BAT SURVEY REPORT

8-3

atmos CONSULTING

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Technical Report

Strathy Wood Wind Farm
ES Technical Appendix 8.3

Bat Survey

E.ON

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1 INTRODUCTION

1.1 Terms of Reference

Atmos Consulting Ltd was commissioned by E.ON Climate and Renewables (E.ON) to undertake bat surveys at the proposed Strathy Wood Wind Farm development. This survey was identified as necessary following preliminary consultations and an extended Phase I habitat survey to inform a future Ecological Impact Assessment (EcIA) for the proposed development.

This report presents the findings of the bat surveys completed in relation to the Strathy Wood Wind Farm development, hereafter referred to as 'the Site' which has been based on a wider 'Bat Survey Area' to cover additional sections of the wider area within which the application boundary will be contained.

1.2 Objectives of the Study

This report examines the possible constraints imposed upon the proposed development by bats, details the habitat suitability for these species and their likely presence within the survey area.

This report details the following:

- legislative context;
- review of existing information;
- field survey methodology;
- field survey results; and
- conclusions.

1.3 Site Description

The proposed site for the Strathy Wood Wind Farm development is located within an area which was previously dominated by commercial forestry and undergone felling over the past decade (site centre NGR NC819557). The former forestry areas presently support a range of transition habitats including substantial areas of broadleaved replanting and brash along with sections of recently felled coniferous woodland and remaining areas of mature plantation woodland with significant wind throw. To the north, the Bat Survey Area is bordered by the Strathy North woodland which is the site of the consented Strathy North Wind Farm with a generation capacity of up to 75.9MW.

The design of the Strathy Wood Wind Farm maximises the turbine number (22) on undesignated land, with an additional four proposed turbines located within the area covered by the Caithness and Sutherland Peatlands SAC/SPA/Ramsar and West Halladale SSSI. Bats do not feature as qualifying or notified features within these sites.

Ancillary developments will also include a permanent meteorological (met) mast, onsite extraction (from outwith the designated sites) of mineral aggregate as necessary, an underground electricity cable network, crane hard standings adjacent to each turbine, temporary site office and construction compound and a site control building.

2 LEGISLATIVE CONTEXT

All bat species in the UK are afforded full statutory protection as European protected species listed on Schedule 2 of the Conservation (Natural Habitats, &c.) Regulations 1994 as amended in Scotland, which transpose into Scottish law the European Community's Habitats Directive (92/43/EEC).

Under the terms of Regulation 39(1), with certain exceptions, it is an offence:

- deliberately or recklessly to capture, injure or kill a wild bat;
- deliberately or recklessly–
  - to harass a wild bat or group of wild bats;
  - to disturb a bat while it is occupying a structure or place which it uses for shelter or protection;
  - to disturb a bat while it is rearing or otherwise caring for its young;
  - to obstruct access to a breeding site or resting place of a bat, or otherwise to deny the bat use of the breeding site or resting place;
  - to disturb a bat 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
  - to disturb a bat 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; or
  - To damage or destroy a breeding site or resting place of such an animal.

It is also an offence under Regulation 39 to keep, transport, sell or exchange, or offer for sale or exchange, any live or dead bat, or any part of, or anything derived from one. All of the above protections apply regardless of the stage of the life of the animal in question.

Of the 18 UK bat species, ten occur in Scotland; common pipistrelle *Pipistrellus pipistrellus*, Soprano pipistrelle *P. pygmaeus*, Nathusius' pipistrelle *P. nathusii*, Natterer's *Myotis nattereri*, Daubenton's *M. daubentonii*, noctule *Nyctalus noctula*, brown long-eared bats *Plecotus auritus*, Leisler's *N. leisleri* and whiskered/Brandt's *M. mystacinus/M. brandtii* bats are found in Scotland.

3 CONSULTATION & REVIEW OF EXISTING INFORMATION

3.1 Consultations

Consultation with Scottish Natural Heritage (SNH) established, at an early stage the need, scope and details of the bat surveys required to inform this project. It should be noted that initially only limited static and transect surveys were proposed to meet guidance at the time of survey commencement (2011). Subsequently in early 2012 the current guidance from the Bat Conservation Trust (Hundt, 2012) was published which resulted in a change in methodology (Section 4). Using the aforementioned Hundt, 2012 guidance the Site was identified as being of 'low risk' to bats based on the northern latitude and generally open upland nature of the Site with limited foraging and roosting opportunities for bats. As a result, methodology included three activity surveys across the survey season during Autumn 2011, Spring 2012 and Summer 2012.

In addition to the field surveys, a desk-based study was undertaken to determine the presence of nature conservation sites designated for bat interest in proximity to the proposed wind development, as well as to obtain any existing records for bats. The following organisations were contacted:

- North Highland Bat Group; and
- Highland Biological Recording Group

The North Highland Bat Group confirmed that any records that they hold have been transferred to the National Biodiversity Network (NBN) Gateway. They also indicated that they had knowledge of the surveys undertaken as part of the Strathy North Wind Farm proposals; however no further details were provided.

3.2 Statutory Designated Sites

Review of the SNH Sitelink mapping site (www.snh.gov.uk/snhi) confirmed there to be no statutory designated nature conservation sites within or adjacent to the Site boundary that are designated for bat interest.

3.3 Existing Records

The NBN Gateway identified very few records of bats within this part of Sutherland with no records of bats within 10km of the Site.

Strathy North and Strathy South Wind Energy Proposals

As part of the Environmental Statement for the consented Strathy North wind energy development bat surveys were undertaken across the Strathy North site.

Bat survey work was undertaken in 2005 and 2006 and identified that common pipistrelle utilise at least nine different roost sites within 6.5km of the proposed Strathy North Wind Farm site. These included many of the buildings local to the site and included Braerathy Lodge (NC823561) which is located within the Strathy Wood Wind Farm Site. Emergence surveys undertaken as part of the Strathy North assessments showed that the identified roosts generally held between one and three common

pipistrelle, with a maximum of seven in a corrugated iron-clad shed at Bowside (NC830609). Braerathy Lodge supported a roost of at least three common pipistrelle bats during 2006 with three bats emerging from the rear of the house during a dusk survey on 3rd July 2006 and a single common pipistrelle entering close to guttering at the front of the house during a dawn survey on 21st July 2006.

Bat detector surveys and radio-tracking identified that the majority of foraging activity was concentrated within riparian habitat in the River Strathy valley between Braerathy Lodge and the mouth of the river at Strathy village, with most activity near the A836 road bridge (NC836651). Further activity was recorded near Braerathy Lodge, between Dallangwell (NC828596) and Bowside, and along the plantation edges of Strathy North woodland. Within dense coniferous plantations bat activity was identified to be low.

Common pipistrelle commuting patterns were again largely concentrated along the length of the River Strathy from Braerathy Lodge to the river mouth. Occasional bat passes were also detected within the Strathy North plantation on the margins of Loch nam Breac Mor (NC811602), and along forest rides at Coille a Chailleach (NC819589). Daubenton's bat was also identified on the Strathy North site and commuting was occasionally detected at a number of locations, on the river near Bowside, at the Dallangwell bridge and at the A836 Strathy road bridge.

These results confirm that common pipistrelle and Daubenton's bat are present in the wider Strathy area, with roost sites, foraging areas and commuting routes concentrated along the River Strathy valley, especially to the northern end. Bat usage of the Strathy North coniferous plantation was limited to occasional foraging along rides and lochan shorelines.

4 METHODOLOGY

The current guidance from Bat Conservation Trust (Hundt 2012) was published early in 2012 resulting in proposed survey effort being increased to a proportionate level to take account of the new guidance. All surveys were undertaken by a team of suitably experienced ecologists across the Survey Area during the active season in late 2011 and throughout 2012. Four types of survey methodologies were undertaken: roost assessments, emergence surveys, activity transects and static recording.

4.1 Surveys

Roost Assessments

External roost assessments were undertaken on all buildings and mature broadleaved trees identified as being suitable to support bats within or immediately adjacent (within 200m) to the Survey Area (Figure 8-7). The external roost assessments were undertaken by a suitably experienced and licenced (SNH Licence No. 12770) ecologist on the 30th August 2011 with an updated external and internal roost assessment undertaken on 1st August 2012.

The only building within or adjacent to the Survey Area was Braerathy Lodge. The lodge was visually examined to look for features that could provide potential for roosting bats: such features include loose tiles, missing or loose slates, gaps under areas of lead flashing, particularly around the chimneys, gaps under fascia boards and soffits and any gaps/holes in the general stonework of the buildings. The building was also examined for any evidence of bats such as droppings and staining due to urine and/or oil from the bats fur.

All mature broadleaved trees or other structures within or adjacent to Survey Area offering suitability for bats were identified during the extended Phase 1 habitat survey. Any trees or structures present were visually assessed to identify any features which may provide potential for roosting bats such as cracks, rot holes, crevices and sections of loose bark. Evidence of bats, such as droppings and urine staining was also looked for. Video endoscopes were used where necessary to investigate accessible cavities. The only features offering potential roosting opportunities were a single building (Braerathy Lodge) and a ruined chimney structure. No suitable mature broadleaved trees were present and all bridges and culverts were unsuitable for use by bats for roosting.

Emergence Surveys

Emergence surveys were undertaken on Braerathy Lodge which was known to previously support a small number of common pipistrelle bats during 2006/7. The surveys were undertaken by two suitably experienced ecologists, each equipped with an Anabat SD1 bat detector. The surveyors were positioned in such a way that maximised the chances of observing any bats emerging from the buildings, and the exit point identified. The number, species and direction in which the bats travelled when emerging were recorded and plotted onto a map to allow later identification of the size and status of any roost present. Emergence surveys were undertaken on two occasions on 7th August and 31st August 2011. It was assessed that no other buildings or features within the Survey Area were likely to support roosting bats.

The emergence surveys followed best practice guidance (Hundt, 2012) and started 15 minutes before dusk, and continued for approximately 1.5 hours. *Pipistrelle* and *Myotis* species are expected to be present within the area. Both these genera are known to emerge within approximately 30 to 60 minutes of dusk. Species emerging earlier or later than this are unlikely to be present at this location.

Activity Transects

Activity transect surveys were undertaken using handheld Titley Anabat SD 1 or SD2 detectors to assess the activity levels of the bats present within the Survey Area. This consisted of three surveys periods (Table 1) spread across the bat activity seasons. The weather conditions, particularly the temperature, wind speed and precipitation, on each of the surveys were assessed to be appropriate and therefore did not pose a constraint to the surveys. Each transect survey started approximately 15 minutes prior to sunset and continued for approximately 2.0 hours.

Table 1: Summary of transect survey times

Date of Survey	Dusk/ Dawn	Start	Finish	Direction	Temperature		Precipitation
					Start	End	
30/08/2011	Dusk	20:54	22:37	South to North	9°C	9°C	Light drizzle 20:50-21:00
24/05/2012	Dusk	21:55	23:59	North to South	10°C	7°C	None
01/08/2012	Dusk	21:20	23:16	South to North	11°C	10°C	None
02/08/2012	Dawn	03:28	05:11	North to South	11°C	11°C	None

The transect route was approximately 9km in length and included areas of open moorland and more sheltered areas in close proximity to the River Strathy and ditch networks.

The transect was undertaken using driving transect methodology (Hundt 2012) and followed the route of the existing access track which runs through the Bat Survey Area and extends north to the public highway at Strathy village. Five minute 'listening points' were located along the transect, which consisted of the surveyor stopping at pre-defined points for five minutes and recording any bats foraging and/or commuting in the vicinity. The type of activity and the direction in which the bats were travelling in were also recorded where bats were observed. Driven sections were undertaken at a slow and constant speed of approximately 10mph with two surveyors.

Any bats recorded were identified, where possible, and recorded on a field map. The calls were recorded and, if field identification was not possible, the calls were later analysed by an experienced bat ecologist, using Titley Electronics Analook software, to allow identification to species.

Static Recorders

Wildlife Acoustic SM2 recorders were utilised during 2011 with Anabat SD2 recorders in 2012 across the Bat Survey Area in order to survey the number, species and distribution of bats in habitats considered to be representative of the habitats in which turbines are likely to be located or at areas that represent good quality foraging resources. Figure 8-7 shows location of the static recorder stations. During 2011 only two units were

deployed, however, survey effort was increased during the 2012 due to the change in current guidance (Hundt 2012) survey period with 8 units deployed on each occasion.

Static detectors were placed at proposed turbine locations (at time of survey) as well as at nearby bat suitable habitat features for comparison. Where bat suitable habitat was not within 100m or so, alternative representative habitats were used. Location of units at precise locations of turbines was ultimately not undertaken due to design iterations after surveys had been completed. However, in most cases turbine movements were minor and where detectors remained within 50m of final proposed turbine locations, these are considered to be representative of the habitat type for the proposed turbine locations.

Figure 8-7 shows the location of the static recorder stations and Table 2 provides location and deployment details. Static detectors were deployed before sunset on deployment date and collected after sunrise on collection date.

Table 2: Summary of static survey times and locations

Static Loc.	Infrastructure	Bat Feature	Survey Dates					
			Aug/Sept 2011		April 2012		August 2012	
			Start	End	Start	End	Start	End
1	Turbine	Yes	30th Aug	1st Sep	24th	31st	1st	7th
Grid Ref - NC8274456300								
2	Other	Yes	-	-	24th	31st	1st	7th
Grid Ref - NC8264956327								
3	Other	Yes	-	-	24th	31st	1st	7th
Grid Ref - NC8231956155								
4	None	No	30th Aug	1st Sep	24th	31st	1st	7th
Grid Ref - NC8098555405								
5	Turbine	Yes	-	-	24th	31st	1st	7th
Grid Ref - NC8091155369								
6	Other	No	-	-	24th	31st	1st	7th
Grid Ref - NC8145254124								
7	Turbine	No	-	-	24th	31st	1st	7th
Grid Ref - NC8127153904								
8	Turbine	No	-	-	24th	31st	1st	7th
Grid Ref - NC8090753277								

4.2 Analysis

All data from the Anabats and SM2s was downloaded, transformed to ZCA files where required and analysed, by an experienced bat ecologist, using Analook software to enable identification of species and to calculate and assess the activity levels present across the different habitats.

Table 3: Criteria for determining bat activity levels

Activity Level	Number of bat passes per hour [1]
Low	<5
Medium	5-10
High	>10

The levels of activity recorded within the Survey Area however, are not absolute, but are relative to the Site. For ease of examination three arbitrary levels have been created to provide a context in which to discuss the results. Table 1 indicates the levels of activity required to be considered to be low, medium or high activity.

4.3 Limitations

During the habitat assessment some areas of the plantation woodland had been subject to extensive wind throw making movement through the woodland to identify potential roost sites impractical on health and safety grounds. Some areas were avoided on health and safety grounds due to a high degree of hanging dead wood. This is not perceived as a significant limitation as the suitability of the coniferous woodland habitat for roosting bats is considered to be very low.

Weather conditions were generally optimal for bat surveys taking into account the northern latitude of the Survey Area. Appendix A displays an overview of weather variables for the duration of surveys.

Atmos Consulting were commissioned at the end of June 2011 to undertake ecological surveys at the Strathy Wood Site. As a result it was not possible to facilitate bat surveys during the spring and summer season as per current guidance (Hundt 2012). However, surveys during the spring and summer season were undertaken during 2012. Although splitting the survey period across two survey years is sub-optimal, the results obtained were consistent with surveys undertaken in previous years in relation to the Strathy North Wind Farm scheme. In addition the northern latitude and general low suitability of the Survey Area for use by bats further suggests that the risk posed to bats on the Site will be very low. Overall data gathered from the Bat Survey Area in 2011 and 2012 combined with the data detailed within the Strathy North Environmental Statement provides a high level of detail of bat activity across the Site.

The transect route (Figure 8-7) was somewhat restricted due to health and safety considerations in relation to traversing areas of heavy brash and uneven ground in close proximity to watercourses during hours of darkness. On the transect survey during August 2011 listening point 14 was inaccessible due to a road collapse and the transect commenced at a location between listening point 14 and 13.

During 2011 static surveys, prior to the current guidance being published, only two static detectors were deployed based on an assessment of the Site to support very low bat activity. However, with current guidance published in 2012 the number of static detectors was increased to eight for the 2012 season.

1 A bat pass is classified as the presence of a species within a single Anabat file.

All results are presented as activity per unit time which accounts for variation in survey effort. However, it is acknowledged that survey effort across the turbine envelope is not uniform.

No significant other limitations were experienced during the surveys.

5 RESULTS

Habitat Assessments

The Survey Area at Strathy Wood is dominated by open habitats with significant areas of heathland and moorland habitats over previously forested areas. Substantial coniferous woodland remains within the north, west and east of the Survey Area with further recent broadleaved woodland planting within central areas. Within the adjacent Caithness and Sutherland Peatlands SAC the habitat is almost entirely dominated by open moorland habitats with a number of small watercourses and lochans.

The River Strathy and Uair are the main features of potential value to bat populations and are likely to offer the only significant areas of foraging habitat. Other features of interest include areas of scrub, woodland edge and the Braerathy Lodge building.

Overall due to the open nature and northern latitude, the Survey Area does not offer optimal habitat for bats although some foraging habitat is present along with roosting opportunities within the Braerathy Lodge building.

Roost Assessments

Braerathy Lodge is the only building located within or in close proximity (<200m) to the Survey Area (Figure 8-7). The Lodge is a timber built 'log cabin' located within the centre of the Survey Area. The building is a single storey building with pitched timber framed roof with slate tiles. The walls are constructed from timber with large soffit boxes present. The building was generally in good condition although numerous gaps were present between the top of timber walls and the soffit boxes. A number of these areas were free of obstructions and were of sufficient dimensions to allow bat ingress. The slate roof was in good condition with only a single missing tile located above the satellite dish at the rear of the property. Flashing around the northern chimney had some areas raised that may also allow bat ingress. No damage was observed to the roof and in general the tiles were close fitting with no significant gaps or raised tiles.

A single bat dropping was identified on an external window sill on the southern elevation. No other signs of bats were identified during the external assessments.

Access was gained to all roof spaces from two loft hatches, one in the main living area and another in the annex. The roof spaces are approximately 1.2m in height at apex and the roof structure is comprised of varying timber truss structures with a low pitch making investigation close to eaves difficult.

The roof void supported very little boarding and fibreglass insulation was present throughout the majority of the area along with timber sarking throughout. This sarking was timber boarding with only one area identified to support significant gaps located within the main roof space. Approximately 15 bat droppings, consistent with those of pipistrelle were located beneath a small crack in the chipboard sarking. These had assumed to have fallen through the gap and had been deposited from bats using the space between the tiles and sarking.

Many access points for bats and birds exist along the eaves and a large access point into the roof void was present from the ground floor room used as a battery bank. This

room also had an access point cut into an external door ideal for entry by owls and bats. Within the annex roof space no signs of bats were identified

A roof void area (although only partially isolated from the ground floor) also exists above the garage which shows no evidence of use by bats.

Extensive signs of mice, rats, pine marten (see Technical Appendix 8.2) and birds were present throughout the roof void.

In addition to the lodge building, a derelict chimney structure was located at OS Grid Reference 281186 955252. This structure is the remnant of an old building and presently consists of a chimney stack approximately 3.5m tall of loose stone construction. An open fireplace entrance is present at the bottom and the chimney is open at the top with missing stone evident at some locations. The chimney is in an exposed location and although a high number of crevices are present it is unlikely that these will support any roosting bats as all crevices will be very draughty and to some degree open to the elements either on the inside or outside of the chimney structure. No evidence of use by bats was identified and it was not deemed necessary to undertake an emergence survey on the structure.

From the emergence surveys and roost inspection it appears as though a small number of pipistrelle bats are using the Braerathy Lodge building as a summer roost and are likely to use a variety of locations within the fabric of the tiled roof, eaves and flashing around chimneys. No use of the internal roof voids was identified within the survey.

Emergence Surveys

Emergence surveys were undertaken at Braerathy lodge on two occasions. The results of these surveys identified that a small number of common pipistrelle bats appear to be using the building as a summer roost.

During the July 2012 survey, two common pipistrelle bats were observed to exit the lodge building from the rear of the structure from the gaps located between the soffit board and timber wall.

During the August 2012 emergence surveys again two single common pipistrelle bats were observed to emerge, one from the rear of the structure from a gap between the soffit board and timber wall and another from close to the southernmost chimney.

All bats observed to emerge on surveys appeared to undertake a commuting flight directly north towards the River Strathy. A number of passes of bats were identified within the sheltered habitat immediately surrounding the building for foraging with increased foraging activity during the August survey when invertebrate activity was high.

Bats observed to arrive at the vicinity of the building during the surveys but not emerging were predominantly arriving from a northerly direction (River Strathy corridor).

During the July and August surveys a total of 12 and 15 bat passes were recorded respectively by the two surveyors. Bat calls were predominantly within the 45kHz range and attributed to common pipistrelle. A number of calls were in the 50kHz region and although soprano pipistrelle can call at this frequency, the total lack of calls above 50kHz suggest that all bats recorded at the Lodge are common pipistrelle.

Activity Transects

During the August 2011 activity transect only four bat passes were recorded. Three bat passes of common pipistrelle were recorded between listening points 6 and 7 north of Braerathy Lodge and a single common pipistrelle between listening point 1 and 2 (Figure 8-7). This results in mean activity per hour being calculated as 12 passes per hour at listening point 7 with values of 10 and 30 passes per hour along transect segment A and F respectively (Figure 8-7).

During the 2012 activity transects only a single bat pass was recorded in close proximity to Braerathy Lodge on the Dusk survey during August.

Static Recorders

During the 2011 survey static detectors recorded very low activity during the period of deployment with no bat activity recorded at Location 1 and 19 passes (0.48 passes per hour) by common pipistrelle at Location 4 (Figure 8-7).

During the 2012 survey period static detectors recorded increased activity across the Survey Area with common pipistrelle, soprano pipistrelle and pipistrelle species that could not be confidently assigned to either common or soprano dominating the activity forming 98% of all bat passes. Two single passes from *Myotis* bats was identified with a further seven passes that although identified as a bat could not be reliably identified to species or genera level.

Overall static detectors recorded low activity across the Survey Area (Figure 1). The highest level of activity was observed during the May 2012 deployment at Static location 3 which is located at the Braerathy Lodge which is identified to be used as a roost (Figure 8-7). Activity across the Survey Area otherwise is very low with static detectors on average identifying activity levels less than one pass per hour, with detectors within the SAC (Locations 6, 7 and 8) supporting only two passes in total throughout the survey period.

Figure 1 Average activity levels (passes per hour) at static detector locations 2011/2012

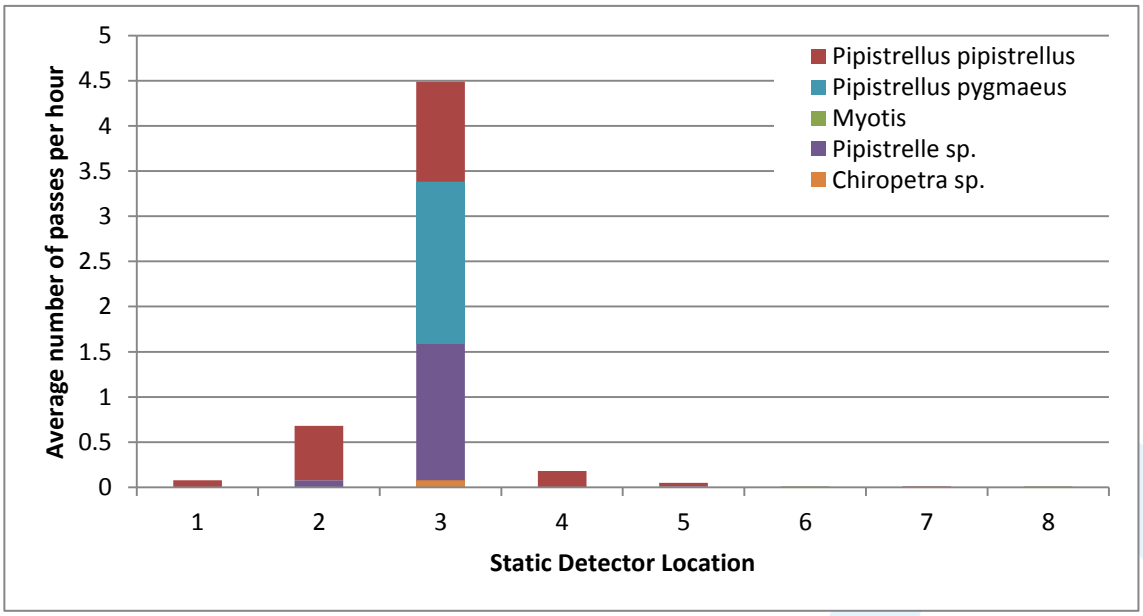
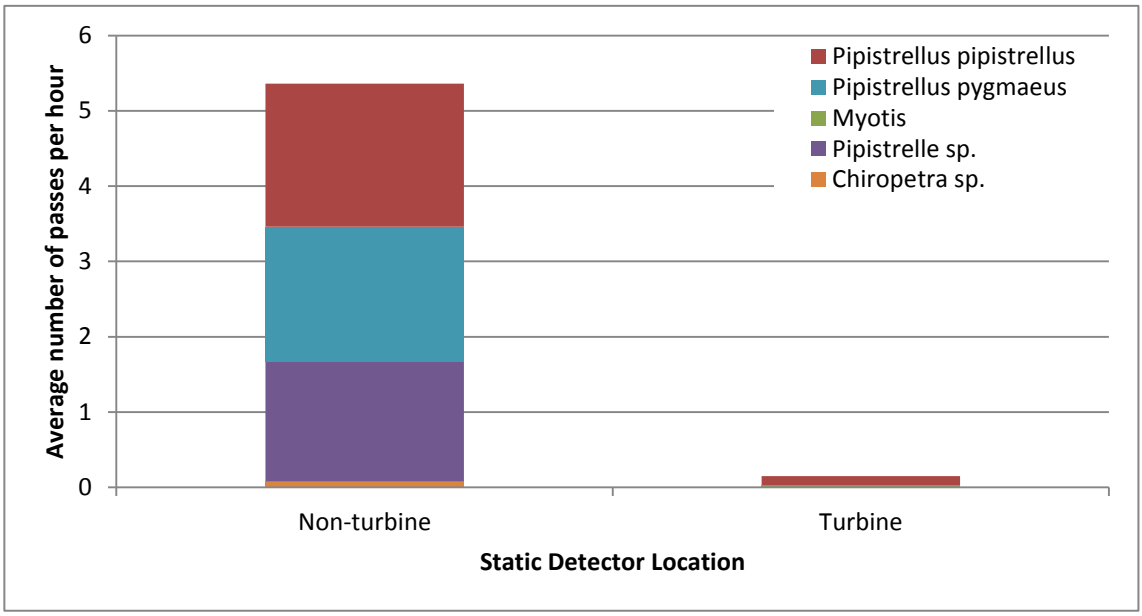


Figure 2 Average activity levels (passes per hour) from static detectors located at proposed turbine locations and non-turbine locations.



When activity levels are assessed in relation to proposed turbine locations the difference in activity is very marked (Figure 2). Almost no activity is identified at turbine locations with 30 bat passes from over 108 night time survey hours resulting in 0.3 passes per hour. At locations away from proposed turbines activity is higher, exceeding 5 passes per hour. Although when considering the criteria for determining bat activity levels in the context of the Site (Table 3) this is identified as medium level activity the numbers of individual bats is likely to be very low although this cannot be confirmed.

6 SUMMARY

The results of the single transect survey and static surveys identify that the Survey Area supports in general very low levels of activity from bats. The only location that supported any significant activity was in proximity to the Braerathy Lodge building. Overall the activity was dominated by common and soprano bat activity with only very limited activity from *Myotis* bats, with a single pass at Static Location 6. It is likely that the river corridor of the River Strathy and Uair are the only areas suitable for supporting significant bat foraging or commuting activity. It should be noted that the calculations within transects are scaled up from a small snapshot and should be interpreted with caution and static recorder results are likely to be more representative of activity within the Survey Area.

The roost at Braerathy Lodge identified during the 2006 surveys associated with the Strathy North site was confirmed as remaining active and support a small number of common pipistrelle bats (minimum of two). All commuting activity from this roost is likely to be in a northerly direction to the River Strathy and then along the associated riverine habitats. Nonetheless, the lodge is identified as a roost and is subsequently protected under the Conservation (Natural Habitats, &c.) Regulations 1994 as amended in Scotland. Any significant disturbance of this building (especially to the roof void, will require an assessment to be undertaken as to whether the bat roost is likely to be disturbed. If disturbance cannot be ruled out then it will be a legal requirement to obtain a licence to undertake certain activities that would otherwise be illegal under Regulation 44 of the Habitats Regulations.

Although the surveys undertaken in 2011 and 2012 provide only a narrow snapshot of activity, the results suggest that activity levels remain at a similar level to those identified during the 2006 surveys in relation to the Strathy North application. This suggests that the roost is stable over time supporting a small number of common and potentially soprano pipistrelle bats as a summer roost.

Pipistrelles dominated the activity recorded within the Survey Area and generally prefer to forage and commute along edge habitat, particularly along the edges of woodland and around human habitations as their type of flight, body shape and behaviour is adapted for foraging in these cluttered habitats. All species of bats tend to use linear features, such as hedgerows, or tracks as commuting routes, as these provide features by which the bats can orientate themselves in the landscape. Within open habitats, such as on this site, edge habitats may also include more subtle changes in vegetation such as scrub or marginal vegetation along rivers.

Common and soprano pipistrelles are considered to be species at medium risk of turbine impact (Natural England, 2012), with the risk of collision fatalities significantly affecting bat populations considered to be low. It is suggested that, in accordance with Natural England's published guidance, a minimum of a 50m buffer should be retained between blade tips and all woodland, riverine and significant scrub habitats. Within the landscape of the Survey Area *Myotis* bats are generally present foraging within riverine habitats and are low flying species. As a result the species are identified as being at low risk from wind turbines both at a population and individual level (Natural England, 2012).

Overall the level of bat activity is very low with bat activity unlikely to pose a significant constraint to the development of the Site for a wind energy project. The most suitable

habitat on Site is the river corridors associated with the River Strathy and Uair and through sensitive design it should be possible to further minimise impacts on bat populations within the Site. However, it should be recognised that Braerathy Lodge is identified as an active roost and the Conservation (Natural Habitats, &c.) Regulations 1994 as amended in Scotland must be taken into full account.

7 REFERENCES

Hundt L. 2012. Bat Surveys: Good Practice Guidelines, 2nd Edition. Bat Conservation Trust.

Natural England 2012. Technical Information Note TIN051 Bats and onshore wind turbines *Interim Guidance*. 2nd Edition. Natural England 2012.

Appendices

Appendix. A. Weather variables for survey dates

Deployment dates	Max Temp	Min Temp	Precipitation
30/08/2011	14°C	10°C	1 mm
31/08/2011	14°C	8°C	1 mm
24/05/2012	22°C	10°C	0 mm
25/05/2012	21°C	12°C	0 mm
26/05/2012	23°C	8°C	0 mm
27/05/2012	23°C	10°C	0 mm
28/05/2012	16°C	8°C	0 mm
29/05/2012	9°C	8°C	0 mm
30/05/2012	10°C	8°C	0 mm
01/08/2012	16°C	12°C	5 mm
02/08/2012	17°C	11°C	0 mm
03/08/2012	20°C	8°C	0 mm
04/08/2012	18°C	9°C	0 mm
05/08/2012	19°C	13°C	0 mm
06/08/2012	17°C	13°C	14 mm

Source: http://www.accuweather.com – Strathy, United Kingdom.