

Appendix 9.5 Bat Survey, October 2015



Bat Survey
Former Bierley Treatment Works,
Oakenshaw,

Report reference: R-1623-05
August 2015

Report Title:	Bat Survey Former Bierley Treatment Works, Oakenshaw
Report Reference:	R-1623-05
Written by:	Joshua Birchall BSc (Hons) Graduate Ecologist Karl Fisher BSc (Hons) Grad CIEEM Graduate Ecologist
Technical review:	Christopher Shaw BSc (Hons), ACIEEM Ecologist
QA review:	Peter Brooks BSc (Hons), MA, MCIEEM, CEnv Managing Director
Approved for issue	Peter Brooks BSc (Hons), MA, MCIEEM, CEnv Managing Director
Date	26.11.15



Unit A, 1 Station Road, Guiseley, Leeds, LS20 8BX
 Phone: 01943 884451
 01943 879129
 Email: admin@brooks-ecological.co.uk
www.brooks-ecological.co.uk
 Registered in England Number 5351418



Summary Statement

Bat activity has been found to be low on site during the summer, confirming the assessment that the habitats on site are of relatively low importance for local bat populations.

More valuable habitat is found to the east – this should be buffered within the masterplan to ensure minimal impacts on local bats.

Introduction

1. A Preliminary Ecological Appraisal and Bat Roost Potential survey was carried out at land at the Former Bierley Treatment Works, Oakenshaw (SE 178 274) by Brooks Ecological in July 2013 (see R-1623-01). On the back of these reports, detailed emergence surveys were carried out on buildings with bat roost potential in August / September 2013 (see R-1623-02). These confirmed the likely absence of roosting.
2. Brooks Ecological was then asked to carry out updating bat surveys June 2015 to support a planning application for residential development. This was discussed with Jeff Keenlyside at Kirklees Council and a strategy devised. It was agreed that a single updating emergence survey in June 2015, extended to appraise general bat activity across the site, was sufficient to collect a robust baseline for the site. The following report presents the results of this survey.

Method

3. The objectives of these surveys are 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 used to collect the following data (BCT survey guidelines 2012):
 - 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.
4. The survey began half an hour prior to sunset with an emergence survey of a single large building to the north of the site. In this case two surveyors equipped with heterodyne detectors situated at opposite ends of the property was deemed suitable to fully evaluate the roost potential of the structure. The transect followed on from this and began when all bat species would have been expected to have left the roost and continued up to 2 hours after sunset when all bats have emerged and are likely to be actively foraging and commuting. Conditions and dates are summarised in table1 below.
5. The transect was walked by two surveyors, equipped with heterodyne detectors and an Anabat Express. The latter device has a built in GPS service, which allows the exact route taken by the surveyor to be logged over a Google earth plan, and tags each bat contact (identified to species level) to an exact location along this route. The output plan is provided as a figure later in this report. Additional information, such as frequency and type of activity (foraging commuting) is then recorded by the surveyor and described below for context.

Table 1: Survey summary

Survey	Date	Sunset	Weather	Invertebrate activity
Summer	17.06.15	21:40	13 °C, overcast, dry	Low

6. To supplement data collected during transects, two static monitoring devices (Wildlife Acoustic SM2+, SMZC or AnaBat Express) were deployed in strategic locations around the site prior to the start of each survey. These were then left to run for a minimum of 3 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 learned 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 package, 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 manually checked to ensure accurate data analysis.
10. Survey and assessment was directed by Peter Brooks BSc (Hons) MA, MIEEM CEnv. Peter has over 15 years experience of carrying out bat surveys in a professional capacity and holds a Natural England license in respect of bats and is a Natural England Roost Warden.

Results

Emergence Survey

11. Overall, bat activity was found to be low throughout the course of the survey. The first bat seen at 22:10, 30 minutes after sunset; this was a common pipistrelle which flew from the northwest over the building to the south east.
12. The second bat contact was another common pipistrelle which flew from west to east behind the surveyor at the northern end of the building. The only other bat heard was a brief noctule call; most likely from an individual flying high over the site.
13. No bats were seen, or suspected to have emerged from the building at any point during the survey.

Summer Transect

14. The transect began around the buildings to the northeast of the site following the emergence survey at 22:20. The first bat contact made during this part of the survey was just south over what appears to be old settling tanks which now make up a series of shallow lagoons. Foraging continuously in the area were up to three common pipistrelle bats.
15. Slightly further south at 22:23 another common pipistrelle was seen commuting from east to west across the site from Hanging Wood along the site's eastern boundary. Also in the area at 22:37 a single common pipistrelle was seen foraging around the edge of the woodland.
16. Following this as the surveyor crossed into the field adjacent to the south of the site at 22:50 a common pipistrelle was seen commuting along the fence line eastwards towards the woods.
17. Whilst walking along the western boundary from south to north common pipistrelle were encountered at 23:15 to the south and 23:45 along a hedgerow which cuts into the field further north, both of these were foraging. As the surveyor reached the northern most point of the site before heading south east back to the start point concluding the survey, no more activity was seen or heard.
18. The output from the Anabat Express is shown in the below figure. This highlights the exact route taken and the position of each bat contact.

Figure 1 Transect summary



Static Monitoring

19. A single SM2+ device was deployed along the woodland edge along the eastern edge of the site; this was deployed with a 50m cable and microphone to create a second monitoring station within the interior of the site. This aims to highlight the difference in activity levels between assumed higher and lower value foraging habitat.
20. The latest version of Kaleidoscope Pro has been used to identify species recorded. Generally species are identified to an accuracy of >80%. Accuracy is greater for

pipistrelle, being >90%, and c.95% for common pipistrelle. Myotis bats are grouped together and are picked up greater than 80% of the time.

21. Some levels of accuracy are lower, leislers at 58%. As such, a sample of these calls are checked for accuracy using more accurate manual identification techniques; based on known calls for species and information in Jon Russ' British Bat Calls book. Calls are then grouped on this basis.
22. Circa 10% of Leisler's calls were checked for accuracy – using visual analysis and comparing to call structure. Of these, call structure, range and slope appeared to be more closely associated with leisler's bat than that of the more common and related noctule.

Results

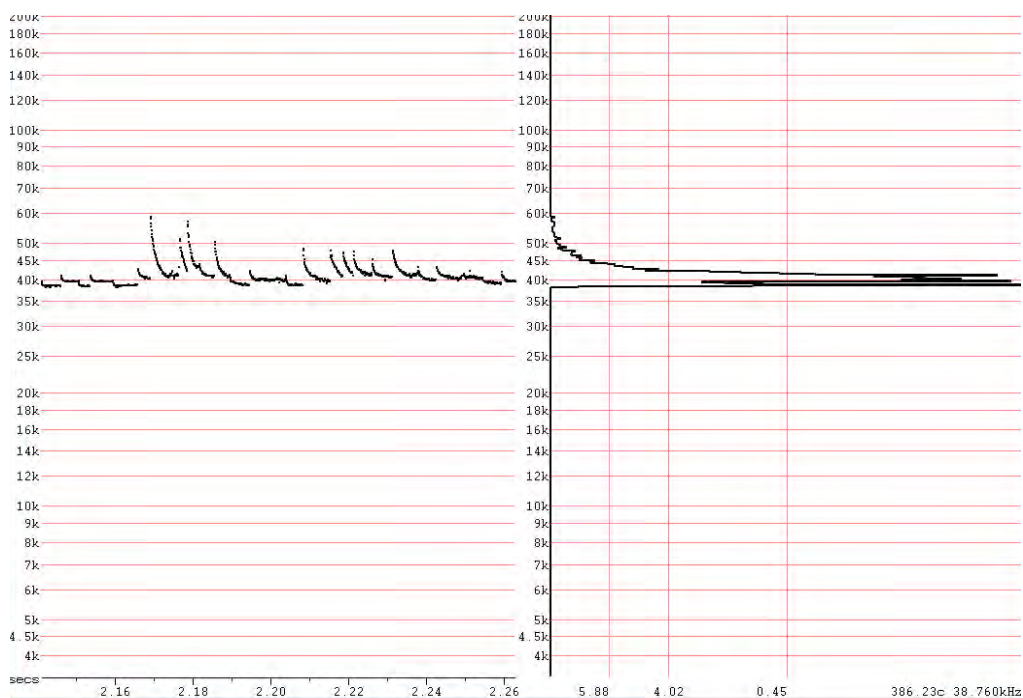
23. Five species of bat were recorded across both monitoring locations; these being common pipistrelle, soprano pipistrelle, nathusius pipistrelle, noctule bat and leisler's bat. Data are summarised below.

Table 2: Total number of registrations during monitoring period

Species	No. of registrations over 3 nights
Common Pipistrelle	364
Soprano Pipistrelle	2
Nathusius Pipistrelle	2
Noctule	104
Leisler's	16
Grand Total	488

24. As can be seen, monitoring logged 2 nathusius pipistrelle registrations. Nathusius pipistrelle is currently listed as a rare but widespread species by the Bat Conservation Trust (BCT), and it was only very recently recognised as being present in the UK. However, this species is likely to be much more common than currently thought, and its current status is likely to be a result of under-recording due to it being misidentified as common pipistrelle.
25. These calls were manually checked using Analook Software and confirmed as Nathusius pipistrelle, with peak frequencies between 38-40kHz. An example of one of these registrations can be seen in the below figure; with the characteristic pipistrelle shape call, and a peak frequency of 38.7kHz.

Figure 2 Analook view of one of the registrations attributed to nathusius pipistrelle.



26. Overall, the results present a picture of relatively low bat activity when compared with similar sites surveyed in the region. As can be seen from these recordings, the majority of registrations relate to common pipistrelle and noctule, with only the occasional passes of other species. This pattern of activity is better visualised in the figure below. These recordings are considered likely to indicate single or low numbers of pipistrelle bats foraging fairly regularly each night along the woodland edge, with irregular foraging by single / low numbers of leisler's and other pipistrelles.

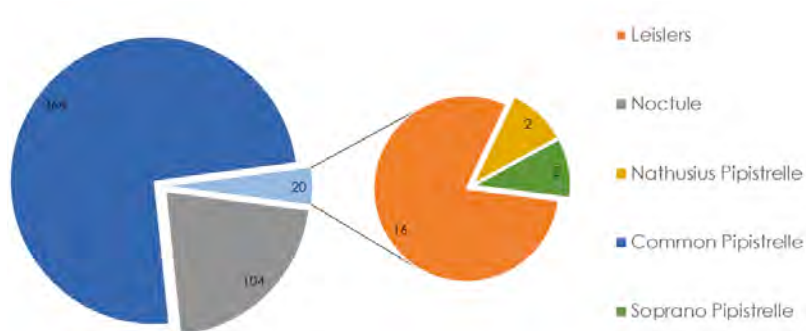


Figure 3

Proportion of each bat species recorded during the period of static monitoring*

* Total number of registration recorded during the summer period, 2015

27. As anticipated, bat activity was found to be greater at the eastern boundary where higher value habitat is found, associated with the woodland and beck, and where

woodland creates a sheltered area which will likely improve conditions for bat foraging.

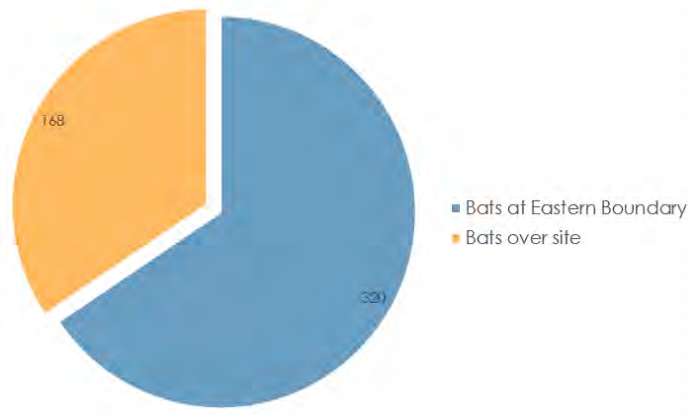


Figure 4

Proportion of bats recorded at each location.

Evaluation and Recommendations

28. Updating emergence survey has confirmed the continued likely absence of roosting.
29. Transect and monitoring has found general bat activity to be low across the site, when compared to similar sites in the region; with bats favouring the woodland and beck at the eastern edge of the site. Lower levels of activity were recorded across the rest of the site, with occasional irregular foraging seen in several areas.
30. Survey has therefore revealed the site to be of low importance to local bat populations; a likely result of the site's isolated nature and proximity to major infrastructure. Some value is attributed to the eastern site boundary where the site borders higher value habitat there. This should be enhanced through planting and buffered from development to ensure its value for foraging and commuting is not significantly impacted.
31. A sensitive masterplan has been created that sees mixed development occupy the centre of the site, with the habitats favoured by bats (woodland and watercourse) being retained and buffered. The proposals are therefore 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 and watercourse along the eastern site boundary should be taken during construction and following commencement of the site; this should include the erection of BS5837:2012 Tree Protection fencing.

- 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 and boundary hedgerows. 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.
 - Creation of a buffer zone with suitable native planting / habitat creation.
32. These measures will be detailed in the site's Biodiversity Enhancement and Management Plan (BEMP), and if implemented correctly, could result in an overall gain for local bat populations.