

Bat Activity Survey
Land of Barnsley Road, Denby Dale

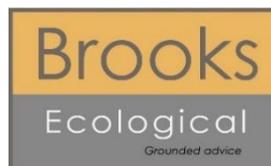
Strata

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25/11/2021

Report Title:	Bat Activity Survey Land of Barnsley Road, Denby Dale
Report Reference:	ER-5319-03.1
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Summary Statement

The Site attracts only low-level irregular foraging, by a limited range of common bat species.

Standard mitigation is recommended to minimise any residual impacts on this group.

Introduction

1. Brooks Ecological was commissioned by Strata to carry out detailed Bat Activity Survey at the proposed development Site at Land of Barnesley Road, Denby Dale
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 planning application.
3. The scope of the survey has been devised based on an assessment of the habitats present, the results of previous activity surveys and in accordance with current best practice guidelines (Bat Conservation Trust, 2016).

Figure 1 Site location plan



Method

4. Survey and assessment was directed by Joshua Birchall BSc (Hons) ACIEEM. Josh has over 6 years of professional bat survey experience, is a member of the South Lancashire Bat Group and is also registered to use the Class Survey Licence WML CL17 (Level 1).
5. The objective of the survey was to collect up to date information on the Site's use by local bat populations, so that an accurate assessment of the potential impacts of development could be made. A transect and remote monitoring survey was carried out to collect the following data (Bat Conservation Trust, 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.

Survey Conditions

6. Walked transects were undertaken in Summer and Autumn 2021, during optimal survey conditions. Survey conditions are summarised below:

Table 1 Survey Conditions

Survey	Date	Sunset	Weather	Invertebrate Activity
Summer	25.08.21	20:14	16°C, dry, overcast. Beaufort (B) 1.	Moderate
Autumn	12.10.21	18:18	11°C, rain prior to survey but dry during. B0.	Low

Transects

7. 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.
8. The transects were walked by a team of two surveyors, 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.
9. Blue shades on the heat map correspond with low activity defined by up to 2 individuals intermittently recorded, yellow tones indicate more prolonged spells of activity by 2 -5 individuals whilst red tones indicate higher and consistent activity levels of 5 or more bats.

Remote Monitoring

10. To supplement data collected during the walked transect, static monitoring device/s (Wildlife Acoustic SM4) were deployed in a strategic location on-site prior to the start of the walked transect.
11. Data collected during the period 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.
12. Every effort is made to split up *Myotis* calls down to species level. This is done by analysing calls on Anabook 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

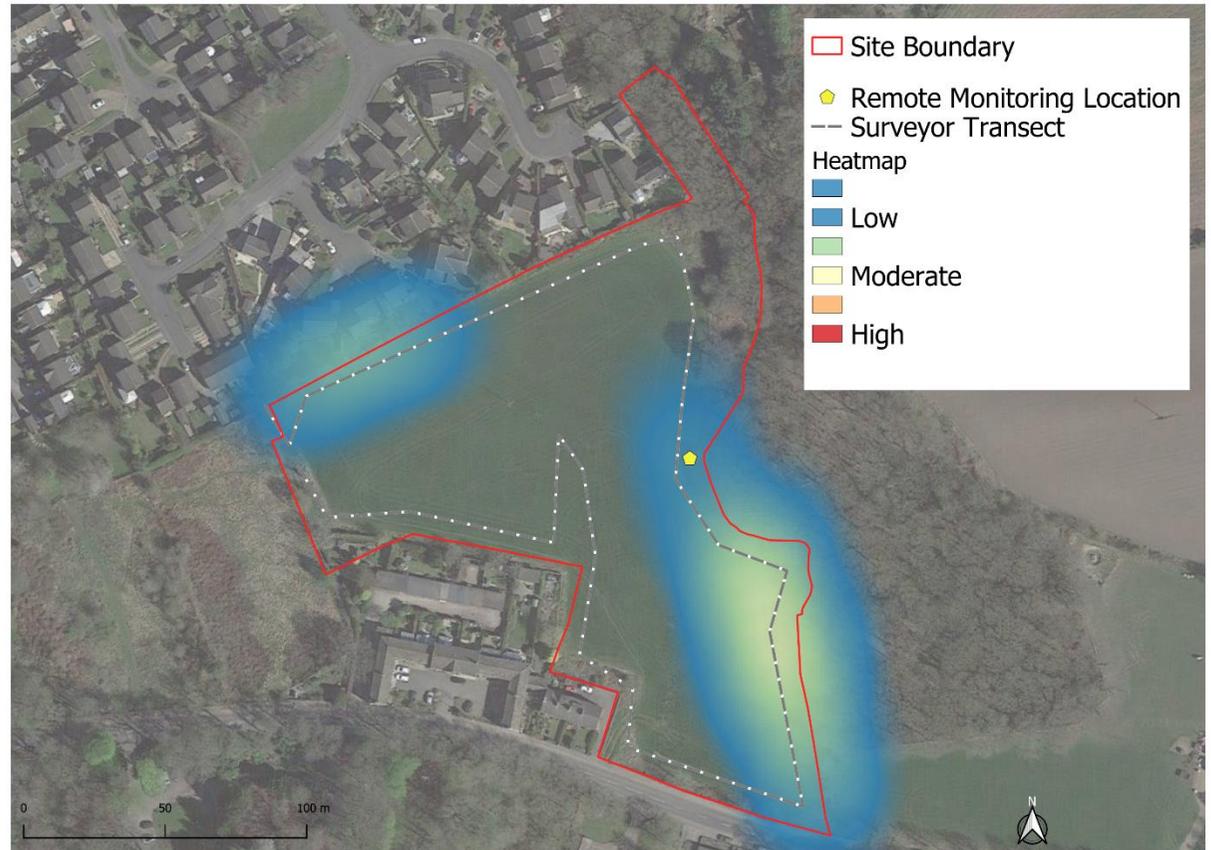
13. Static monitoring can only reliably provide information on what species of bat are regularly making use of a site. More detailed information on bat activity, such as frequency of bats, nature of activity (foraging, commuting, flight path), etc. can only be gleaned through walked transects.
14. The 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.
15. 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.

Summer Results

Walkover Transect

16. The survey started at the north-western corner of the Site before progressing clockwise around the boundary. Two laps of the field were walked in total.
17. The first bat was encountered at the northern boundary at 20:50; this being a solitary common pipistrelle foraging along garden boundaries. This activity was noted again later in the survey at 21:13, and considered likely the same bat.
18. At 21:00 a single soprano pipistrelle was noted foraging along the woodland edge to the south east of the Site. This was joined briefly by two other pipistrelle bats (likely common and soprano) bats but was back down to singular activity by 21:09. This concluded observed bat activity.

Figure 2 Summary of bat activity observed during walked transect



Summer Results

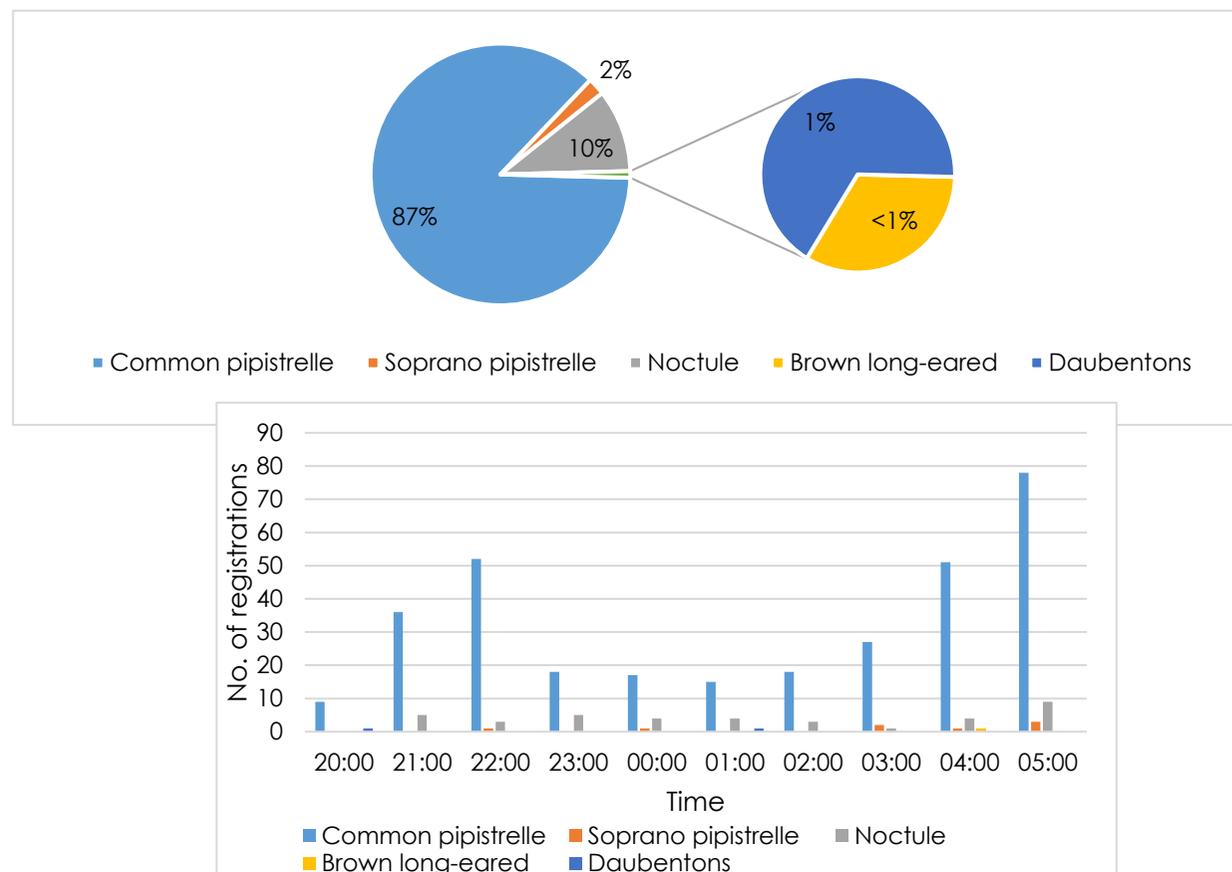
Remote Monitoring

19. A single remote detector (Song Meter SMZC) was deployed along the woodland edge, as shown in Figure 2. This was left to run for 5 consecutive nights, from the 25th to the 29th August 2021.
20. The number of registrations is low when compared to similar Sites, as Sites can frequently have up to thousands of registrations per night. Alongside the observations of low level foraging during the transect this can be taken as indicative of lower levels of bat activity.
21. Activity was dominated by common pipistrelle typical of a sub-urban fringe location. The species mix is otherwise typical with all species being widespread.
22. Common pipistrelle registrations show two peaks, in the early evening and late morning, such activity may be indicative of bats coming and going from a nearby roost.

Table 2 Total number of registrations logged for each bat species, per day across the summer period.

Species	25 th	26 th	27 th	28 th	29 th
Common pipistrelle	154	39	36	31	61
Soprano pipistrelle	5	2	0	0	1
Noctule	11	10	5	9	3
Brown long-eared	1	0	0	0	0
Daubenton's	0	0	1	1	0

Figure 3 Showing species mix and number of registrations per species per hour.

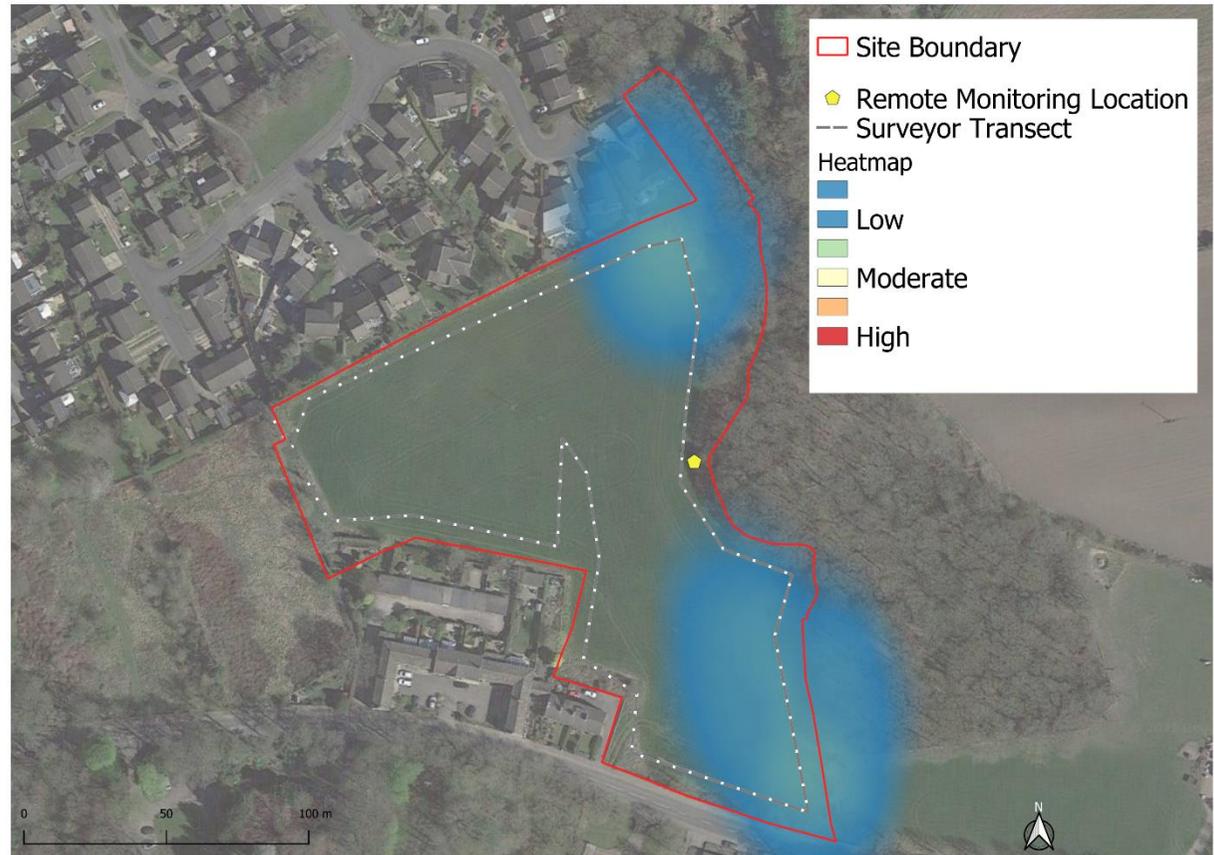


Autumn Results

Walkover Transect

23. The survey again began at the north-eastern corner, but this time proceeded in an anticlockwise direction and taking in several laps of the Site.
24. The first bat encountered was a single common pipistrelle foraging at the south-eastern woodland boundary at 19:03.
25. A second common pipistrelle was noted at the north-eastern boundary, again along the woodland edge at 19:32, this was a brief contact likely to represent a single individual foraging nearby.
26. No further bat activity was noted.

Figure 4 Summary of bat activity observed during walked transect



Autumn Results

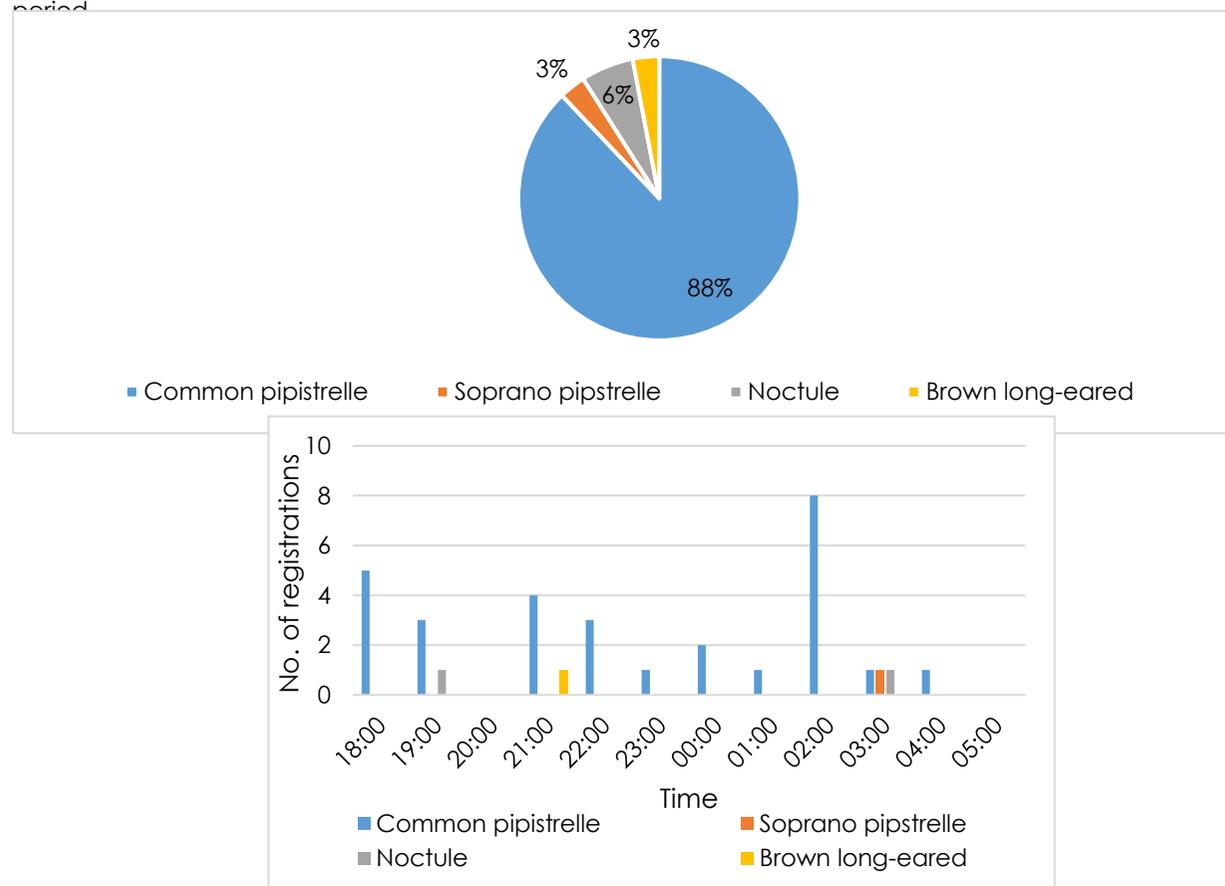
Remote Monitoring

27. A single remote detector (Song Meter SMZC) was deployed in the same location as before, as shown in Figure 4. This was left to run for 5 consecutive nights, from the 12th to the 16th October 2021.
28. Bat activity is normally expected to reduce between the summer and autumn periods. As might be expected the monitoring has returned very low levels of bat registrations which alongside the walked transect paints a picture of very low levels of bats activity. Such numbers of registrations are extremely low, even when compared to sites with poor habitat.
29. Again common pipistrelle dominate recordings with a similar array of common and widespread species recorded, typically only featuring one or two registrations each.
30. The registrations per hour, unlike previously, does not really show any significant peaks or troughs in activity.

Table 3 Total number of registrations logged for each bat species, per day across the autumn period.

Species	12 th	13 th	14 th	15 th	16 th
Common pipistrelle	4	0	9	3	13
Soprano pipistrelle	0	0	0	0	1
Noctule	1	0	1	0	0
Brown long-eared	0	0	0	0	1

Figure 5 Species mix and registrations per species logged for each hour across the autumn monitoring period.



Evaluation

31. Evaluation of foraging and commuting habitat is made with reference to Wray *et al* (2010). This uses a scoring system to assess the Site's importance to bats against a geographic frame of reference.

Table 4 Scoring system for valuing commuting and foraging habitat

Geographic Frame of Reference	Score
International	>50
National	41-50
Regional	31-40
County	21-30
District, Local or Parish	11-20
Not Important	1-10

32. Using the above methodology, the Site is assessed as follows:

Foraging

33. Mostly individuals (5) of common species of bat (2). Potential for small roosts nearby (3), with woodland patches and small towns and villages (3).
34. Total of **13 points**. The Site is of local value to bat populations.

Commuting

35. Individuals (5) of common species of bat (2). Potential for small number of roosts (3) with small-moderate fields (3).
36. Total of **13 points**. The Site is of local value to bat populations.

Conclusions

37. Two bat activity surveys covering the summer and autumn periods, have revealed very low levels of bat activity at the Site.
38. Walked transects have recorded only low-level irregular foraging by common and soprano pipistrelle bats, with activity focussed along the northern and eastern boundaries.
39. Remote monitoring recorded similar low-level activity, by five common bat species, with common pipistrelle making up the bulk of this activity. Common pipistrelle activity is likely indicative of the Site's location next to a well-lit road which may be off putting to species less tolerant of disturbance.
40. Moderate levels of foraging were recorded briefly during the summer transect, though activity was generally characterised by individual foraging bats.
41. The data collected during this, and previous survey effort, does not point to the Site being of any significant importance to any particular local bat populations.
42. Proposals show development will be mostly confined to the field interiors, with boundaries being largely retained. It is still important the development avoids unnecessary lighting of the woodland which will be off-putting to bats and other nocturnal animals.
43. Although the full compliment of seasonal activity surveys as not been completed, (i.e. missing the spring transect data), given the very low levels of bat activity observed, it is considered unlikely that further survey will reveal any additional useful information. As such a spring transect would not be deemed necessary in this instance.

Recommendations

44. Based on the information collected and the sensitive design of the masterplan, the proposed development is unlikely to impact significantly on the local bat populations.
45. However, efforts should be made to minimise additional light spill onto the woodland adjacent to the eastern boundary during and post development. This should include a sympathetic lighting plan designed to avoid/ minimise light spill.
46. Avoid excessive lighting to eastern boundary of the site, such as security lights.
47. If possible incorporate native tree species buffer planting along the eastern boundary to absorb unavoidable light spill.
48. Where lighting is required here or elsewhere around the site, then follow the below:
 - Use an LED light with a reduced spectrum in preference to lights featuring UV and blue light.
 - Use low level columns or bollards and direct lighting downwards.
 - Set external security lighting on a motion sensor with a short timer (one minute).
 - Reduce light spill using baffles, hoods, or louvres.
 - Within buildings, set lights back into rooms to reduce spill, and use glazing treatments to obscure light.

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