

Interim Bat Activity Report

Westwood Mills, Linthwaite

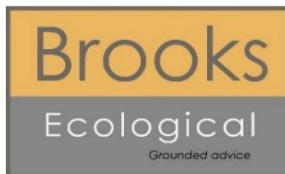
Westwood Wilson Ltd.

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Report Title:	Interim Bat Activity Report Westwood Mills, Linthwaite
Report Reference:	R-3976-03
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Summary Statement

Activity surveys during August – October 2019 have found the Site to support moderate levels of bat activity, although this is largely limited to common pipistrelle.

Activity is focussed around the mill buildings and along the northern and southern boundaries which adjoin the canal and river, respectively. Recommendations are made to mitigate for the loss of these habitats.

Further survey is scheduled for April – July 2020.

Introduction

1. Subsequent to the recommendations made in Brooks Ecological's Updating Ecological Appraisal (P-3976-01, August 2019), detailed bat activity survey was commissioned at Westwood Mills, Westwood Lane, Linthwaite (SE 094 145).
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 reference current best practice guidelines (BCT, 2016).
4. Full emergence survey of the mill buildings has been carried out in August and September 2019 and are reported in R-3976-02.

Method

5. Survey and assessment was directed by Christopher Shaw BSc (Hons) MCIEEM. Chris is registered to use the Class Survey Licence WML CL18 (Bat Survey Level 2). He is an active member of the West Yorkshire Bat Group and West Yorkshire Bat Care Scheme.
6. 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

7. Transects began around sunset and continued up to 2 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.
8. Each transect was walked by 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.

Table 1 Transect survey summary

Month	Date	Weather	Invertebrate activity
August	08.08.19	19-16°C. Dry. Calm. Clear skies.	High
September	13.09.19	15-12°C. Dry, still clear skies.	Moderate
October	07.10.19	12-12°C. Dry, Calm, 90% cloud	Low
April – July scheduled for 2020			

Remote monitoring

9. To supplement data collected during each of the walked transects, two static monitoring devices (Wildlife Acoustic SM4's) was deployed in strategic locations around the Site prior to the start of each survey. Each month, one of the devices was left to the east of the mill buildings (the location of the main body of the proposed development) – to allow comparisons between the various monitoring months. The second detector was deployed in a different location each month, so as to fully understand how bats use the different habitats on Site; such as the riparian corridors, developing woodland and grassland.
10. 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 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 myotid calls down to species level. This is done by analysing calls on Anlook 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. 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.
13. 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

August 2019

14. Transect: An approximate route walked by the surveyor is shown in Figure 1 below. The survey began in the south-eastern corner and proceeded in the clockwise direction around the Site. Within the grassland, developing woodland and tall ruderal habitat to the east, the surveyors circled these areas. This transect was walked at least 3 times, each time alternating the direction walked.
15. Bat activity was found to be moderate to high throughout the duration of the survey, with a maximum of four bats recorded at any one time. The majority of activity was attributed to common pipistrelle foraging around the vegetation bounding the two off-Site watercourses, around the mill buildings and above the developing woodland. Individual bats were logged entering the Site from the east and from the north-east over the canal.
16. The occasional noctule was also recorded, alongside a single myotis- inspection of the Anabat Express confirmed this to be a Whiskered bat.

Figure 1 Summary of August transect



17. Remote monitoring: Two remote detectors were deployed on the 7th August and left to run for 5 consecutive nights. Their locations are shown in figure 1.
18. Data collected during this period are summarised in the tables below.

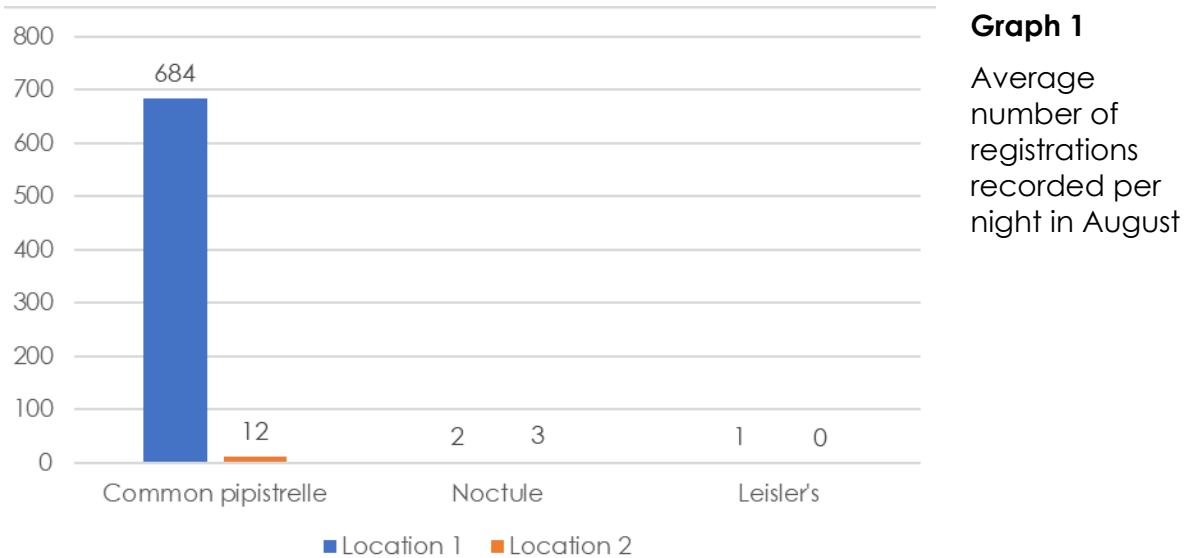
Table 2 Location 1 (mill) total number of registrations logged for each species, per night during August period.

Species	7 th	8 th	9 th	10 th	11 th
Common Pipistrelle	690	285	712	1083	651
Noctule	1	5	-	-	2
Leisler's	4	3	-	-	-

Table 3 Location 2 (woodland)- total number of registrations logged for each species, per night during August period.

Species	7 th	8 th	9 th	10 th	11 th
Common Pipistrelle	41	1	1	3	13
Noctule	1	14	-	-	-

19. Three species of bat were recorded making use of the Site during this period, with the bulk of activity relating to common pipistrelle; this is best seen in the graph below.



20. Location 1, to the east of the mill buildings was found to support much greater levels of bat activity, with on average 684 common pipistrelle registrations per night, indicative of moderate activity for this particular species. This monitoring data supports that collected during the walked transect and can be interpreted as moderate numbers of common pipistrelle bat making regular use of the buildings

and surrounding vegetation. The low representation of noctule and Leisler's are likely to represent solitary or low numbers of these species commuting, or briefly foraging, high over the Site each evening, and not following any particular habitat feature

21. This is similar to that recorded both in the transect and also the emergence surveys (R-3976-02). The radiating heat from the mill buildings will be highly attractive to invertebrates, having bred within the onsite woodland, scrub and mill pond habitats and the off-site watercourses. In turn, this then provides a good food source for bats.
22. In comparison, Location 2 towards to the edge of the developing woodland was found to be less favoured by bats - the likely result of the proximity to more attractive areas.

September 2019

23. Transect: A similar route to that taken during the August transect was followed during the September visit.

Figure 2 Summary of Summer transect



24. Overall, bat activity was similar to that of the August survey although somewhat reduced. All but one of the bat contacts were made by common pipistrelle, with the exception being a single noctule heard towards the north-west of the Site.
25. The majority of activity was associated with foraging along the canal and river- with activity focussed off-Site but then using the on-site vegetated banks. In these areas,

activity was highest with a maximum of three bats recorded at any one time. Lower levels of foraging were also recorded around the mill buildings and around scrub in the eastern corner, where 1-2 bats were recorded at a single time.

26. No obvious commuting activity was noted.
27. Remote monitoring: Two remote detectors were deployed on the 13th September and left to run for 5 consecutive nights. Their locations are shown in the figure above. Data collected during this period are summarised in the table below.

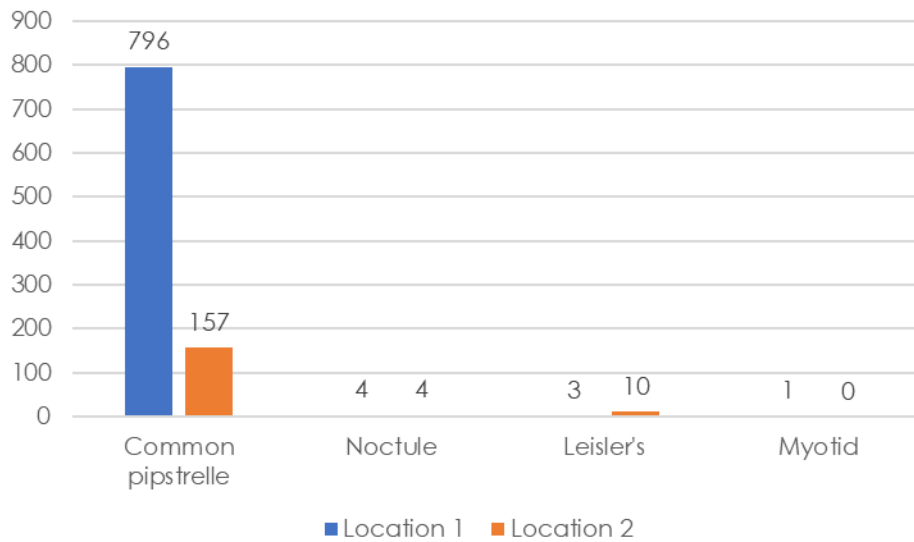
Table 4 Location 1 (mill) total number of registrations logged for each species, per night during September period.

Species	13 th	14 th	15 th	16 th	17 th
Common Pipistrelle	120	3,534	149	93	84
Noctule	1	12	-	4	2
Leisler's	5	-	-	3	-
Myotid	-	-	-	-	2

Table 5 Location 2 (grassland)- total number of registrations logged for each species, per night during September period.

Species	13 th	14 th	15 th	16 th	17 th
Common Pipistrelle	146	242	35	170	190
Leisler's	2	4	-	1	5
Noctule	28	6	-	5	11

28. Generally, activity appears significantly lower than August, with most nights recording >200 registrations in both locations. However, at Location 1 on the 14th, a substantially greater number of common pipistrelle registrations were recorded (3,534), which equates to high bat activity on that particular night.
29. In both locations, species composition remains similar, with common pipistrelle, Leisler's and noctule again recorded, with the addition of a myotid species in Location 1 (analysis of the calls suggests this is Natterer's). Common pipistrelle were again the most well represented species, with approximately 80% of the registrations attributed to them. This can be best seen in the graph overleaf.
30. Location 1 was again found to support the higher levels of bat activity (specifically common pipistrelle) than the other monitoring location, which corroborates that found during the walked transect.



Graph 2

Average number of registrations recorded per night in September

October 2019

- 31. Transect: A similar route was walked to that of previous transects.

Figure 3 Summary of October transect



32. The survey recorded lower numbers of bats than previous months (with 1-2 bats recorded at any one time). The majority of activity was attributed to common pipistrelle, with foraging recorded from the start of the transect in the east of the Site. As with previous months, activity was greatest along the watercourse boundaries and to the east of the mill buildings, with activity extended to include the grassland to the west. Commuting by common pipistrelle was also noted along the canal boundary and entering the Site in the east.
33. Whilst common pipistrelle make-up the majority of the recordings, the occasional whiskered, daubenton's and noctule were also noted briefly passing through the Site.
34. Remote monitoring: Two remote detectors were deployed on the 1st October and left to run for 5 consecutive nights. Their locations are shown in the figure above.
35. Data collected during this period are summarised in the table overleaf.

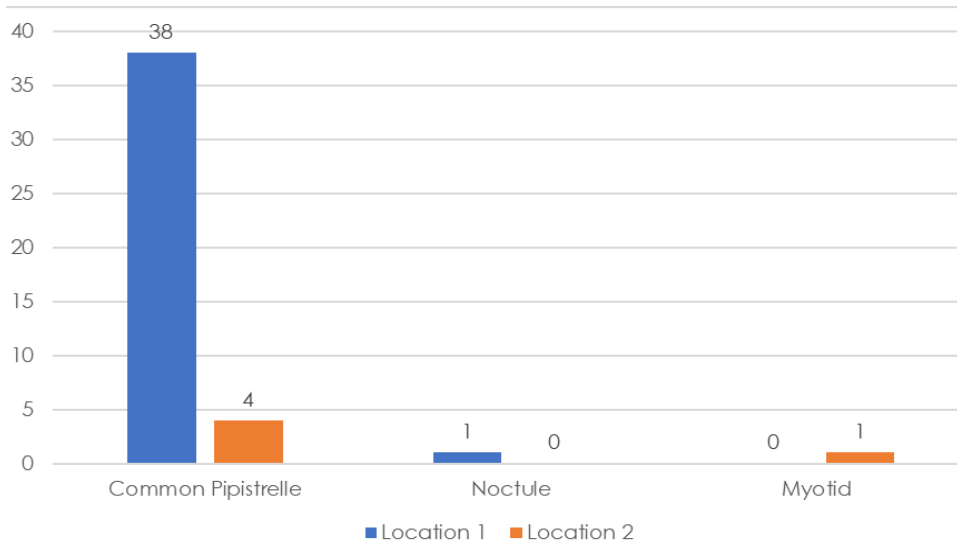
Table 6 Location 1 (mill)- total number of registrations logged for each species, per night during October period.

Species	1 st	2 nd	3 rd	4 th	5 th
Common Pipistrelle	2	7	5	142	35
Noctule	-	-	-	3	-

Table 7 Location 2 (River Colne)- total number of registrations logged for each species, per night during October period.

Species	1 st	2 nd	3 rd	4 th	5 th
Common Pipistrelle	-	3	7	6	3
Myotid	-			1	1

36. Species composition is similar to previous month, with common pipistrelle most frequently recorded, with lower numbers of noctule and myotid bats - the later analysed as being Whiskered.
37. October monitoring returned very low levels of bat activity in both locations, with on average 43 registrations recorded per night. This likely represents single or low number of bats commuting or briefly foraging, which corroborates that found in the transect survey. This reduced number of recordings is typical for October, with bats likely leaving the area and moving to transitional and then hibernation roosts.



Graph 3

Average number of registrations recorded per night in October

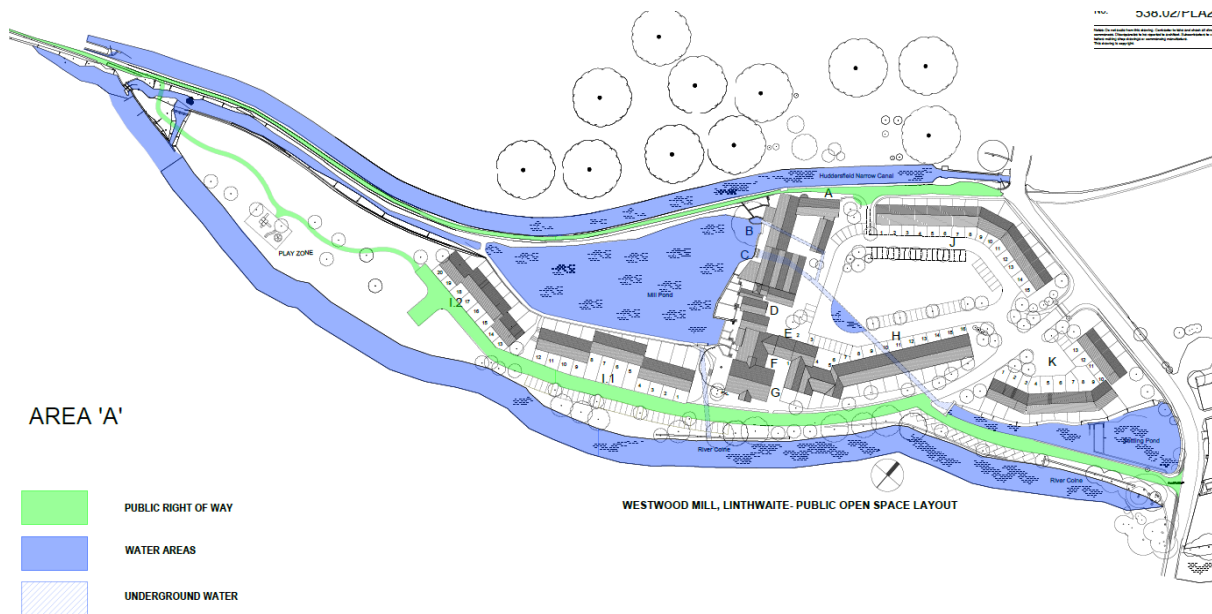
Conclusion & Recommendations

38. Monthly surveys, covering late summer and autumn 2019, have found the Site to be of moderate importance to the local common pipistrelle population, with very occasional use by up to five other species.
39. As expected, walked transects have found activity to be consistently high along the adjacent watercourses, whilst during the summer, activity was also found to high around the mill buildings. Other habitats including the western grassland, eastern tall ruderal and mill pond were generally found to support lower levels of bat activity.
40. Remote monitoring has revealed the Site is regularly used by up to five species of bat, with common pipistrelle consistently making up the bulk of this activity across all three months.
41. Further survey during Spring and the early Summer is scheduled for 2020 (April – July).

Proposed development

42. Proposals show development will extend across most of the Site, with new housing to dominate the east - this will include the renovation of the mill buildings. The original mill pond is proposed to be re-instated, which will result in the loss of developing woodland, whilst public open space will be created in the west.

Figure 4 Proposed masterplan (drawing number- 538.02/PLA22-D)



43. Development will clearly lead to the loss of foraging habitat overall (young developing), with some compensatory habitat created (large mill pond). Based on the information collected thus far, these proposals are likely to impact on the local common pipistrelle population, which use the Site at moderate levels. Impacts on other species is likely to be negligible.
44. In order to minimise impacts on common pipistrelle, the value of new and existing greenspace to bats should be maximised; this can be achieved by implementing the Biodiversity Management Plan (R-3976-04), which has been created with this group in mind and will feed into the design of the Landscape Masterplan.
45. The Plan details how the loss of foraging habitat will look to be compensated for through the reinstatement of the mill pond, and within public open space and through the renovation of the mill buildings. The design of these areas will need to be ecologically driven.
46. A sensitive lighting plan will be imperative for this Site, and this should be designed to show how light spill will be minimised / avoided on the retained and created habitats favoured by bats, in particular the tree'd watercourse boundaries, the new and retained mill pond and public open space.

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