Low Risk Species

Only low numbers of *Myotis* sp. Daubenton's, and brown-long eared bat were recorded.

These species are at low risk for collision and also at low risk at the population level (Natural England, 2014).

Location 2, 3, 4, 5 and 6 recorded Daubenton's registrations while location 1 and 5 recorded *Myotis* sp. and location 4 recorded a single brown long-eared registration.

The BAI activity rates per location for the Study Area in September is considered to be low for low risk species with a BAI value of 0.002 for *Myotis* species, 0.01 for Daubenton's and 0.001 for brown long-eared bats (refer to table 6-1 above).

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Annex 1. Protected Species Legal Status

All **bat** species receive protection under the Conservation Regulations (1994) (as amended) only[4].

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:

i. to harass a wild animal or group of wild animals of a European protected species;

ii. to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;

iii. to disturb such an animal while it is rearing or otherwise caring for its young;

iv. 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);

v. 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

vi. 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;

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.

[4] 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

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

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

Annex 2. Temporal Raw Data

IN.FILE	DATE	TIME	AUTO.ID.	ALTERNATES	FILES	MANUAL.ID	survey.ID	new.id
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Q9022224_56.zc	02/09/2016	22:24:56	PIPPYG	PIPPIP	1		Loc1_v1	PIPPYG
Q9022233_49.zc	02/09/2016	22:33:49	PIPPIP		1		Loc1_v1	PIPPIP
Q9022246_44.zc	02/09/2016	22:46:44	PIPPYG		1		Loc1_v1	PIPPYG
Q9022250_37.zc	02/09/2016	22:50:37	PIPPIP	PIPNAT	1		Loc1_v1	PIPPIP
Q9022250_52.zc	02/09/2016	22:50:52	PIPPIP		1		Loc1_v1	PIPPIP
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Q9032132_55.zc	03/09/2016	21:32:55	PIPPYG	PIPPIP	1		Loc1_v1	PIPPYG
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Q9032329_19.zc	03/09/2016	23:29:19	PIPPYG	PIPPIP	1		Loc1_v1	PIPPYG
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Q9050017_13.zc	2016-09-05	00:17:13	PIPPYG		1		Loc2_v1	PIPPYG
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Q9022210_38.zc	2016-09-02	22:10:38	PIPPYG		1		Loc3_v1	PIPPYG
Q9022325_36.zc	2016-09-02	23:25:36	PIPPYG		1		Loc3_v1	PIPPYG
Q9022329_44.zc	2016-09-02	23:29:44	PIPPIP	PIPPYG	1		Loc3_v1	PIPPIP
Q9022347_18.zc	2016-09-02	23:47:18	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9022347_40.zc	2016-09-02	23:47:40	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9022354_01.zc	2016-09-02	23:54:01	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9022354_24.zc	2016-09-02	23:54:24	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030000_32.zc	2016-09-03	00:00:32	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9030008_17.zc	2016-09-03	00:08:17	NoID	PIPNAT;PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030008_32.zc	2016-09-03	00:08:32	NoID	PIPNAT;PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030009_56.zc	2016-09-03	00:09:56	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030010_22.zc	2016-09-03	00:10:22	PIPPIP		1		Loc3_v1	PIPPIP
Q9030016_15.zc	2016-09-03	00:16:15	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030017_04.zc	2016-09-03	00:17:04	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9030022_11.zc	2016-09-03	00:22:11	PIPPIP		1		Loc3_v1	PIPPIP
Q9030023_56.zc	2016-09-03	00:23:56	PIPPIP	PIPPYG	1		Loc3_v1	PIPPIP
Q9030028_00.zc	2016-09-03	00:28:00	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030028_24.zc	2016-09-03	00:28:24	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030030_34.zc	2016-09-03	00:30:34	NoID		1		Loc3_v1	NoID
Q9030030_55.zc	2016-09-03	00:30:55	PIPPIP	PIPPYG	1		Loc3_v1	PIPPIP
Q9030031_11.zc	2016-09-03	00:31:11	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030031_42.zc	2016-09-03	00:31:42	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030033_00.zc	2016-09-03	00:33:00	PIPPIP	PIPPYG	1		Loc3_v1	PIPPIP
Q9030036_36.zc	2016-09-03	00:36:36	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030039_33.zc	2016-09-03	00:39:33	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9030039_48.zc	2016-09-03	00:39:48	NoID	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
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Q9030043_56.zc	2016-09-03	00:43:56	NoID	PIPNAT;PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030045_15.zc	2016-09-03	00:45:15	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030048_04.zc	2016-09-03	00:48:04	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030048_32.zc	2016-09-03	00:48:32	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030049_06.zc	2016-09-03	00:49:06	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030051_14.zc	2016-09-03	00:51:14	PIPPIP		1		Loc3_v1	PIPPIP
Q9030052_08.zc	2016-09-03	00:52:08	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030052_57.zc	2016-09-03	00:52:57	PIPPIP		1		Loc3_v1	PIPPIP
Q9030053_45.zc	2016-09-03	00:53:45	PIPPIP		1		Loc3_v1	PIPPIP
Q9030054_01.zc	2016-09-03	00:54:01	PIPPIP		1		Loc3_v1	PIPPIP
Q9030054_20.zc	2016-09-03	00:54:20	PIPPIP		1		Loc3_v1	PIPPIP
Q9030055_24.zc	2016-09-03	00:55:24	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030056_03.zc	2016-09-03	00:56:03	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030056_40.zc	2016-09-03	00:56:40	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP

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Q9030057_40.zc	2016-09-03	00:57:40	NoID	PIPNAT;PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
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Q9030059_30.zc	2016-09-03	00:59:30	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030101_21.zc	2016-09-03	01:01:21	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030107_04.zc	2016-09-03	01:07:04	PIPPIP		1		Loc3_v1	PIPPIP
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Q9030108_22.zc	2016-09-03	01:08:22	PIPPIP		1		Loc3_v1	PIPPIP
Q9030108_52.zc	2016-09-03	01:08:52	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9030112_32.zc	2016-09-03	01:12:32	PIPPIP	PIPNAT;PIPPYG	1		Loc3_v1	PIPPIP
Q9030112_47.zc	2016-09-03	01:12:47	PIPPIP		1		Loc3_v1	PIPPIP
Q9030114_04.zc	2016-09-03	01:14:04	NoID	PIPNAT;PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
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Q9030115_15.zc	2016-09-03	01:15:15	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030119_16.zc	2016-09-03	01:19:16	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030120_01.zc	2016-09-03	01:20:01	PIPPIP	PIPPYG	1		Loc3_v1	PIPPIP
Q9030120_23.zc	2016-09-03	01:20:23	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030121_26.zc	2016-09-03	01:21:26	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030121_47.zc	2016-09-03	01:21:47	PIPPIP		1		Loc3_v1	PIPPIP
Q9030122_16.zc	2016-09-03	01:22:16	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
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Q9030123_16.zc	2016-09-03	01:23:16	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030123_39.zc	2016-09-03	01:23:39	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030124_58.zc	2016-09-03	01:24:58	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
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Q9030127_00.zc	2016-09-03	01:27:00	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
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Q9030132_50.zc	2016-09-03	01:32:50	NoID		1		Loc3_v1	NoID
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Q9030135_05.zc	2016-09-03	01:35:05	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030135_34.zc	2016-09-03	01:35:34	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9030136_01.zc	2016-09-03	01:36:01	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030139_15.zc	2016-09-03	01:39:15	NoID	PIPNAT;PIPPIP	1		Loc3_v1	NoID
Q9030140_24.zc	2016-09-03	01:40:24	NoID	PIPPIP;PIPNAT	1	PIPPIP	Loc3_v1	PIPPIP
Q9030140_43.zc	2016-09-03	01:40:43	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030140_59.zc	2016-09-03	01:40:59	NoID	PIPNAT;PIPPIP	1		Loc3_v1	NoID
Q9030143_13.zc	2016-09-03	01:43:13	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030145_11.zc	2016-09-03	01:45:11	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9030145_30.zc	2016-09-03	01:45:30	NoID		1	PIPPIP	Loc3_v1	PIPPIP
Q9030147_03.zc	2016-09-03	01:47:03	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030149_30.zc	2016-09-03	01:49:30	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP

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Q9030200_46.zc	2016-09-03	02:00:46	PIPPIP	PIPNAT;PIPPYG	1		Loc3_v1	PIPPIP
Q9030202_23.zc	2016-09-03	02:02:23	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030202_57.zc	2016-09-03	02:02:57	PIPPIP		1		Loc3_v1	PIPPIP
Q9030204_49.zc	2016-09-03	02:04:49	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030205_45.zc	2016-09-03	02:05:45	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9030207_06.zc	2016-09-03	02:07:06	NoID		1		Loc3_v1	NoID
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Q9030208_17.zc	2016-09-03	02:08:17	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030214_38.zc	2016-09-03	02:14:38	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030214_53.zc	2016-09-03	02:14:53	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030216_52.zc	2016-09-03	02:16:52	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030217_47.zc	2016-09-03	02:17:47	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030218_19.zc	2016-09-03	02:18:19	PIPPIP		1		Loc3_v1	PIPPIP
Q9030221_48.zc	2016-09-03	02:21:48	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030222_42.zc	2016-09-03	02:22:42	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030223_20.zc	2016-09-03	02:23:20	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030223_43.zc	2016-09-03	02:23:43	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030223_58.zc	2016-09-03	02:23:58	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9030224_14.zc	2016-09-03	02:24:14	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030225_49.zc	2016-09-03	02:25:49	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030226_05.zc	2016-09-03	02:26:05	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030226_15.zc	2016-09-03	02:26:15	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030229_07.zc	2016-09-03	02:29:07	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030230_44.zc	2016-09-03	02:30:44	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030231_24.zc	2016-09-03	02:31:24	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030234_50.zc	2016-09-03	02:34:50	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030253_18.zc	2016-09-03	02:53:18	PIPPIP	PIPPYG	1		Loc3_v1	PIPPIP
Q9030256_15.zc	2016-09-03	02:56:15	PIPPIP	PIPPYG	1		Loc3_v1	PIPPIP
Q9030305_32.zc	2016-09-03	03:05:32	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030306_34.zc	2016-09-03	03:06:34	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030319_28.zc	2016-09-03	03:19:28	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030327_03.zc	2016-09-03	03:27:03	MYODAU		1		Loc3_v1	MYODAU
Q9030336_12.zc	2016-09-03	03:36:12	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030419_21.zc	2016-09-03	04:19:21	PIPPIP		1		Loc3_v1	PIPPIP
Q9030438_53.zc	2016-09-03	04:38:53	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9030459_40.zc	2016-09-03	04:59:40	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9032147_39.zc	2016-09-03	21:47:39	PIPPYG		1		Loc3_v1	PIPPYG
Q9032149_37.zc	2016-09-03	21:49:37	NoID		1	PIPPIP	Loc3_v1	PIPPIP
Q9032154_28.zc	2016-09-03	21:54:28	PIPPYG		1		Loc3_v1	PIPPYG
Q9032158_30.zc	2016-09-03	21:58:30	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9032202_08.zc	2016-09-03	22:02:08	NoID	PIPPIP;PIPNAT	1	PIPPIP	Loc3_v1	PIPPIP

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Q9032212_35.zc	2016-09-03	22:12:35	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9032212_43.zc	2016-09-03	22:12:43	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9032215_09.zc	2016-09-03	22:15:09	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9032231_09.zc	2016-09-03	22:31:09	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9032257_51.zc	2016-09-03	22:57:51	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9032258_23.zc	2016-09-03	22:58:23	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9040000_34.zc	2016-09-04	00:00:34	NoID		1		Loc3_v1	NoID
Q9040002_54.zc	2016-09-04	00:02:54	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9040036_38.zc	2016-09-04	00:36:38	NoID	PIPPIP;PIPNAT	1	PIPPIP	Loc3_v1	PIPPIP
Q9040106_41.zc	2016-09-04	01:06:41	PIPPYG		1		Loc3_v1	PIPPYG
Q9040139_49.zc	2016-09-04	01:39:49	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9040140_38.zc	2016-09-04	01:40:38	PIPPYG		1		Loc3_v1	PIPPYG
Q9042048_06.zc	2016-09-04	20:48:06	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9042129_07.zc	2016-09-04	21:29:07	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9042129_34.zc	2016-09-04	21:29:34	PIPPIP	PIPPYG	1		Loc3_v1	PIPPIP
Q9042148_28.zc	2016-09-04	21:48:28	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9042151_35.zc	2016-09-04	21:51:35	PIPPYG		1		Loc3_v1	PIPPYG
Q9042210_55.zc	2016-09-04	22:10:55	NoID		1		Loc3_v1	NoID
Q9042223_48.zc	2016-09-04	22:23:48	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9042246_34.zc	2016-09-04	22:46:34	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9042303_58.zc	2016-09-04	23:03:58	PIPPIP	PIPPYG	1		Loc3_v1	PIPPIP
Q9042325_11.zc	2016-09-04	23:25:11	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9042327_33.zc	2016-09-04	23:27:33	PIPPIP		1		Loc3_v1	PIPPIP
Q9042330_34.zc	2016-09-04	23:30:34	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9042331_15.zc	2016-09-04	23:31:15	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9042331_31.zc	2016-09-04	23:31:31	PIPPIP		1		Loc3_v1	PIPPIP
Q9042334_36.zc	2016-09-04	23:34:36	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9042334_47.zc	2016-09-04	23:34:47	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9042336_11.zc	2016-09-04	23:36:11	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9042350_48.zc	2016-09-04	23:50:48	PIPPIP	PIPPYG	1		Loc3_v1	PIPPIP
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Q9050004_03.zc	2016-09-05	00:04:03	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9050006_07.zc	2016-09-05	00:06:07	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9050007_35.zc	2016-09-05	00:07:35	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9050008_15.zc	2016-09-05	00:08:15	NoID		1		Loc3_v1	NoID
Q9050049_59.zc	2016-09-05	00:49:59	NoID	PIPNAT;PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP
Q9050055_52.zc	2016-09-05	00:55:52	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9050057_44.zc	2016-09-05	00:57:44	PIPPYG	PIPPIP	1		Loc3_v1	PIPPYG
Q9050105_02.zc	2016-09-05	01:05:02	PIPPIP	PIPNAT;PIPPYG	1		Loc3_v1	PIPPIP
Q9050125_36.zc	2016-09-05	01:25:36	PIPPIP	PIPNAT	1		Loc3_v1	PIPPIP
Q9050125_51.zc	2016-09-05	01:25:51	PIPNAT	PIPPIP	1	PIPPIP	Loc3_v1	PIPPIP

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Q9050145_37.zc	2016-09-05	01:45:37	MYODAU	MYOMYS	1		Loc3_v1	MYODAU
Q9020247_54.zc	2016-09-02	02:47:54	NYCLEI	NYCNOC	1	NYC	Loc4_v1	NY
Q9022201_57.zc	2016-09-02	22:01:57	NoID		1		Loc4_v1	NoID
Q9022203_06.zc	2016-09-02	22:03:06	PIPPYG		1		Loc4_v1	PIPPYG
Q9022235_27.zc	2016-09-02	22:35:27	PIPPIP	PIPNAT	1		Loc4_v1	PIPPIP
Q9022236_40.zc	2016-09-02	22:36:40	PIPPIP		1		Loc4_v1	PIPPIP
Q9030012_18.zc	2016-09-03	00:12:18	PIPPYG	PIPPIP	1		Loc4_v1	PIPPYG
Q9030219_42.zc	2016-09-03	02:19:42	PIPPIP	PIPPYG	1		Loc4_v1	PIPPIP
Q9032046_44.zc	2016-09-03	20:46:44	PIPPIP	PIPNAT	1		Loc4_v1	PIPPIP
Q9032322_15.zc	2016-09-03	23:22:15	PIPPIP	PIPNAT	1		Loc4_v1	PIPPIP
Q9040211_19.zc	2016-09-04	02:11:19	PIPPYG		1		Loc4_v1	PIPPYG
Q9040220_47.zc	2016-09-04	02:20:47	PIPPYG		1		Loc4_v1	PIPPYG
Q9040228_49.zc	2016-09-04	02:28:49	PIPPYG		1		Loc4_v1	PIPPYG
Q9040306_20.zc	2016-09-04	03:06:20	PIPPYG		1		Loc4_v1	PIPPYG
Q9042240_30.zc	2016-09-04	22:40:30	MYODAU		1	MYODAU	Loc4_v1	MYODAU
Q9042240_41.zc	2016-09-04	22:40:41	PIPPYG		1		Loc4_v1	PIPPYG
Q9042320_31.zc	2016-09-04	23:20:31	PIPPIP	PIPNAT	1		Loc4_v1	PIPPIP
Q9050004_16.zc	2016-09-05	00:04:16	PIPPIP		1		Loc4_v1	PIPPIP
Q9050044_15.zc	2016-09-05	00:44:15	PIPPIP	MYODAU	1		Loc4_v1	PIPPIP
Q9050059_55.zc	2016-09-05	00:59:55	PIPPYG	PIPNAT	1		Loc4_v1	PIPPYG
Q9050318_56.zc	2016-09-05	03:18:56	PIPPYG		1		Loc4_v1	PIPPYG
Q9022207_29.zc	2016-09-02	22:07:29	PIPPYG		1		Loc5_v1	PIPPYG
Q9022328_42.zc	2016-09-02	23:28:42	PIPPYG		1		Loc5_v1	PIPPYG
Q9032116_50.zc	2016-09-03	21:16:50	PIPPYG		1		Loc5_v1	PIPPYG
Q9032118_34.zc	2016-09-03	21:18:34	PIPPYG		1		Loc5_v1	PIPPYG
Q9032124_39.zc	2016-09-03	21:24:39	PIPPIP	PIPNAT	1		Loc5_v1	PIPPIP
Q9032141_19.zc	2016-09-03	21:41:19	PIPPYG		1		Loc5_v1	PIPPYG
Q9032142_20.zc	2016-09-03	21:42:20	PIPPYG	PIPPIP	1		Loc5_v1	PIPPYG
Q9032143_37.zc	2016-09-03	21:43:37	PIPPYG		1		Loc5_v1	PIPPYG
Q9032143_57.zc	2016-09-03	21:43:57	PIPPYG	PIPPIP	1		Loc5_v1	PIPPYG
Q9032145_20.zc	2016-09-03	21:45:20	PIPPYG	PIPPIP	1		Loc5_v1	PIPPYG
Q9032147_45.zc	2016-09-03	21:47:45	PIPPYG		1		Loc5_v1	PIPPYG
Q9032155_24.zc	2016-09-03	21:55:24	PIPPYG		1		Loc5_v1	PIPPYG
Q9032156_27.zc	2016-09-03	21:56:27	PIPPYG		1		Loc5_v1	PIPPYG
Q9032208_27.zc	2016-09-03	22:08:27	PIPPIP		1		Loc5_v1	PIPPIP
Q9032237_21.zc	2016-09-03	22:37:21	PIPPYG	PIPPIP	1		Loc5_v1	PIPPYG
Q9032256_17.zc	2016-09-03	22:56:17	PIPPIP	PIPPYG	1		Loc5_v1	PIPPIP
Q9032258_58.zc	2016-09-03	22:58:58	PIPPIP	PIPNAT	1		Loc5_v1	PIPPIP
Q9032355_27.zc	2016-09-03	23:55:27	PIPPYG	PIPPIP	1		Loc5_v1	PIPPYG
Q9042217_08.zc	2016-09-04	22:17:08	PIPPYG		1		Loc5_v1	PIPPYG
Q9042210_38.zc	2016-09-04	22:10:38	PIPPYG	PIPPIP	1		Loc5_v1	PIPPYG
Q9040127_07.zc	2016-09-04	01:27:07	PIPPYG	PIPPIP	1		Loc5_v1	PIPPYG
Q9040137_03.zc	2016-09-04	01:37:03	PIPPIP	PIPNAT	1		Loc5_v1	PIPPIP

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Q9042142_08.zc	2016-09-04	21:42:08	MYODAU	MYOBRA	1		Loc5_v1	MYODAU
Q9042143_31.zc	2016-09-04	21:43:31	PIPPYG		1		Loc5_v1	PIPPYG
Q9042153_46.zc	2016-09-04	21:53:46	PIPPYG		1		Loc5_v1	PIPPYG
Q9042157_25.zc	2016-09-04	21:57:25	PIPPYG		1		Loc5_v1	PIPPYG
Q9042205_43.zc	2016-09-04	22:05:43	PIPPYG		1		Loc5_v1	PIPPYG
Q9050016_54.zc	2016-09-05	00:16:54	PIPPYG		1		Loc5_v1	PIPPYG
Q9050204_16.zc	2016-09-05	02:04:16	PIPPIP		1		Loc5_v1	PIPPIP
Q9050433_58.zc	2016-09-05	04:33:58	PIPPYG	PIPNAT	1		Loc5_v1	PIPPYG
Q9032332_36.zc	2016-09-03	23:32:36	PIPPIP	PIPNAT	1		Loc6_v1	PIPPIP
Q9030329_20.zc	2016-09-03	03:29:20	PIPPYG		1		Loc6_v1	PIPPYG
Q9032122_28.zc	2016-09-03	21:22:28	MYODAU	MYOMYS	1		Loc6_v1	MYODAU
Q9032247_23.zc	2016-09-03	22:47:23	PIPPYG		1		Loc6_v1	PIPPYG
Q9040057_38.zc	2016-09-04	00:57:38	PIPPYG		1		Loc6_v1	PIPPYG
Q9040103_56.zc	2016-09-04	01:03:56	PIPPIP		1		Loc6_v1	PIPPIP
Q9040113_33.zc	2016-09-04	01:13:33	PIPPIP	PIPNAT	1		Loc6_v1	PIPPIP
Q9040238_42.zc	2016-09-04	02:38:42	PIPPYG		1		Loc6_v1	PIPPYG
Q9042120_52.zc	2016-09-04	21:20:52	PIPPIP		1		Loc6_v1	PIPPIP
Q9042121_44.zc	2016-09-04	21:21:44	PIPPIP	PIPNAT	1		Loc6_v1	PIPPIP
Q9050110_56.zc	2016-09-05	01:10:56	PIPPYG	PIPPIP	1		Loc6_v1	PIPPYG
Q9272038.10#	2016-09-27	20:38:10	PIPPYG	PIPPIP	1		Loc1_v2	PIPPYG
Q9251958.19#	2016-09-25	19:58:19	PIPPYG		1		Loc2_v2	PIPPYG
Q9251958.34#	2016-09-25	19:58:34	PIPPYG		1		Loc2_v2	PIPPYG
Q9251959.44#	2016-09-25	19:59:44	PIPPYG		1		Loc2_v2	PIPPYG
Q9222048.33#	2016-09-22	20:48:33	PIPPIP		1		Loc3_v2	PIPPIP
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Q9222326.20#	2016-09-22	23:26:20	PIPPIP	PIPNAT	1		Loc3_v2	PIPPIP
Q9222337.52#	2016-09-22	23:37:52	PIPPIP		1		Loc3_v2	PIPPIP
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Q9222352.00#	2016-09-22	23:52:00	PIPPIP		1		Loc3_v2	PIPPIP
Q9222353.07#	2016-09-22	23:53:07	PIPPIP		1		Loc3_v2	PIPPIP
Q9262019.38#	2016-09-26	20:19:38	PIPPYG		1		Loc3_v2	PIPPYG
Q9262036.36#	2016-09-26	20:36:36	PIPPYG		1		Loc3_v2	PIPPYG
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Q9262209.33#	2016-09-26	22:09:33	PIPPYG		1		Loc3_v2	PIPPYG
Q9262224.22#	2016-09-26	22:24:22	PLEAUR	NYCNOC	1		Loc4_v2	PLEAUR
Q9270139.40#	2016-09-27	01:39:40	NYCNOC	PLEAUR	1	PIPPIP	Loc5_v2	PIPPIP
Q9262209.45#	2016-09-26	22:09:45	PIPPYG		1		Loc5_v2	PIPPYG
Q9222035.01#	2016-09-22	20:35:01	PIPPIP	MYODAU	1		Loc6_v2	PIPPIP
Q9270038.50#	2016-09-27	00:38:50	NoID		1	MYODAU	Loc6_v2	MYODAU
Q9270313.21#	2016-09-27	03:13:21	NoID	MYOBRA	1	MYODAU	Loc6_v2	MYODAU

IN.FILE	DATE	TIME	AUTO.ID.	ALTERNATES	FILES	MANUAL.ID	survey.ID	new.id
Q9250300.47#	2016-09-25	03:00:47	MYODAU	MYOBRA	1		Loc6_v2	MYODAU
Q9250317.43#	2016-09-25	03:17:43	PIPPIP		1		Loc6_v2	PIPPIP
Q9251948.39#	2016-09-25	19:48:39	PIPPIP	PIPNAT;PIPPYG	1		Loc6_v2	PIPPIP
Q9262034.31#	2016-09-26	20:34:31	PIPPIP	PIPNAT	1		Loc6_v2	PIPPIP
Q9262050.00#	2016-09-26	20:50:00	PIPPIP	PIPNAT	1		Loc6_v2	PIPPIP
Q9262358.15#	2016-09-26	23:58:15	PIPPYG	PIPPIP	1		Loc6_v2	PIPPYG

Annex 3. Figures

Figure 9.6 Bat Survey Study Area

Figure 9.10 Temporal Bat Survey Results