



Bat Survey

Land off Lee Lane, Royston



Report reference: R-2722-02

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Report Title:	Bat Survey Land off Lee Lane, Royston
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Summary Statement

Bat activity is found to be relatively low across the Site, with a maximum of four bat species being recorded; the majority of activity attributed to common pipistrelle.

Remote monitoring found the woodland that borders the Site to the north, to be of higher value and its protection during and post-development is recommended.

Introduction

1. Subsequent to the recommendations made in Brooks Ecological's report (R-2722-01) detailed bat survey was commissioned at land off Lee Lane, Royston, Barnsley, South Yorkshire, Grid Ref SE 349 114. The need for survey and the scale of study applied to the site is discussed in our previous report (R-2722-01) and not repeated here, these two reports should therefore be read in conjunction for full context.

Box 1 *Legal background*

Bats are afforded full protection under The Wildlife and Countryside Act (1981) plus amendments, and the Conservation of Habitats and Species Regulations 2010. Under these Acts it is an offence among others, to recklessly kill, injure or disturb bats. It is also an offence to destroy or obstruct a roost even if bats are not in occupancy at the time of the action.

There are no defences against contravention of the Conservation of Habitats and Species Regulations 2010 which means that it is important for detailed and well designed bat surveys to be carried out, prior to carrying out activities that may impact upon bat roosts such as demolition of buildings or removal of trees.

Where bats are found within a potential development site, a license from Natural England may need to be secured if works that could otherwise contravene legislation are to be carried out. These licences are only issued where Natural England is satisfied that works are unavoidable and would not have a negative impact on the favourable conservation status of bats. A Natural England license requires that the potential development site has full planning permission and that bats were a material consideration of the planning permission.

Box 2 *Bat roosts*

Bats roost in buildings and trees in different locations depending upon time of year and environmental factors such as position of the sun, proximity to heat sources and feeding grounds. The following types are commonly referred to:

Transitional roosts:

Bats frequently gather early in the season (March to April) before dispersing to summer roosts. Bats can be found in high numbers in these roosts for a very short period. Transitional roosts can also be found shortly before hibernation in August to October when bats (depending upon species) can gather in roosts not used earlier in the season.

Maternity roosts:

These are among the most important roosts and are normally occupied from May to August. Depending on the species involved, some maternity roosts can contain a very significant proportion of the local population.

Summer (non-breeding) roosts

Small groups of non-breeding female and male bats can gather in these roosts or bats from a local population may choose to roost individually. There are normally a large number of suitable locations for summer non-breeding roosts and these may be routinely used or used only on an occasional basis. Irregularly used summer roosts can be very hard to find without unreasonable survey effort.

Mating roosts

Around September bats will gather in roost to mate; these are often in different locations than summer or breeding roosts.

Hibernation roosts

As bats in hibernation roosts are highly vulnerable to disturbance and bats can be present in large numbers these are considered to be among the most important bat roosts. Many species of bats roost in large and nationally important hibernation roosts associated with underground sites, many of which are well known and protected. However, the most common bat in the UK (the common pipistrelle) is largely unaccounted for in winter but thought to disperse and roost individually or in small groups in thermally stable cracks and crevices in thick walls or trees.

Local Status

- The application site is within the natural range of species of bats listed in Table 1.

Table 1: Bat species recorded within 100km of the application site

Species	National status
Pipistrelles (<i>Pipistrellus pipistrellus</i> and <i>P. pygmaeus</i>)	widespread/common
Nathusius' Pipistrelle (<i>Pipistrellus nathusii</i>)	widespread/rare
Noctule (<i>Nyctalus noctula</i>)	widespread/frequent
Leisler's (<i>Nyctalus leisleri</i>)	widespread/rare
Brown long-eared (<i>Plecotus auritus</i>)	widespread/common
Natterer's (<i>Myotis nattereri</i>)	widespread/frequent
Daubenton's (<i>Myotis daubentonii</i>)	widespread/common
Whiskered/Brandt's (<i>Myotis mystacinus</i> and <i>M. brandtii</i>)	widespread/scarce
Alcathoe's (<i>Myotis alcathoe</i>)	local/unknown
Serotine (<i>Eptesicus serotinus</i>)	south restricted/uncommon

Method

- 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 on the site 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.
- The transect 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 table 2 below.
- The 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 figure. Activity was split into three categories; low irregular, low regular and medium regular. Low activity was classified as up to 2 individual bats, with medium being anything over 2.

Table 2 Survey summary

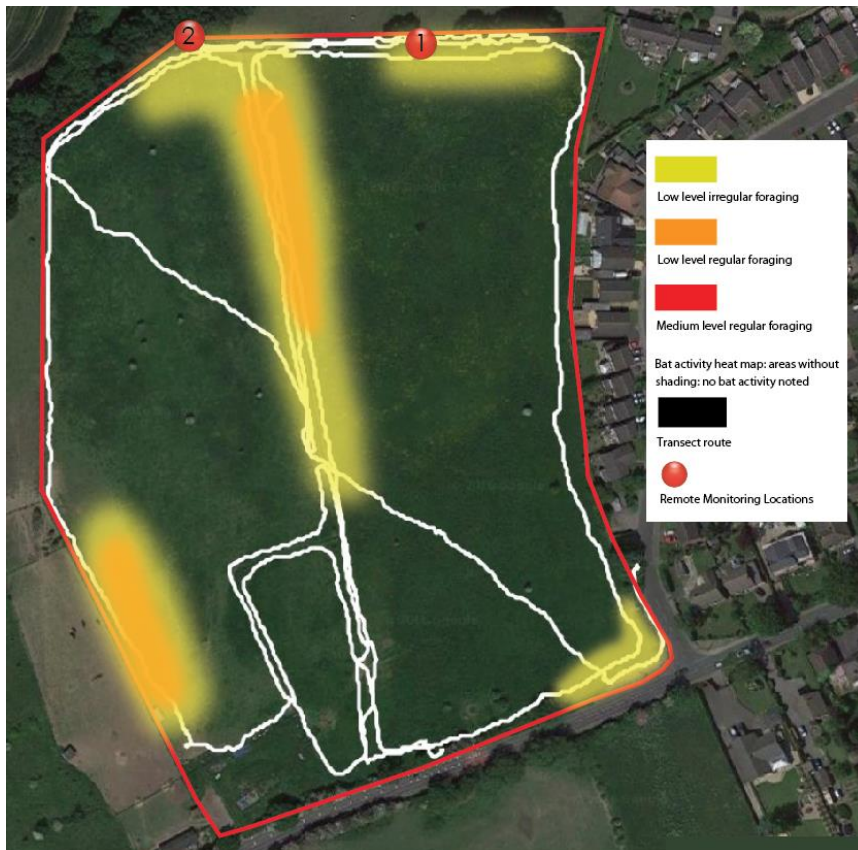
Date	Sunset	Weather	Invertebrate activity
20.10.16	17:59	10°C, 50% cloud, light breeze, dry	Low

6. To supplement data collected during transects, a static monitoring device (Wildlife Acoustic SM2) equipped with two microphones was deployed in a strategic location within the site. This was then left to run for a minimum of 5 nights.
7. 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.
8. A single registration accounts 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.
9. The data collected during the period of remote monitoring was run through Kaleidoscope Pro software, which is able to identify bat calls down to species level (with the exception of myotis). Identification is generally correct when using this software; however results are double checked to ensure accurate data analysis.
10. Surveys were directed by Rob Weston BSc (Hons) MSc MIEEM. Rob is a Registered Consultant (RC065) under the Bats Low Impact Class License and is registered to use the Class Survey Licence WML CL18 (Level 2).

Results

11. The transect began in the south of the Site and continued north to reach the northern boundary. Following this, the transect followed an anti-clockwise route around the Site, whilst making several passes across it. The first bat contact was made along the southwestern boundary, this being of two soprano pipistrelles foraging above the grassland.
12. Multiple passes of the northern boundary were made during the course of the survey. Each time, foraging by pipistrelle bats was observed above the trees within the Site, and along the adjoining woodland offsite, consisting of both soprano and common pipistrelles; a maximum of two bats were seen at any one time. Constant foraging of common pipistrelle bats was also noted, extending along the central field margin (a fence-line), again with a maximum of two bats present. Finally, brief foraging was noted in the south-eastern corner of the Site by a single common pipistrelle.
13. Bat activity in general was found to be low, with a maximum of two bats seen at any one time. All activity was attributed to common or soprano pipistrelle bats.

Figure 1 Bat activity recorded during transect



Static Monitoring

14. A single SM2 device was deployed along the Site boundary, attached to a tree on the edge of the woodland which borders the dismantled railway (location 2 on figure 1). A second microphone was attached to a tree along the northern boundary, further east (location 1). The device was deployed on the 14th October 2016 and left to run for 6 nights.
15. During this period, only a relatively low number of bat species were recorded, comprising largely of common pipistrelle with a smaller proportion of soprano pipistrelle and myotis bats. Analysis of the sonograms suggests the myotis species are likely to be that of whiskered, with occasional Brandt's bats.

Table 3 Total number of registrations – Location 1 (onsite)

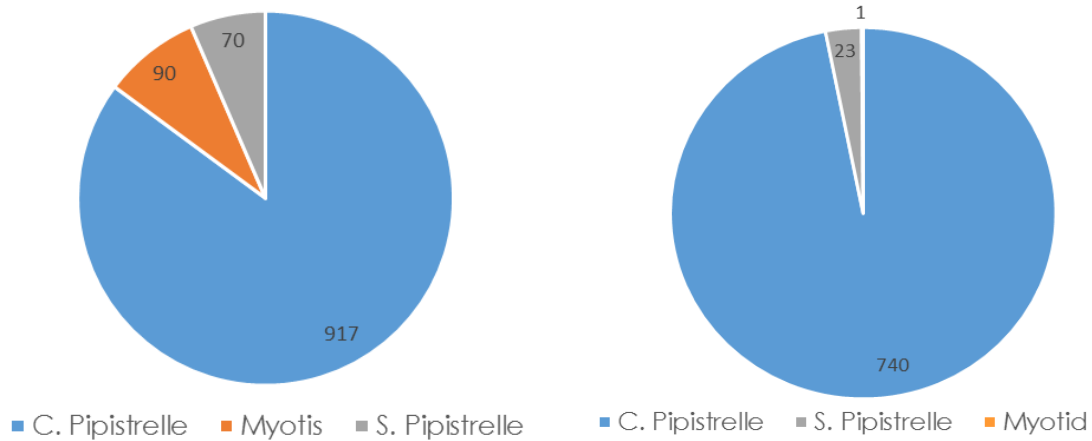
	14 th Oct	15 th Oct	16 th Oct	17 th Oct	18 th Oct	19 th Oct	20 th Oct
Common Pipistrelle	38	26	402	207	38	22	7
Soprano Pipistrelle	2	-	9	3	3	6	-
Myotis Spp.	-	-	-	-	-	-	1

Table 4 Total number of registrations – Location 2 (offsite)

	14 th Oct	15 th Oct	16 th Oct	17 th Oct	18 th Oct	19 th Oct	20 th Oct
Common Pipistrelle	63	161	108	57	51	358	119
Soprano Pipistrelle	35	2	1	2	7	23	-
Myotis Spp.	1	-	-	-	1	24	66

16. Overall, the results present a picture of relatively low bat activity. Recordings made in location 1 (onsite) corroborate the findings of the transect survey, with the majority of registrations relating to common and soprano pipistrelle. This pattern of activity is better visualised in figure 2 below.
17. A number of myotis species registrations were also recorded at location 2, the majority of which are attributable to whiskered bats, based upon inter-pulse interval, call duration, slope and maximum / minimum / peak call frequency. In addition, three registrations more closely attributable to the parameters of Brandt's bats were recorded. These recordings of myotis bats in location 2 indicate the use of the dismantled railway line as a foraging/ commuting feature, with the majority of the registrations recorded over the night/ morning of the 19th and 20th October 2016. Only one whiskered registration was recorded in location 1, indicating the low value of the Site to Myotis bat species.

Figure 2 Proportion of each bat species recorded in location 1 (right) and location 2 (left)



Evaluation and Recommendations

18. Bat activity is found to be relatively low, with a maximum of 4 species of bats recorded - with the majority of activity attributed to common pipistrelle.
19. Limited activity recorded during the transect, and through remote monitoring (covering the highest value area within the Site), suggests the Site is not of high value to local bat populations. Monitoring just offsite in location 2 indicates the use of the woodland as a commuting/ foraging feature and standard protection measures are advised on this bordering area of woodland.
20. The proposals are unlikely to result in significant impacts on local bat populations, provided standard protection measures are implemented. These would include:
 - Standard protection of the woodland edge during construction, including the erection of BS5837:2012 Tree Protection fencing and safe storage of hazardous chemicals.
 - A suitable lighting scheme, which directs all artificial lighting (i.e. flood lighting used during the construction phase, new street lighting, security lights) away from the woodland. Any permanent lighting installed within close proximity to the woodland would ideally be motion activated and set to a short timer. No lighting should be installed within the woodland.

Enhancement

21. UK government's guidance on nature conservation in relation to development (NPPF) makes it clear that opportunities should be sought through their planning system to use development as an opportunity to enhance sites for wildlife where possible.
- Landscape plans could incorporate native planting schemes such as hedgerows which would link to the northern boundary and adjoining woodland.
 - To further enhance the Site, bat boxes could be erected on new buildings. These should be focused around the peripheries of the Site, specifically along the northern and eastern boundaries. At least 7 are recommended, these being Ibstock Bat Bricks C.
 - Landscaping should also consider the use of night flowering plants such as honeysuckle (*Lonicera periclynum*).

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