

Transect Activity Survey for Bats

Pilley, Lidget Lane, Tankersley

June 2013



Notice to readers

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Capability

Surveyor 1

Matthew Haydock – HND, ND, MIEEM, Natural England Bat Survey Class Licence CL18 - Registration number CLS01637. Matthew is an ecologist with four years' experience of environmental consultancy work. He holds a HND in Environmental Management with distinction. Matthew is an experienced bat surveyor with competency in activity surveys, dawn and dusk bat roost assessments, daytime surveys for bat field signs, assessments of trees as potential bat roosts and the production of reports providing advice on best practice, mitigation and compensation works relating to bats as may be required. Matthew holds a Natural England and Countryside Council for Wales licence, since 1997, to disturb bats for the purposes of science and education or conservation and has held Development Licences to permit development works affecting bats. Matthew has been an active bat group worker with the Staffordshire Bat Group since 1997, conducting various surveys throughout Staffordshire and Derbyshire. He also works alongside the Bat Conservation Trust with various projects such as the National Bat Monitoring Project, and is now a corporate member of the Bat Conservation Trust.

Surveyor 2

James Porter has gained experience with Brumbats (Birmingham & Black Country Bat Group). He has attended an introduction to bats day (covering their basic biology, ecology and some information about surveying), plus several bat walks and a course on how to run a bat walk. His main experience has been in a variety of ecological consultancy work, for which he has assisted during initial (daytime) surveys and varied dusk emergence and dawn swarm surveys. These have included residential properties, fields and potential barn conversions, follow-up surveys for a housing development and a power substation, and a week-long visit to a housing estate scheduled for demolition.

Non-technical summary

Absolute Ecology was commissioned to undertake bat transect survey of a site known as land at Pilley, Lidget Lane, Tankersley.

Dusk and pre-dawn bat transect surveys were undertaken on 5th and 20th May and 5th June 2013. Bat activity was found to be very low during the surveys. No further survey or mitigation is required.

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1.0 Introduction

Background

- 1.1 Absolute Ecology was commissioned to undertake bat transect survey of a site known as land at Pilley, Lidget Lane, Tankersley.
- 1.2 The surveys were undertaken by licensed bat ecologists who are also members of the Chartered Institute of Ecology & Environmental Management (CIEEM). 2 dusk emergence surveys were conducted on 5th & 20th May and dawn re-entry on the 5th June 2013. The objective of this report is to provide the client with information on the known and potential bat commuting and foraging routes, and to outline recommendations on how to proceed with the works in a legal and ecologically sensitive manner, should bats be present. Unless the client indicates to the contrary, information on the species found to be present on the site will be passed to the county biological records centre to update records held for the area.
- 1.3 The aim of the survey was to undertake an appraisal of the trees and buildings to establish the following:
 - Likely presence of important flight corridors, swarming locations and foraging
 - Habitats
 - General level of bat activity associated with the site
 - Which type of mitigation measures would need to be employed

Site Characteristics

- 1.4 The site comprises of semi-improved grassland and arable fields bordered by hedgerows and trees. The site is adjacent to Tankersley to the east and Lower Pilley to the west, with open mixed farmland and woodland to the south of the site. The M1 motorway lies to the east.

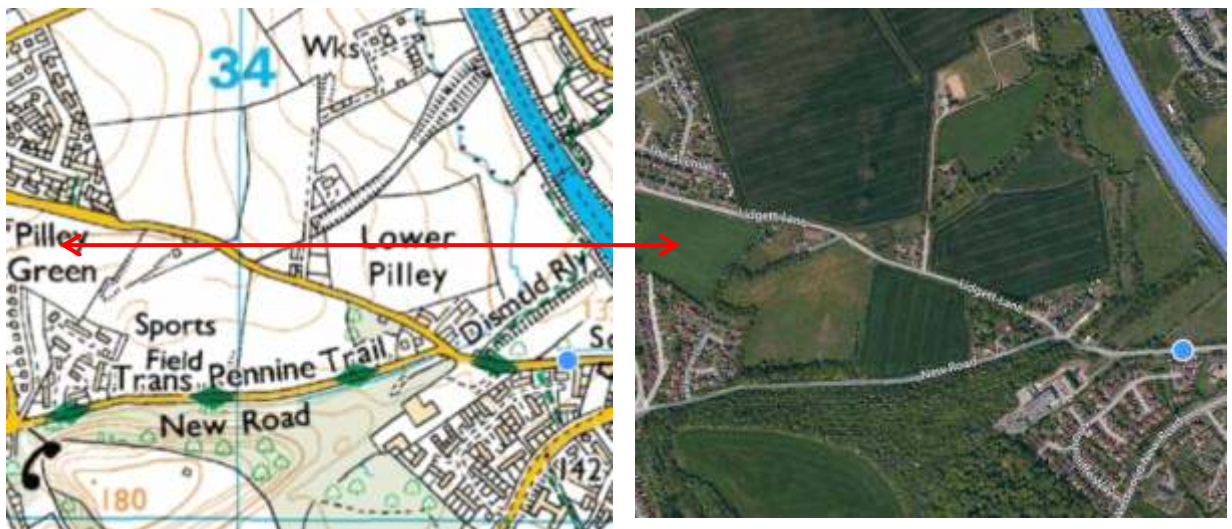


Figure 1: OS map and aerial photo of the site.

2.0 Legislation and Status

- 2.1 All species of bat are listed in Schedule 5 of The Wildlife and Countryside Act (1981) and as such receive protection under Section 9 of this Act. This has been amended several times, most recently by the Countryside and Rights of Way Act 2000, which added 'or recklessly' to Section 9(4) (a) and (b). In summary, it is a criminal offence to:
- intentionally kill, injure or take a wild bat
 - be in possession of, or control, any live or dead wild bat or part of, or anything derived from a wild bat
 - intentionally or recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection
 - intentionally or recklessly disturb any wild bat whilst it is occupying a structure or place that it uses for shelter or protection
 - transport for sale or exchange, or offer for sale or exchange a live or dead bat or any part of a bat.
- 2.2 All species of bat are also listed in Schedule 2 of the Conservation (Natural Habitats, &c.) Regulations (known as the Habitats Regulations) and as such receive protection under Regulation 39 of these Regulations, making it an offence to:
- deliberately capture or kill a bat
 - deliberately disturb a bat
 - damage or destroy a breeding site or resting place of a bat
 - keep, transport, sell or exchange, or offer for sale or exchange a live or dead bat or any part of a bat.
- 2.3 The Conservation of Habitats and Species Regulations 2010 consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994, in respect of England and Wales. It is an offence to possess, sell or offer, or transport for sale any European species of bat or any part derived from such a species. These Regulations also remove the 'incidental result defence'. In other words, it is no longer a defence to show that the killing, capture or disturbance of a species covered by the Regulations or the destruction or damage of their breeding sites or resting places was the incidental and unavoidable result of a lawful activity. Natural England can grant European Protected Species (EPS) licences in respect of development to permit activities that would otherwise be unlawful.
- 2.4 Under Section 40 of the Natural Environment and Rural Communities Act (2006), public bodies, including Local and Regional Planning Authorities, have a duty to 'have regard' to the conservation of biodiversity in England when carrying out their normal functions, which includes consideration of planning applications. In compliance with Section 41 of the Act, the Secretary of State has published a list of species considered to be of principal importance for conserving biodiversity in England. This is known as The England Biodiversity List, all of which make up the UK BAP Priority Species. Regional Planning Bodies and Local Planning Authorities will use it to identify the species that should be afforded priority when applying the requirements of PPS9 to maintain, restore and enhance species and habitats.

- 2.5 Seven British bat species are currently given UK BAP (2007) Priority Species Status: Sheffield Biological Records & National Biodiversity Gateway records show that bats are found within 2km of the proposed application area.

UKBAP	Common name	Species
☒	Brown long-eared bat	<i>Plecotus auritus</i>
☒	Barbastelle bat	<i>Barbastella barbastellus</i>
☒	Bechstein's bat	<i>Myotis bechsteinii</i>
☒	Noctule	<i>Nyctalus noctula</i>
☒	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
☒	Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
☒	Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>

- 2.6 A further five bat species that are not currently given UK BAP consideration are also recorded within 2 km of the proposed application site:

UKBAP	Common name	Species	Recorded within 2km of site
☒	Natterer's bat	<i>Myotis Nattereri</i>	☒
☒	Daubenton's bat	<i>Myotis daubentonii</i>	☒
☒	Whiskered/ brandt bat	<i>Myotis mystacinus/brandtii</i>	☒
☒	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	☒
☒	Noctule	<i>Nyctalus noctula</i>	☒
☒	Brown long-eared bat	<i>Plecotus auritus</i>	☒

- 2.7 Unlike many smaller mammals, bats have low fecundity with a long and complex life cycle which is played out over a large spatial landscape. Bats show a strong fidelity to different types of roosts throughout their annual cycle i.e. hibernacula, maternity, bachelor, satellite roosts and feeding perches. Linear features within the landscape such as hedgerows and tree lines are often used by bats for commuting, predator avoidance and foraging. Bats are highly social animals and loss of a single habitat alone can have a serious impact on populations. The status of many bat populations is tentative, being based on relatively few records and are highly susceptible to habitat loss and fragmentation.

3.0 Methodology

Activity Surveys

- 3.1 The aim of the transect survey is to obtain information on bat species using the habitats along this route and identify commuting routes and foraging areas used by these species along the proposed development. This route incorporated potential foraging and commuting routes such as adjacent woodland edge, hedgerows and field margins. Such features are known to be important habitats for bats.
- 3.2 Two surveyors walked a transect around the fields alongside the hedgerows, stopping at pre-determined 'listening points', chosen to sample each hedgerow within the site. At each listening point, the surveyors recorded all bat passes for 3 minutes to allow comparison of activity across the site. Between listening points, surveyors recorded any other bats heard or seen as they walked the transect.
- 3.3 The activity survey was performed in accordance with the guidelines published by the BCT 2nd edition 2012 for carrying out dusk and dawn activity surveys:
- Determine the presence/absence of species, i.e. the species present in a given area
 - Determine the intensity of bat activity both spatially and temporally
 - Determine the type of activity, most usually foraging (by feeding buzzes); commuting (by high directional pass rates); mating (by mating social calls)
 - Find roosts by tracking back bat flight paths or observing dawn flight activity at roosts.
- 3.4 The transect route was walked by two surveyors who noted any observations of bats or bat calls detected, the species, location and activity (e.g. foraging, commuting, emerging or entering a roost) and the time the bat was recorded. Bat ultrasound data was gathered using a number of heterodyne (Batbox Duet) and real-time recording devices (Wildlife Acoustics Echo Meter EM3, Petterson tranquillity detector). Real time recordings were subsequently analyzed using Bat explorer. Further equipment included a NVMT-1 2x24 night vision scope (Yukon: USA), GPS eTrex Venture HC, hand net, CB2 Clubman Deluxe high-power lamp with filter.

Nomenclature

- 3.5 The English name only of flora and fauna species is given in the main text of this report; however, scientific names are used for invertebrates where no English name is available. A list of all species recorded on site and those mentioned in the text but not necessarily occurring on site together with scientific names is given in *Appendix 1*. Vascular plants and Charophytes follow the nomenclature of The Botanical Society for the British Isles (BSBI) 2007 database (BSBI, 2008), with all other flora and fauna following the Nameserver facility of the National Biodiversity Network Species Dictionary (<http://www.nhm.ac.uk/nbn/>), which is managed by the Natural History Museum.

4.0 Results

Activity Survey

Surrounding Landscape

- 4.1 The site and surroundings provide potential foraging habitat for a number of bat species. The adjacent gardens could be used by foraging bats. The surrounding landscape comprises residential buildings and gardens and is likely to support a large number of bats, although hedgerows and residential gardens are all potential feeding and commuting areas for bats.
- 4.2 At least 3 species of bat were recorded during the activity surveys, with highest levels of activity concentrated along the hedgerows and tree lines along the north-west, north-east and south-east site boundaries. The relative abundance and relevant activity observations for these species are summarised below in Table 2

Activity Survey

Environmental variables Table 1

Environmental Variable	Dusk emergent	Dawn re-entry	Dusk emergent
Temp Start	11.3°C	9.4°C	17.6°C
Temp Finish	9.6 °C	10.4°C	17.2°C
Humidity Start	90%	87%	56%
Humidity Finish	85%	92%	62%
Cloud Cover Start	50%	50%	50%
Cloud Cover Finish	50%	60%	50%
Wind Speed Average	5 mph	8 mph	4mph
Precipitation	Dry	Dry	Dry

All surveys were conducted 1 hour before dawn/dusk and 1.5 + hours after.

Table 2: Activity survey results summary

Table 3: Dusk activity survey 5th May 2013 (see Figure 1 green target notes)

Sunset: 20:23

Target Note	Time	Species / Numbers	Behaviour	Notes
1	20:46	Common pipistrelle	Commuting	Short Pass
2	21:11	Common pipistrelle	commuting	Short pass
2	21:14	Soprano pipistrelle	Commuting	Very short pass
3	21:20	Brown Long-eared	Commuting	Short pass
3	21:22	Soprano pipistrelle	Commuting	Short pass

Table 4: Dawn activity survey 20th May 2013

Sunrise Time: 05:30

Target Note	Time	Species / Numbers	Behaviour	Notes
1	05:10	Common pipistrelle	Commuting	Short Pass
2	04:48	Soprano pipistrelle	Commuting	Very short pass

Table 5: Dusk activity survey 5th June (see Figure 1 red target note)

Sunset Time: 20:21

Target Note	Time	Species / Numbers	Behaviour	Notes
1	21:56	Pipistrelle Common	Commuting	Short Pass
3	22:25	Brown Long-eared	Commuting	Short pass
2	21:20	Soprano pipistrelle	Commuting	Short pass
3	22:30	Soprano pipistrelle	Commuting	Short pass

**N.B. Pipistrelle species when bat is echolocating between 48 KhZ and 52 KhZ which is the frequency that common pipistrelles and soprano pipistrelles overlap and cannot always be distinguished.*

Table 6: Summary of listening point counts (see Figure 1 for locations of listening points)

Date	Species	Listening points				
		1	2	3	4	5
03/5/13	Bats heard	1	2	2	0	0
04/5/13	Bats heard	1	1	0	0	0
04/6/13	Bats herd	1	1	2	0	0

5.0 Site Status Assessment

Individual Species

- 5.1 The ecological value assessments for each bat species recorded on site are presented below along with the key information used for assessing the site value of each species.
- 5.2 Three confirmed species of bat were recorded foraging and commuting across the site in low numbers: Common Pipistrelle and Soprano Pipistrelle. Long-eared bats were also recorded and based on the location of the site and the distribution of long-eared bats it is highly likely that these were the more common Brown Long-eared rather than Grey Long-eared bat. Registrations of Myotis species were also recorded during the 1st survey although the species could not be conclusively identified the second survey identified Daubenton's bat. The survey also confirmed commuting and foraging natter's bat.
- 5.3 Pipistrelle bats are the most common species of bat in the UK with widespread distributions and most commonly found in England and Wales. Pipistrelle bats exploit a wide range of habitats, including those associated with built-up areas (BCT, 2010, 2010a). Both Common and Soprano Pipistrelles are Local BAP Priority Species and Soprano Pipistrelles are a UK BAP Priority Species; however, no roosting bats were discovered on site and the low level of activity by just a few individuals suggests that site is of low conservation significance for the species.

6.0 Impacts and Recommendations

Impacts

- 6.1 The site is to be cleared to make way for a residential housing development. The majority of boundary features will be retained although the possible removal of hedgerow will be broached to create an access road. Artificial lighting will also be incorporated across the site. The following potential impacts have therefore been identified:
- Disturbance, via lighting, to suitable foraging and commuting habitats comprising tree lines and hedgerows around the site boundary which are of ecological importance within the Immediate zone of influence to Brown Long-eared bats (*Pipistrelle* species) tend to be more light tolerant hence lighting disturbance would not be such an impact).

Further Surveys

During the activity surveys, which conform to the BCT guidelines 2012, No further surveys considered necessary.

Biodiversity Enchantment

- 6.2 Any landscaping relating to the proposed development should also take into consideration bats and other wildlife and it is recommended that creation or enhancing existing hedgerows by only the use of native tree and shrub species are planted. In particular, no plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 should be planted during the landscaping of this development. For further details of Schedule 9 plants, visit the Defra website: www.defra.gov.uk/wildlife-pets/non-native.
- 6.3 Instillation of bat boxes (suitable for the species recorded on site), primarily on buildings to increase the number of suitable roosting opportunities.
- 6.4 Any lighting design around the new development should be considered at an early stage. Light spill can affect the foraging and commuting strategy of many species and should be avoided onto nearby trees and hedges/shrubs, and should not exceed 200 lumens (150 watts). Any security lighting should be on a timer setting and faced down to prevent spillage onto nearby habitats. The height of any lighting columns around the development should not exceed eight metres to reduce further any ecological impact of light pollution. Low-pressure sodium lamps (SOX) fitted with hoods are recommended to direct light below the horizontal plane to minimize upward light spill.

7.0 References

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Wildlife and Countryside Act 1981 (and amendments) (c.69). London: HMSO.

8.0 Plans

Bat Activity Location Plan



Dusk 5th May 2013



20th May 2013



5th June 201

