



Bat Activity Survey

**Land off Rockingham Roundabout, Hoyland,
near Barnsley**

Gregory Property Group

Report Reference: R-3806-04

November 2019

Report Title:	Bat Activity Survey Land off Rockingham Roundabout, Barnsley
Report Reference:	R-3806-04
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Date:	27.11.19

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Summary Statement

Survey has demonstrated that the Site is used by a low number of common species of bat, with activity focused around the eastern boundary and the off-site pond.

The proposed development is unlikely to have any significant impact on local bat populations.

Introduction

1. Subsequent to the recommendations made in Brooks Ecological's report (R-3806-01), detailed bat activity survey was commissioned for a Site located on land off Dearne Valley Parkway, Rockingham near Barnsley (grid reference SE352007).
2. These surveys are required to provide evidence of the baseline use of the Site by the local bat population, which in turn will then enable mitigation and enhancement strategies to be devised to support a future planning application.
3. The scope of the survey has been devised based on an assessment of the habitats present and to be in accordance with current best practice guidelines (BCT Survey Guidelines, 2016).

Method

4. Survey and assessment were directed by Kate Wright BSc (Hons) MSc Grad CIEEM. Kate has 4 years' experience of carrying out bat surveys in a professional capacity and is registered to use the Class Survey Licence CL17 (Bat Survey Level 1). She is an active member of the West Yorkshire Bat Group.
5. The objective of the survey was to characterise how local bat populations currently make use of the Site, so that an accurate assessment of the potential impacts of development could be made. Transect and remote monitoring surveys were carried out to collect the following data (BCT Survey Guidelines, 2016):
 - the assemblage of bat species using the Site;
 - the relative frequency with which the site is used by different species;
 - the nature of activity for different bat species, for example foraging, commuting and roosting.

Transects

6. Transects began around sunset and continued up to two hours after when all bats were thought to have emerged, and thus were actively foraging and commuting. Conditions and dates are summarised in the table overleaf.
7. Each transect was walked by a single surveyor, equipped with a heterodyne detector as well as a Titley Scientific Anabat Express, used to track the transect route and aid species identification. Notes taken during the survey were then used to produce the activity 'heat map' seen in the below figures.

Table 1 Transect survey summary.

Survey	Date	Weather	Invertebrate Activity
Spring	24.04.19	Dry, 90% cloud cover, light breeze (B1). Temperature 12°C (start) to 11°C.	Moderate
Summer	01.07.19	Mild, clear, dry, 10% cloud cover. Moderate breeze (B2-3). 14°C.	Moderate-High
Autumn	05.09.19	Dry with 20% cloud cover. Light breeze (B1). 14°C.	Moderate

Remote Monitoring

8. To supplement data collected during each of the walked transects, static monitoring devices (Wildlife Acoustic SM4's and SMZC's) were deployed in strategic locations around the Site prior to the start of each survey.
9. Data collected during the periods of remote monitoring has been run through Kaleidoscope Pro software, which can identify bat calls down to species level (except for *Myotis*). Identification is generally correct when using this software; however, results are double checked to ensure accurate data analysis.
10. Every effort is made to split up *Myotis* calls down to species level. This is done by analysing calls on Analook software and looking at parameters such as inter-pulse interval, call duration, slope and maximum/minimum/peak call frequency. However, this can often be difficult when registrations are short in duration, faint or distorted by cluttered environments.

Limitations

11. Static monitoring can only reliably provide information on what species of bat are regularly making use of a site. More detailed information on bat activity, such as frequency of bats, nature of activity (foraging, commuting, flight path), etc. can only be gleaned through walked transects. The frequency of calls recorded can, to some extent, suggest whether activity on site is low, moderate or high, by comparing data collected with that of similar sites that have been surveyed.
12. A single registration can account for up to 15 seconds of continuous bat call. Large batches of registrations can be interpreted in several different ways, i.e. a single bat foraging continuously for only an hour can result in many hundreds of registrations being logged; similarly, many hundreds of bats commuting quickly past the detector can result in the same number of registrations.

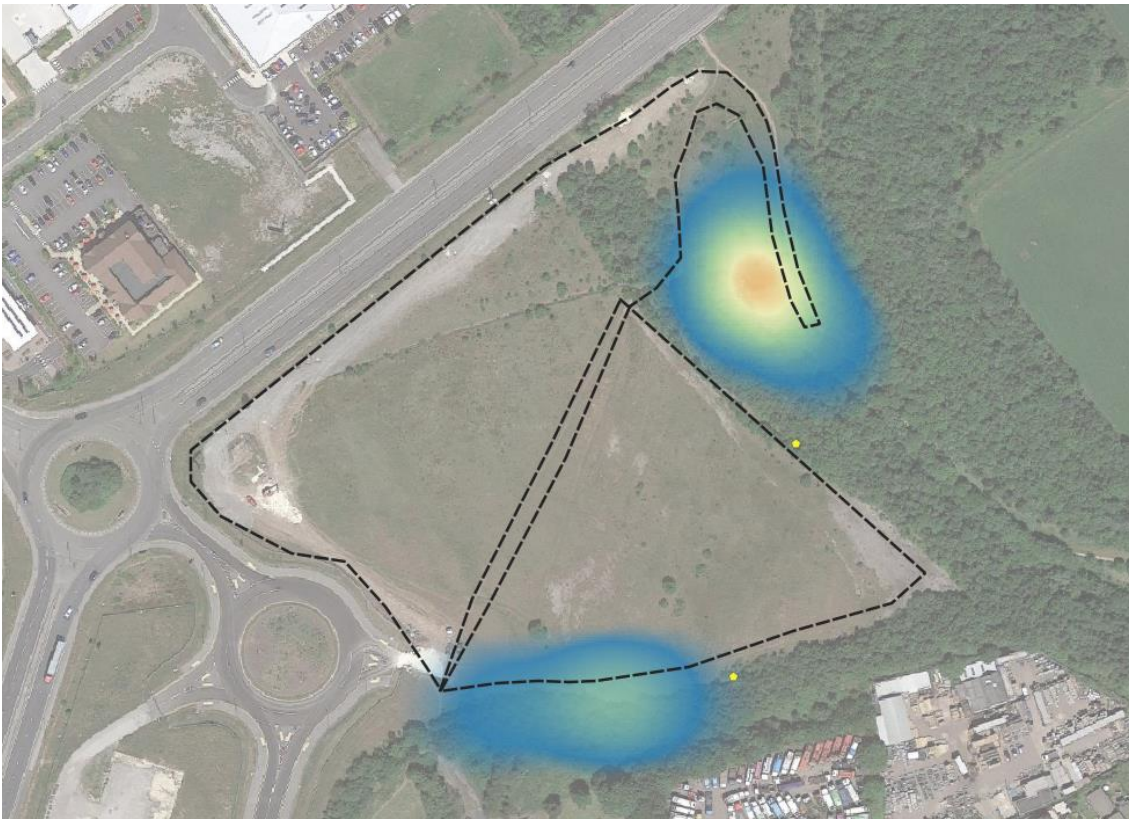
Results

Spring (April 2019)

Transect

13. An approximate route walked by the surveyor is shown in Figure 1 below. The survey began at the pond on the north eastern border of the site and proceeded south west along a footpath onto the open field. A full clockwise circuit of the field was completed, taking in habitat both along the roadside and woodland boundaries before reaching the pond again. The second circuit following the diagonal path across the interior of the Site, before following the boundary in an anti-clockwise direction and finishing at the roundabout on Sheffield Road.
14. The survey began at 21:20, almost an hour after sunset (20:22). Constant foraging activity was noted around the pond by at least two common pipistrelle bats.
15. Very little activity was noted as the transect proceeded around the Site, with no calls noted around the north, west or east boundaries.

Figure 1 Summary of Spring transect.



16. Brief and faint calls were registered at the south-west corner of the site close to the roundabout/site entrance at 21:48. As the survey proceeded along the woodland edge along the southern boundary, these were revealed to be foraging calls by a common pipistrelle bat.
17. Overall, low levels of activity were noted during the transect, these being focused along the woodland edge to the south of the Site, and around the pond.

Remote Monitoring

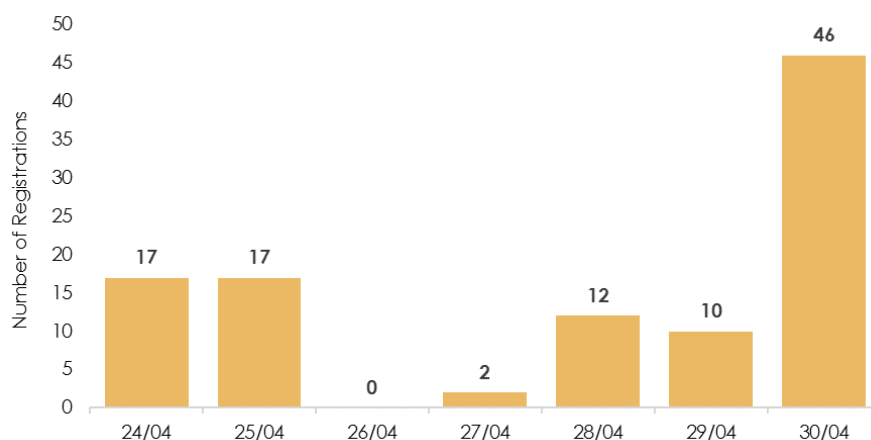
18. Two remote detectors were deployed - one along the centre of the southern boundary and the other along the woodland edge on the eastern boundary. The detectors were placed prior to the start of the walked transect and left to run for seven consecutive nights at the end of April 2019. Data collected during this period are summarised in the table below.

Location 1 – Eastern Boundary

Table 2 Total registrations logged for each species, per night (Spring 2019).

Species	24th	25th	26th	27th	28th	29th	30th	Total
Common Pipistrelle	10	8			9	6	10	43
Noctule	4	4		2		1	2	13
Leisler	3	5			3	3	34	48
Total	17	17	-	2	12	10	46	104

Figure 2 Number of calls registered at Location 1 (Spring 2019).

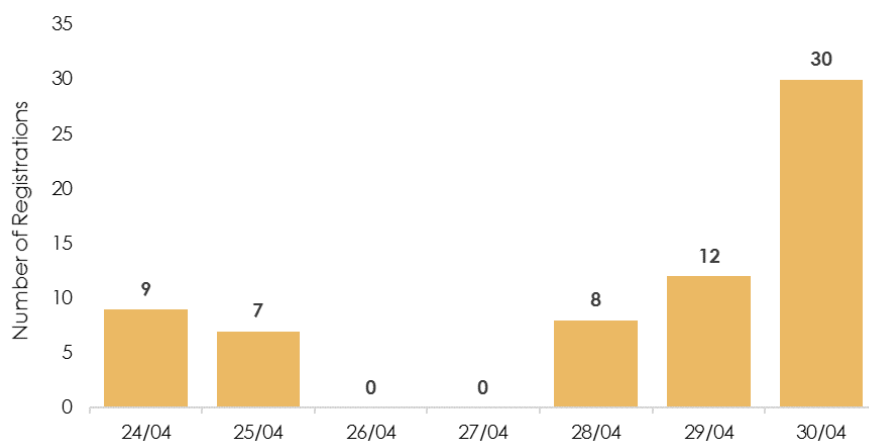


Location 2 – Southern Boundary

Table 3 Total registrations logged for each species, per night (Spring 2019).

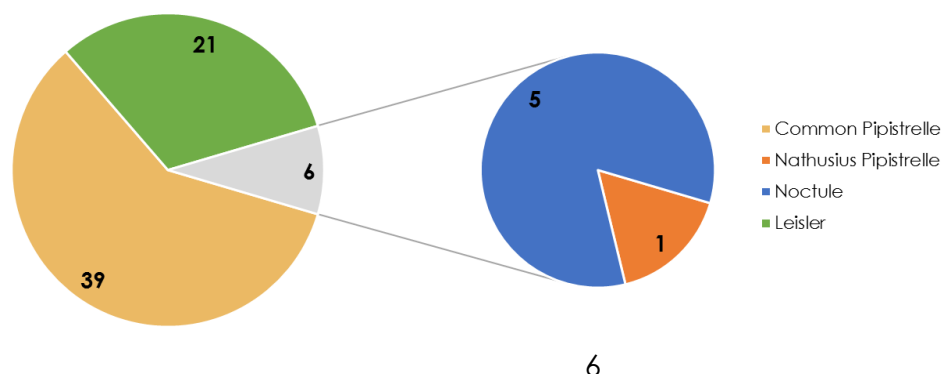
Species	24th	25th	26th	27th	28th	29th	30th	Total
Common Pipistrelle	7	4			6	8	14	39
Nathusius Pipistrelle							1	1
Noctule		3			1	1		5
Leisler	2				1	3	15	21
Total	9	7	-	-	8	12	30	66

Figure 3 Number of calls registered at Location 2 (Spring 2019).



19. Four species of bat were recorded making use of the Site during this period. Activity during this period can be considered to be very low, averaging under 15 registrations per night. A single call consistent with that of the less commonly recorded Nathusius Pipistrelle was noted, although this was slightly distorted.

Figure 4 Proportion of each bat species recorded at both locations (Spring).

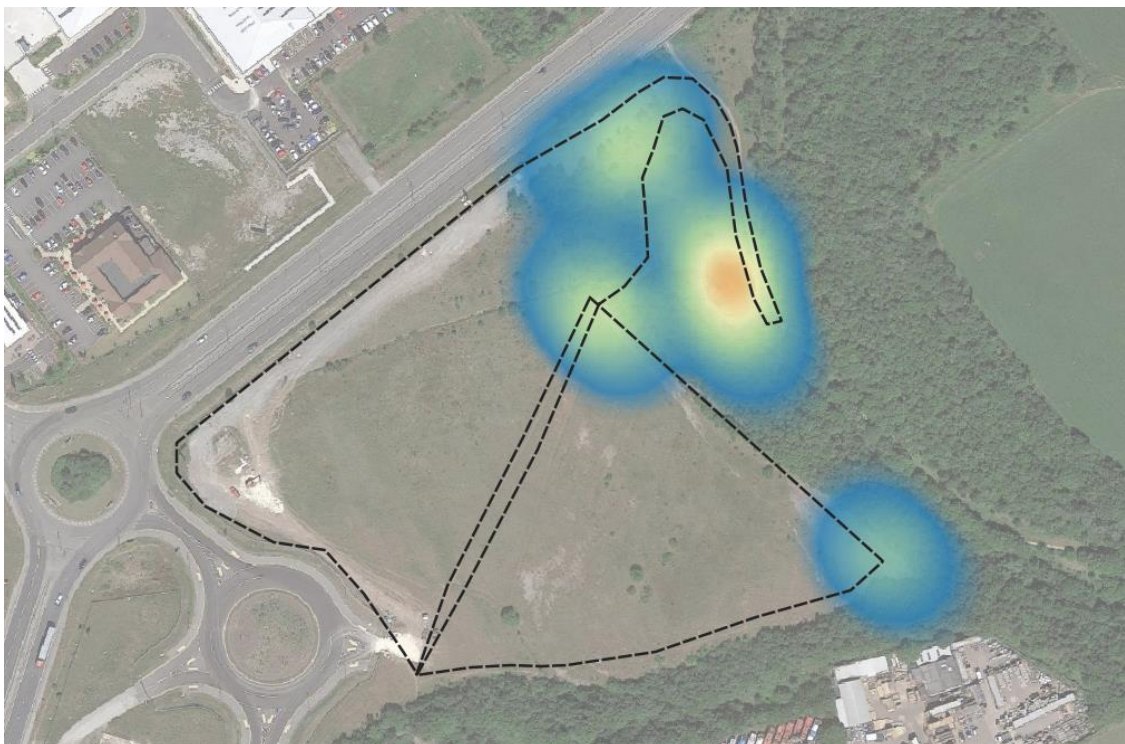


Summer (July 2019)

Transect

20. A similar route to that taken during the Spring transect was followed during the summer visit. The survey commenced at sunset (21:38).
21. Similar patterns of activity were observed to the Spring survey. Activity was very much focused around the pond area, where a small number of *Pipistrelle* bats were recorded foraging.
22. The only other activity on the Site was a single common pipistrelle foraging along the woodland edge near the footpath entrance to the pond, and in the south-east corner.
23. No activity was noted around the north, west or south boundaries of the Site, or in the interior.

Figure 5 Summary of Summer transect.



Remote Monitoring:

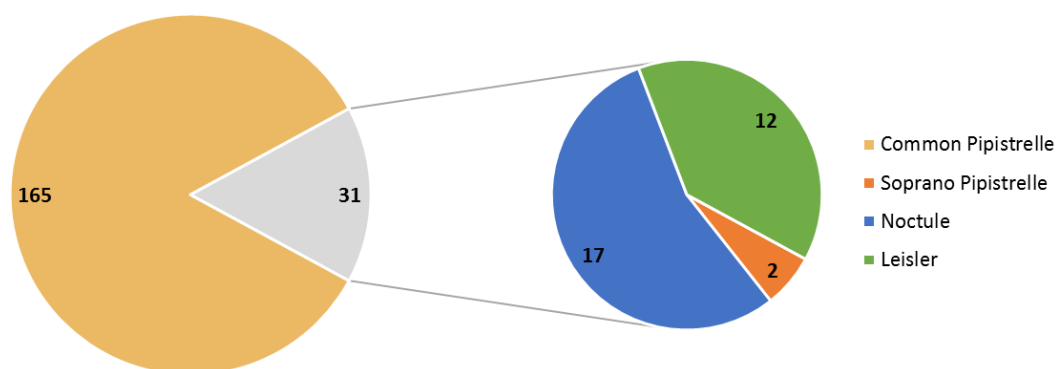
24. A single remote detector was deployed along the eastern boundary prior to the start of the walked transect and left to run for nine consecutive nights.
25. Data collected during this period are summarised in the table overleaf.

Table 4 Total registrations logged for each species, per night (Summer 2019).

Species	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	Total
Common Pipistrelle	8	10	20	24	20	21	28	8	26	165
Soprano Pipistrelle	-	-	-	-	-	-	1	-	1	2
Noctule	-	-	-	3	-	3	4	-	7	17
Leisler	-	2	-	-	-	9	1	-	-	12
Total	8	12	20	27	20	33	34	8	34	196

26. Activity broadly reflects the levels observed during the walked transect, with a low number of calls being registered along the eastern wooded boundary.
27. Four species of bat were logged making use of the site during the summer monitoring period, with Common Pipistrelle being by far the most frequently recorded. Other species noted were soprano pipistrelle, Noctule and Leisler – the very low numbers of calls attributed to these species likely reflecting occasional passes over the Site.

Figure 6 Proportion of each bat species recorded in Summer.

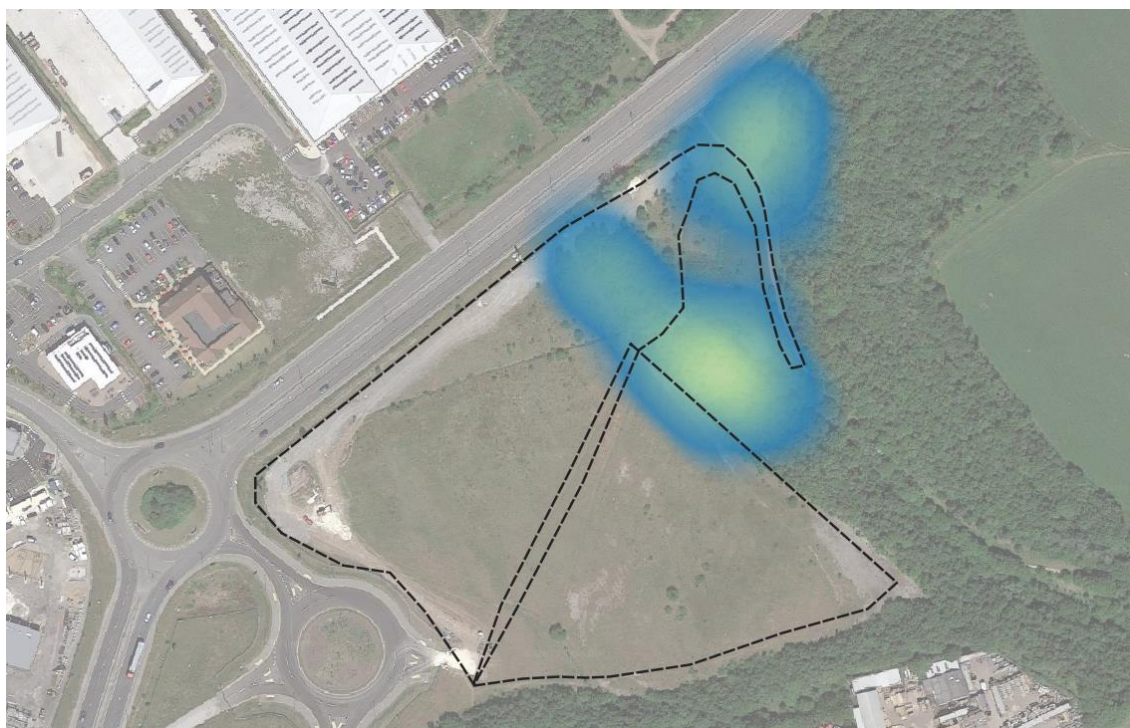


Autumn (September 2019)

Transect

28. A similar route was walked to that of previous transects, commencing at 20:02, 15 minutes after sunset.
29. Bat activity was again very low across the Site, with no bat calls being registered across the open area of the plot.
30. Activity was focused around the wooded boundary to the north-east, and beyond this around the pond.
31. Calls were attributed to common pipistrelle, with a maximum of two bats seen at any one time. A Noctule was also heard passing over the Site.

Figure 7 Summary of Autumn transect.



Remote Monitoring:

32. A single remote detector was deployed along the eastern boundary prior to the start of the walked transect and left to run for five consecutive nights.
33. Data collected during this period are summarised in the table overleaf.

Table 5 Total registrations logged for each species, per night (Autumn 2019).

Species	5 th	6 th	7 th	8 th	9 th	Total
Common Pipistrelle	1	1	20	15	3	40
Soprano Pipistrelle	-	-	2	-	-	2
Noctule	-	-	4	-	1	5
Total	1	1	26	15	4	47

34. Three species of bat were recorded making use of the Site during this period, with most calls relating to common pipistrelle. Activity during this period can again be considered to be very low, with an average of under 10 calls being recorded each night.

Conclusion & Recommendations

35. Seasonal bat activity surveys covering the Spring, Summer and Autumn periods of 2019 have found the Site to be of relatively low importance to the local bat populations.
36. Activity over the Site itself was extremely low, with very occasional calls by *Nyctalus* species (Noctule and Leisler) and Pipistrelle passing overhead. Walked transects have found activity to be focussed along the woodland edge boundaries, with the most sustained levels of activity being around the pond immediately off-site to the north-east.
37. Remote monitoring has revealed the Site is used by up to five species of bat, with common pipistrelle consistently making up the bulk of this activity across all three seasons.
38. In comparison to other Site's surveyed in the local area, activity levels can be assessed as being relatively low across each monitoring night, and throughout each monitoring season. The data collected does not point to the Site being of any significant importance to any species.
39. Whilst the interior of the site is poorly used by bats and is considered to provide sub-optimal foraging habitat, the woodland edge habitats – particularly the northern end of the eastern boundary – and the off-site pond are more frequently used, as demonstrated during the walked transects. This level of activity is likely to be under-recorded in the remote monitoring data due to the location of the static monitors, which were situated in a more discreet part of the boundary to minimise the risk of interference by members of the public.

40. Based on the information collected, it is recommended that woodland boundaries are retained as much as practical. This will both preserve the woodland edge foraging habitat and buffer the pond from impacts such as light spill.
41. To minimise the impact of development of this group further, the following mitigation is recommended.
 - A sensitive lighting plan should be designed to show how light spill will be minimised/avoided along the eastern boundary.
 - Woodland plantation along the eastern boundary should be retained and enhanced to maximise their value to bats and other local wildlife.
 - Bat boxes should be installed on several retained mature trees along the eastern boundary, away from disturbance and light spill.

References

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