Main Avenue, Kirklees

Bat Activity Survey - Interim

Report Ref: ER-7172-05

25/11/2024

Strata Homes Ltd/Thirteen Group Ltd

Report reference	**ER-7172-05 - Bat Activity**
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Date	25/11/2024
Report duration	In accordance with CIEEM (2019), unless otherwise stated the findings of this report remain valid for a period of 18 months. After this period advice should be sought on the scope of any updating work required.

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Summary Statement

Seasonal bat activity surveys are currently underway at the Site, with the results of the spring, summer and autumn survey (transect) and summer and autumn (remote monitoring) reported here.

The Site has thus far been found to attract only low-level foraging by a limited range of common bat species.

As could be expected, bat activity is concentrated around the scattered trees located within the centre of the Site, with activity extending off-site to the south and a mature woodland edge.

A sensitive lighting strategy will be required to ensure off-site trees and woodland will remain a dark zone following development.

Spring (April/May) remote monitoring surveys are programmed in for the following year (2025), to ensure the full baseline has been collected and to confirm the assessment made here.

Introduction

1. Brooks Ecological was commissioned by Strata Homes Ltd/Thirteen Group Ltd to carry out detailed Bat Activity Survey at the proposed development Site at Main Avenue, Kirklees.

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, 2023).

Figure 1 Site location plan

Method

4. 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 (Collins, 2023 (The Bat Conservation Trust)):

    - 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

5. Walked transects were undertaken in May, June and September 2024, during optimal survey conditions, summarised below:

Table 1 Survey Conditions

Survey	Date	Sunset	Weather	Invertebrate Activity
Spring	21.05.24	21:12	15-14°C. 50% cloud cover. Light rain towards the end of the survey only. Gentle breeze (B3).	Moderate
Summer	11.06.24	21:36	14-13°C. 100% cloud cover. Dry. Gentle breeze (B3).	Moderate
Autumn	03.09.24	19:51	14-14°C. 100% cloud cover. Dry. Gentle breeze (B3).	Moderate

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.

7. The transects were walked by a team of two surveyors, equipped with a heterodyne detector as well as a Titley Scientific Anabat Scout and/or an EM Touch 2 Pro, 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.

8. 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

9. 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.

10. 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 *Myotid*). Identification is generally correct when using this software; however, results are double checked to ensure accurate data analysis.

11. 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

12. 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.

13. 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.

14. 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.

15. Due to access restrictions, the Site could not be visited during April for monitoring purposes. Whilst monitoring was carried out in May, the detector only collected a single registration of a bat call, with all other recordings attributed to other sources. Given the results for the following months, this is not likely to have been accurate and a monitoring period will be carried out in April and May of 2025. The spring activity transect is shown here only.

16. Due to unforeseen issues with monitoring equipment, no data was collected during October. Monitoring was undertaken during very similar conditions during early November instead, with the results given here.

Spring Results

Walkover Transect

21st May 2024 (sunset: 21:12)

17. The survey began at the western entrance of the Site, proceeding along the informal footpaths through the Site and across the fields at the eastern end. An approximate route walked by the surveyors is shown in the figure opposite.
18. Activity levels were low, with single and pairs of common pipistrelle bats encountered.
19. First contact was recorded at 21:33 (21 minutes after sunset), when two common pipistrelles were heard briefly foraging along the edge of trees off-site to the south.
20. Intermittent calls were recorded throughout the survey, with bats typically found to be foraging and commuting along the informal paths through the trees in the south-west of the Site.
21. Two common pipistrelles were recorded foraging briefly around houses to the north-east of the Site at 21:52.
22. No activity by any other species of bat was recorded.

Figure 2 Summary of bat activity observed during walked transect – spring.

Summer Results

Walkover Transect

11th June 2024 (sunset: 21:36)

23. The survey began at the north-east edge of the Site, proceeding along the same route as previous, shown in figure 3 opposite.

24. Activity levels were again low, and were similar to the spring transect, with contacts limited to single common pipistrelles.

25. First contact was logged at 21:51 (15 minutes after sunset), when a solitary common pipistrelle was seen commuting over the field in the east of the Site.

26. Again, activity was intermittent with bats recorded foraging and commuting throughout the Site. A higher level of activity was noted in the north-east of the Site, with repeated passes by commuting and foraging bats.

27. Only common pipistrelles were recorded during the survey.

Figure 3 Summary of bat activity observed during walked transect – summer.

Summer Results - June

Remote Monitoring

28. A single remote detector (Song Meter SM4BAT FS) was deployed at the edge of scattered trees, close to the centre of the Site as shown in Figure 3. This was left to run for 5 consecutive nights, from the 11th to 15th June 2024.

29. With an average of 308 calls recorded per night activity is low, which seems to follow the findings of the walked transect, with single bats found passing through the Site with intermittent commuting and foraging.

30. All the calls recorded by the detector during June were attributed to common pipistrelle. Activity peaked soon after dusk, with bats likely emerging from a nearby (but off-Site) roost and using the Site for foraging. Activity drops off through the middle of the night before picking up again as bats return to the roost prior to dawn.

Table 2 Total number of registrations logged for each bat species, per day across June 2024.

Species	11th	12th	13th	14th	15th
Common pipistrelle	248	77	882	306	26

Figure 4 Proportion of each species recorded across the June monitoring period.

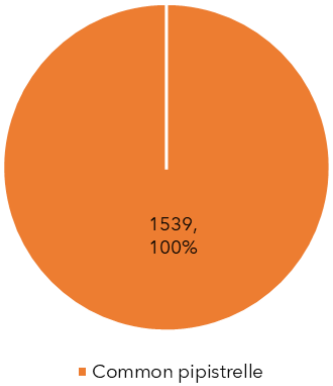
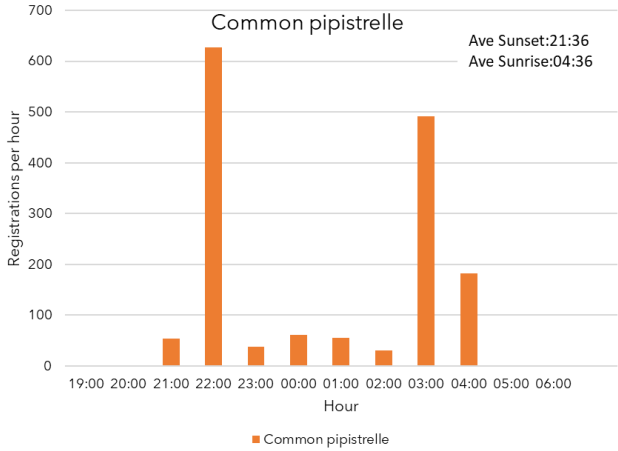


Figure 5 Registrations logged for each hour across the June monitoring period.



Summer Results - July

Remote Monitoring

31. A single remote detector (Song Meter SM4BAT FS) was deployed at the edge of scattered trees, close to the centre of the Site as shown in Figure 3. This was left to run for 5 consecutive nights, from the 24th to 28th July 2024.

32. With an average of 215 calls recorded per night activity was again low, likely attributable to single bats passing through the Site with intermittent commuting and foraging.

33. Unlike in June, other species were present, although common pipistrelle was still responsible for most calls detected (98%). Noctule, Leisler's and other *Myotis* species make up the remaining 2%.

34. Activity still showed two spikes following dusk and preceding dawn, though the greatest volume of calls was recorded prior to dawn during July. This again shows bats primarily using the Site for foraging as they leave and re-enter nearby roosting locations.

Table 3 Total number of registrations logged for each bat species, per day across July 2024.

Species	24th	25th	26th	27th	28th
Common pipistrelle	421	181	120	144	188
Noctule	1	2	0	0	7
Leisler's	2	1	0	3	0
Myotis sp(p).	2	0	0	0	1

Figure 6 Proportion of each species recorded across the July monitoring period.

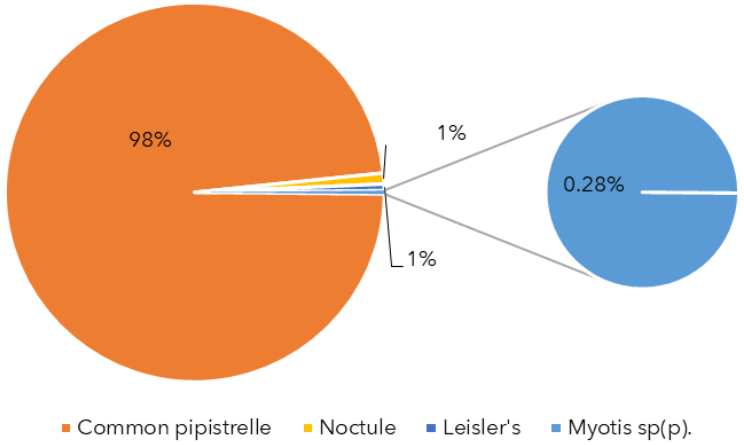
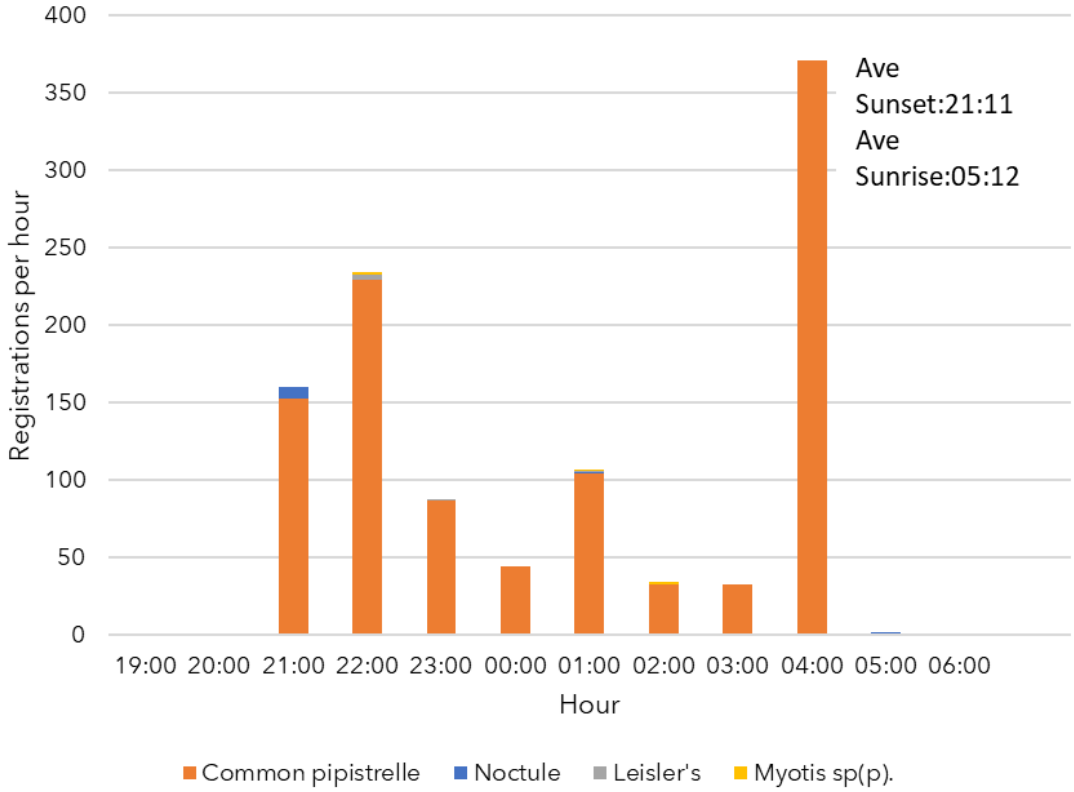


Figure 7 Registrations logged for each hour across the July monitoring period.



Summer Results - August

Remote Monitoring

35. A single remote detector (Song Meter SM4BAT FS) was deployed at the edge of scattered trees, close to the centre of the Site as shown in Figure 3. This was left to run for 5 consecutive nights, from the 15th to 19th August 2024.

36. The average number of calls per night dropped again to 215. Again, the Site appears to only attract intermittent foraging and commuting with bats moving to other more preferable areas.

37. The same species were recorded in August as July, with common pipistrelle again responsible for the vast majority of calls detected (98%). Noctule, Leisler's and other *Myotis* species make up the remaining 2%.

38. Activity was back to being highest following dusk, with a significant spike in activity in the first hour following sunset. The increase in activity pre-dawn was much smaller than previous months, but still noticeable compared to the lower activity through the middle of the night.

Table 4 Total number of registrations logged for each bat species, per day across August 2024.

Species	15th	16th	17th	18th	19th
Common pipistrelle	241	57	130	68	171
Noctule	1	2	0	0	7
Leisler's	2	1	0	3	0
Myotis sp(p).	2	0	0	0	1

Figure 8 Proportion of each species recorded across the August monitoring period.

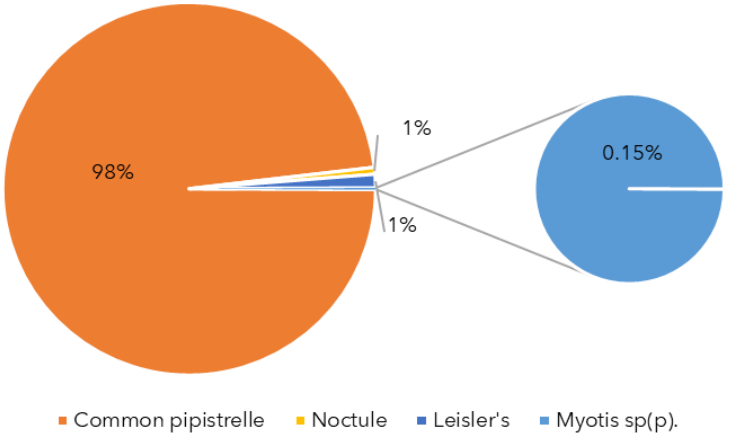
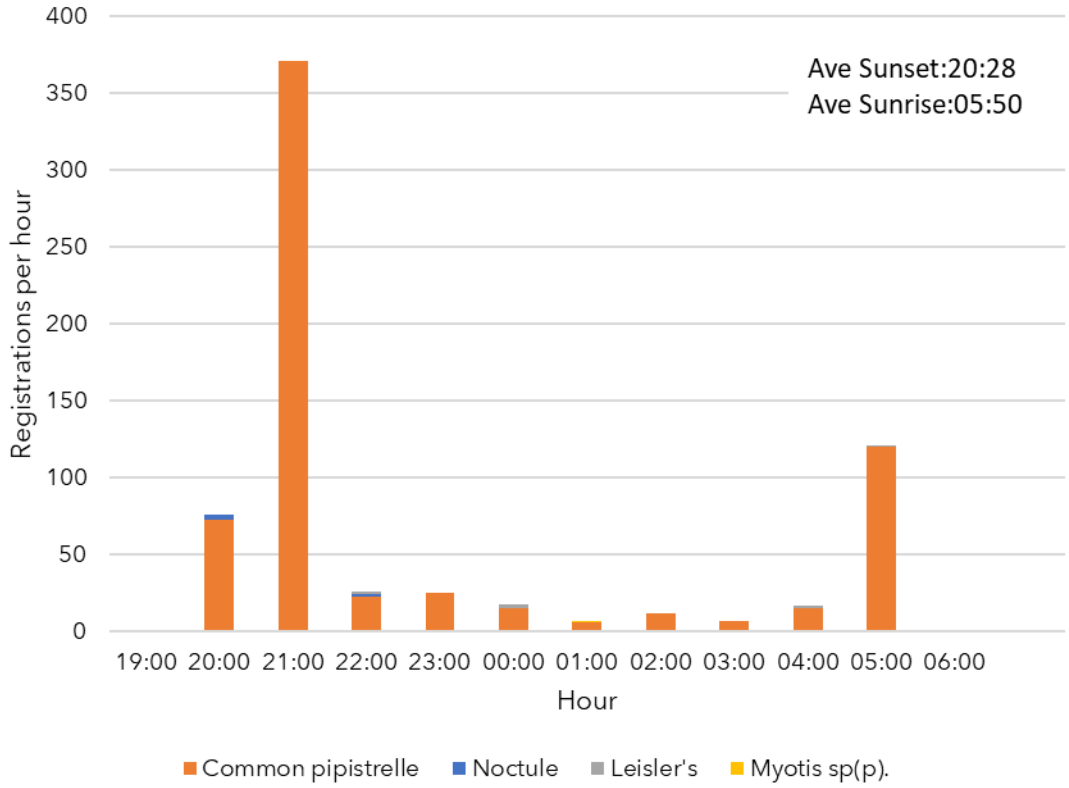


Figure 9 Registrations logged for each hour across the August monitoring period.



Autumn Results

Walkover Transect

3rd September 2024 (sunset: 19:51)

39. The same route was followed as previously, as shown in the figure opposite, starting from the end of Main Avenue in the west of the Site.

40. Activity levels were again low, with solitary common pipistrelles the only species recorded.

41. The first was seen at 20:23 (32 minutes after sunset), foraging over scrub in the centre of the Site. This was followed by more passes in this same central area, extending south towards the edges of the scattered trees.

42. A single bat was recorded passing over the western end of the Site.

43. No other species were recorded during the survey.

Figure 10 Summary of bat activity observed during walked transect – autumn.

Autumn Results - September

Remote Monitoring

44. A single remote detector (Song Meter SM4BAT FS) was deployed in the same location previously, shown in Figure 5. This was left to run for 5 consecutive nights, from the 3rd to 7th September 2024.

45. A greater variety of species were recorded during September, with common pipistrelle, noctule and Leisler's joined by brown long-eared and Daubenton's.

46. Common pipistrelle was still the most numerous (76% of registrations), but noctule and Leisler's made up a greater proportion of the total (11% and 12% respectively). The remaining percentage was made up of a very small number of calls of brown-long eared and Daubenton's.

47. With an average of 184 calls recorded per night, activity is still considered to be low.

48. Activity levels and patterns reflect those recorded during the walked transect, with a peak in c. pipistrelle activity soon after sunset (20:00) suggestive of small numbers of bats commuting through or foraging briefly on-site before transiting to more productive feeding grounds elsewhere.

Table 5 Total number of registrations logged for each bat species, per day across September 2024.

Species	3rd	4th	5th	6th	7th
Common pipistrelle	114	80	206	95	204
Noctule	36	1	17	9	37
Leisler's	56	9	25	1	24
Brown long-eared	1	0	1	1	0
Daubenton's	1	0	0	3	1

Figure 11 Proportion of each species recorded across the September monitoring period.

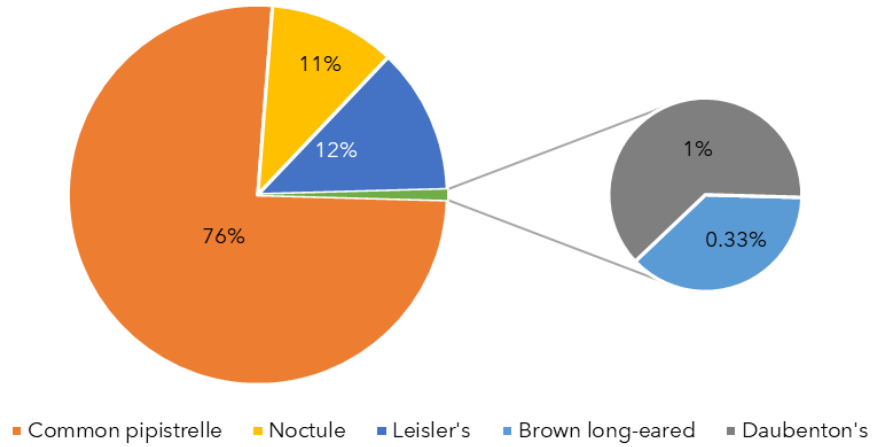
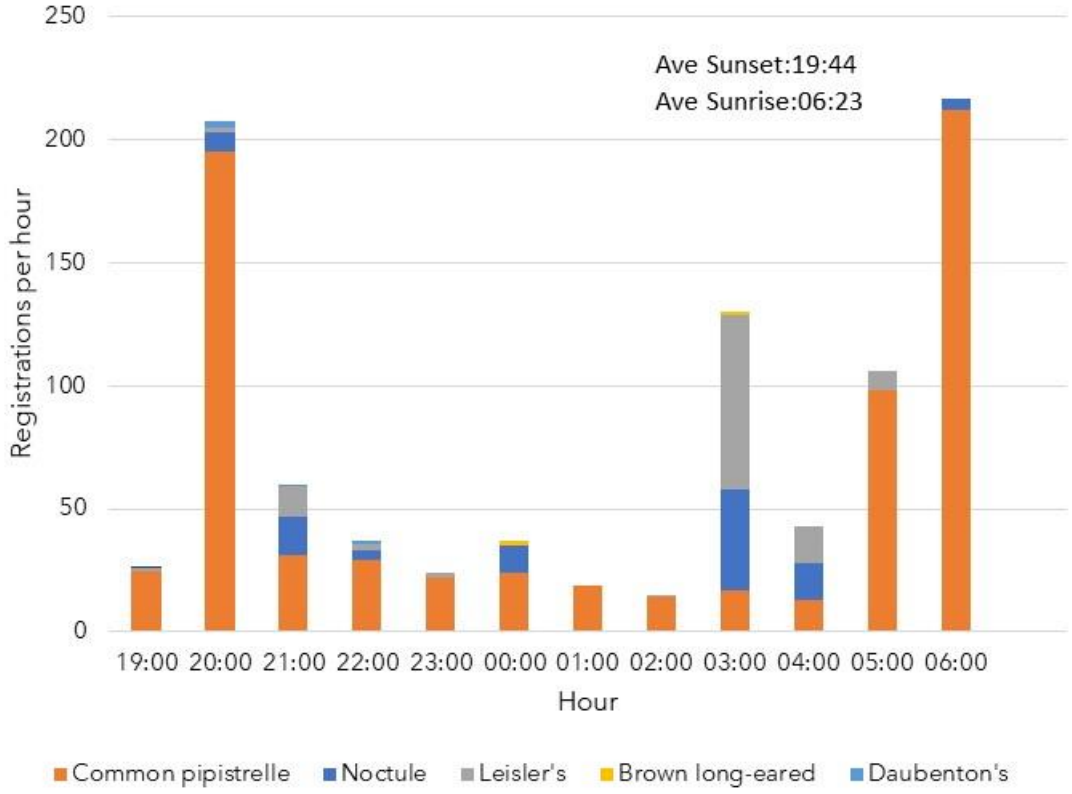


Figure 12 Registrations logged for each hour across the September monitoring period.



Autumn Results - November

Remote Monitoring

49. A single remote detector (Song Meter SM4BAT FS) was deployed in the same location previously, shown in Figure 5. This was left to run for 5 consecutive nights, from the 13th to 17th November 2024.

50. As expected for later in the season, fewer species were recorded, as well as fewer bats overall, with a total of 49 calls recorded over the five nights.

51. Common pipistrelle, noctule and Leisler's, species which have been recorded every month from July, were the three species detected.

52. Common pipistrelle was still the most numerous (63% of registrations), followed by Leisler's (27%) and then noctule (10%).

53. With an average of only 10 calls recorded per night, activity is much lower than previous months, but this is to be expected given the lower temperature and lower food availability at this time of year.

54. With fewer calls, a clear pattern is less obvious in how bats are using the Site through the night, but there is still an obvious peak early in the night, with most of the calls recorded between 21:00 and 22:00.

Table 6 Total number of registrations logged for each bat species, per day across November 2024.

Species	13th	14th	15th	16th	17th
Common pipistrelle	6	22	3	0	0
Noctule	2	1	0	2	0
Leisler's	12	0	0	1	0

Figure 13 Proportion of each species recorded across the November monitoring period.

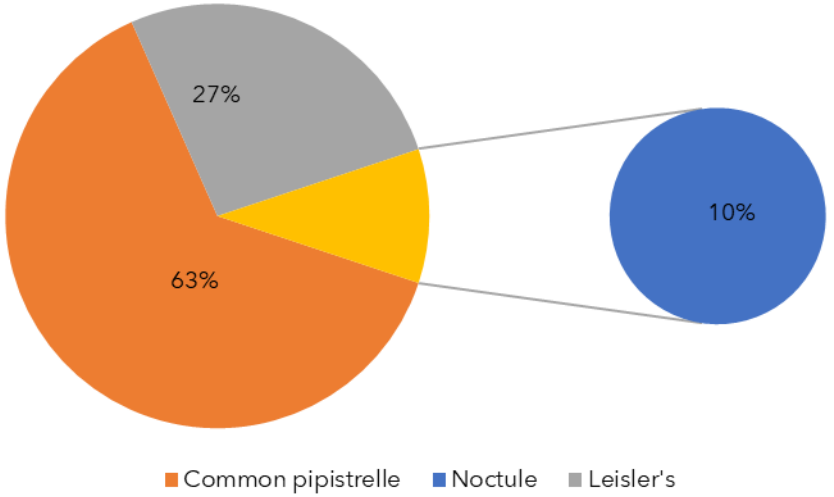
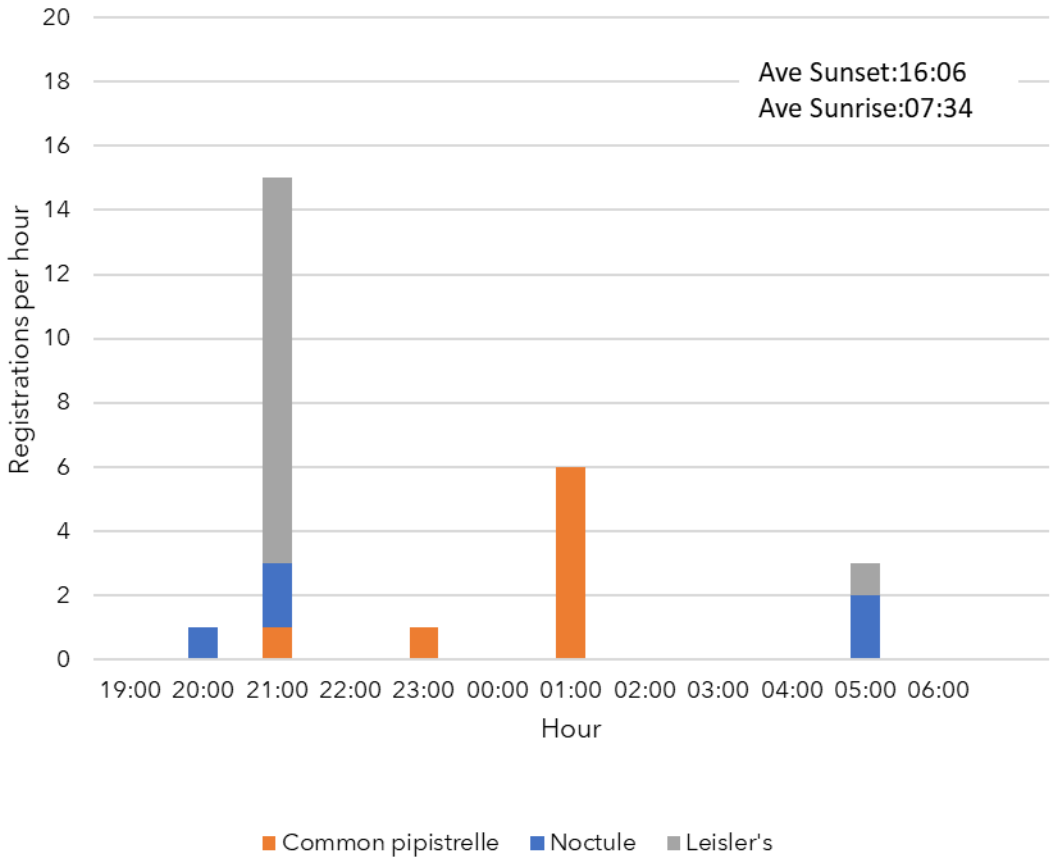


Figure 14 Registrations logged for each hour across the November monitoring period.



Conclusions

55. Transect and remote monitoring surveys carried out over spring and autumn of 2024 have found activity across the Site to be low.

56. Survey has found that activity is focussed around scattered trees located in the centre of the Site, as well as off-site to the south, towards a mature woodland edge, with some occasional activity around the edges of the Site to the west and east.

57. Activity is attributable to five species of bat, with only common pipistrelle recorded in notable numbers and during all remote monitoring months. Noctule, Leisler's, Daubenton's and brown long-eared bats were also recorded.

58. Walked transects recorded mostly low-level foraging and occasional commuting activity concentrated again amongst the scattered trees, with activity observed on the transects entirely attributed to common pipistrelle bats.

59. Remote monitoring recorded a peak activity of 1539 calls over a five-night period, averaging 308 calls per night during June. Activity tailed off in the following months down to a low of 49 calls, an average of 10 per night, during November.

60. Across the months of monitoring, nightly activity followed a similar trend, with peaks immediately after sunset as bats emerged to forage. Activity was lower through the middle of the night, before picking up again before dawn as bats returned to roosting sites on or near to the Site.

61. The data collected does not point to the Site being of any significant importance to any particular local bat populations, with activity limited to individual/small numbers of common species of bat foraging amongst scattered trees on and near to the Site.

Recommendations

62. Development here will see much of the Site's interior cleared and replaced with housing. This will result in the loss of most of the Site's structured habitat.

63. Following development, proposals include small areas of planting with urban trees, hedgerows and amenity grassland, as well as the creation of gardens. These features will provide ongoing, all be it reduced, foraging opportunities on Site.

64. To minimise the effects of development on this group further, the following mitigation is recommended.

    - A sensitive lighting plan should be designed to show how light spill will be minimised/ avoided on adjacent habitats favoured by bats, particularly that to the south.
    - Retention and/or creation of linear features providing links for common pipistrelle bats between local housing (likely roost sites) and the wider landscape.
    - Bat boxes should be installed within a number of suitable properties, i.e. predominantly positioned along the north and eastern boundaries.

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