

**Survey of bats at
Barton Farm, Winchester
2002**

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Notice to Interested Parties

To achieve the study objectives stated in this report, we were required to base our conclusions on the best information available during the period of the investigation and within the limits prescribed by our client in the agreement.

No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations completely defined the degree or extent of e.g. species abundances or habitat management efficacy described in the report.

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0 EXECUTIVE SUMMARY

- 0.1 Ecoscope Applied Ecologists were commissioned by Cala Homes to undertake a bat survey of the proposed development site at Barton Farm, Winchester to determine the bat species occurring on site and the main areas of foraging habitat for bats. The survey was carried out in August and September 2002.
- 0.2 The site principally comprises a number of intensively farmed arable fields with hedge boundaries. There is an embanked railway running through the site and two small areas of woodland.
- 0.3 The Barton Farm site is considered to support a relatively species-poor bat community, with only three, or possibly four, species recorded (Common Pipistrelle, Soprano Pipistrelle, Brown Long-eared Bat (possibly, at Well House Farm) and Noctule). All these bats are widely distributed in England.
- 0.4 In general the number of bat passes recorded was low, suggesting that all the species recorded during the survey occur at relatively low density. The most likely reason for this is that the majority of the Barton Farm site provides relatively poor quality bat foraging habitat, comprising large intensively farmed arable fields which do not support high densities of invertebrates on which bats feed. The areas where bats were most frequently encountered were the strip of Beech trees through the centre of the western part of the site, together with some of the taller hedgerows.

1 INTRODUCTION

- 1.1 Ecoscope Applied Ecologists were commissioned by Cala Homes to undertake a bat survey of the proposed development site at Barton Farm, Winchester to determine the bat species occurring on site and the main areas of foraging habitat for bats. The survey was carried out in August and September 2002.
- 1.2 All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000 in England and Wales. All bat species are also included on Schedule 2 of the Conservation (Natural Habitats etc.) Regulations 1994. Taken together, these pieces of legislation make it an offence to:
- intentionally or recklessly kill, injure or capture bats;
 - deliberately or recklessly disturb bats (whether in a roost or not); and
 - damage, destroy or obstruct access to bat roosts.
- 1.3 A roost is defined as 'any structure or place which [a bat] uses for shelter or protection'. As bats tend to reuse the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of survey.
- 1.4 All UK bat species are listed on Annex IV of the EU Habitats Directive, and four species are listed on Annex II (Greater and Lesser Horseshoe Bats, Bechstein Bat and Barbastelle Bat).
- 1.5 It is also stated in paragraph 47 of PPG 9 that 'the presence of a protected species is a material consideration when a local planning authority is considering a development proposal which, if carried out, would be likely to result in harm to the species or its habitat'. To this end, developers must satisfy the planning authority that measures are taken to mitigate for the loss of bat feeding habitat as well as roosts.
- 1.6 The site comprises a number of intensively farmed arable fields with hedge boundaries (see Ecoscope (2001) for a full description). There is a narrow strip of rough grassland, in some cases grazed by horses, along Well House Lane. An embanked railway line runs through the site, and is wooded with areas of scrub. There is a strip of mature Beech trees alongside a footpath in the western section of the site, a small group of Beech trees in the eastern section, and a number of mature trees along various boundaries, particularly along Andover Road.

2 METHODS

- 2.1 A general assessment was made of the number of species of bats foraging on the Barton Farm site, together with an indication of their abundance and preferred foraging areas, in August and September 2002. The site was surveyed over five nights.

- 2.2 Nineteen transects were mapped out, covering much of the site (Figure 2.1). As far as possible transects were concentrated in habitats that were considered most likely to provide suitable bat foraging habitat, such as around woods, and along hedges and tree lines. Since the majority of the site comprised intensively farmed arable fields, the boundary hedges and tree lines were considered the most likely areas for bats to forage on site. A varying number of these transects were surveyed each night, depending on the weather, and general levels of bat activity. All transects were walked at least twice over the five nights.
- 2.3 Surveys generally took place during suitable weather conditions, namely still or light wind, and dry or only light drizzle. However, on one night (06/09/02), the wind increased in strength over the evening and was considered force 5 by the end of the evening. This probably influenced the distribution of bats, with bats being concentrated in sheltered areas, where insect prey is likely to be most frequent.
- 2.4 To detect bats, the surveyors walked slowly along the transects with a Petterson D240X. The location of any bat passes recorded were noted. Where possible bats were identified to species level, using a combination of the surveyor's experience and analysis of recorded calls using the BatSound software. Survey work generally took place from dusk for approximately four hours, or until bat activity declined significantly.
- 2.5 It should be noted that interpretation of bat transect survey data is problematic in that bat activity is variable from one night to the next. In addition, unless the bats are observed, it can be difficult to distinguish whether repeated contacts at the same location are from several different bats or the same bat passing over the surveyor more than once. Such data cannot therefore be used as an index of abundance, but instead represents an index of activity which should be interpreted cautiously. The primary use of transect data is in compiling a species list and in identifying areas of particular importance for bats, either for foraging or as flight lines between roosting sites and foraging habitat.
- 2.6 A further constraint is that some bat species, particularly Brown Long-eared bats *Plecotus auritus*, are under-recorded because their calls are very quiet.
- 2.7 In addition to these transects, emergence surveys of the buildings at Barton Farm (within the site boundary) and Well House Farm (just adjacent to the site boundary) were carried out at dusk to assess the probability of the buildings supporting bat roosts. The observer walked around the buildings from half an hour before dusk to c. 1 hour after dusk, looking out for bats exiting from the building, with attention focused on likely emergence points such as under the roofs and entrances to outbuildings. The buildings at Barton Farm were observed on the 21st August, 22nd August and 18th September 2002. The buildings at Well House Farm were observed on the 6th and 7th September 2002. Since it is understood that the buildings will be unaffected by the proposed development, detailed internal and external inspection of the buildings was not undertaken at this stage.
- 2.8 It is not anticipated that any mature trees will be felled on site, except possibly to make way for additional entrance roads to the site off Andover Road. Consequently, the mature trees along Andover Road were assessed at the two possible entrance

points, labelled A and B on Figure 2.1, together with all trees between these, to determine their potential to support bat roosts. This was done on the 24th October 2002, once the trees had dropped their leaves, enabling a thorough visual inspection of the trees to be undertaken (from the ground only). Any trees with potential roost sites, such as holes, crevices, cracks in the bark or dense ivy were noted.

3 RESULTS

3.1 Bat foraging survey

- 3.1.1 A total of 51 bat passes were detected over 5 evenings of surveying at Barton Farm. The vast majority of bat passes recorded on site were Pipistrelles, primarily Common Pipistrelle *Pipistrellus pipistrellus* but also the occasional Soprano Pipistrelle *Pipistrellus pygmaeus*. In addition, there were two records of Noctules *Nyctalus noctula*. These are all relatively common and widely distributed bats in the UK (Richardson, 2000), although Pipistrelles are UK Biodiversity Action Plan priority species, on account of their declining populations.
- 3.1.2 It should be noted that it is likely that Brown Long-eared Bats *Plecotus auritus* were under recorded by the survey as they have very faint echo location calls and are consequently rarely picked up by bat detectors. Since a bat that was probably a Brown Long-eared Bat was detected flying just outside the site, by Well House Farm (see Section 3.2), it is assumed likely that this species also forages on site.
- 3.1.3 The species and numbers of bats recorded along the transects are given in Table 3.1. It can be seen that the highest numbers of bat passes were recorded along Transect 9 (Figure 2.1) which ran along the line of Beech Trees in the centre of the site. More than one bat pass was also recorded along Transect 4 (along the hedgerow running up Andover Road, north of Barton Farm), Transect 8 (along the northern section of the railway embankment), Transect 12 (along the hedgerow running up Andover Road, south of Barton Farm), Transect 13 (the railway embankment, east side), Transect 15 (along the hedgerow running up Worthy Road, near Abbots Barton), and Transect 19 (a hedgerow in the southwest of the site).
- 3.1.4 All the bats recorded were flying along the linear features on the site, ie. the hedges and tree lines. None were recorded over the fields. Although survey effort was concentrated along the field edges, it is likely that bats foraging over the fields, within 10-100m (depending on the species) of the field edges, would also have been detected.

Table 3.1. Summary of number of bat passes recorded along each of the 19 transects at Barton Farm.

(CP=Common Pipistrelle; SP=Soprano Pipistrelle; N=Noctule; n/a indicates that the transect was not walked on that particular night).

Transect no.	Bats recorded 21/08/02	Bats recorded 22/08/02	Bats recorded 06/09/02	Bats recorded 07/09/02	Bats recorded 18/09/02
1	None	n/a	n/a	None	n/a
2	None	n/a	None	n/a	1CP
3	1 CP	n/a	None (transect walked twice)	n/a	None
4	2 CP	n/a	6CP, 1SP	n/a	n/a
5	None	n/a	None	n/a	n/a
6	None	n/a	None	n/a	n/a
7	None	n/a	1CP	n/a	n/a
8	None	n/a	5CP	n/a	n/a
9	5 CP, 1SP & 1N	2CP & 1N	9CP (possibly same individual passing repeatedly)	n/a	1 CP (transect walked twice)
10	1CP	n/a	None	None	n/a
11	None	n/a	None	None	None
12	1CP	n/a	None	None	1CP
13	n/a	2CP	n/a	None	n/a
14	n/a	None	n/a	None	1CP
15	n/a	3CP	n/a	1CP & 1SP	None
16	n/a	None	n/a	None	n/a
17	n/a	None (transect walked twice)	n/a	None	n/a
18	n/a	None (transect walked twice)	n/a	n/a	None
19	n/a	n/a	None	None	2CP & 1SP

3.2 Emergence surveys of buildings

3.2.1 Barton Farm comprises two semi-detached houses, numerous barns and outbuildings, and two wooden buildings which have been converted to office use. None of the buildings were inspected in detail, but the most likely places for bats to roost were thought to be in the houses and nearby outbuildings, particularly the long low outbuilding in the garden of one of the houses. The barns are primarily of metal construction with few apparent potential roost sites. Table 3.2 reports the bats recorded around Barton Farm during the three evening watches. No bats were observed emerging and only two bats were recorded in the vicinity – one Common

Pipistrelle which flew in from the barn direction and fed repeatedly up and down the hedge in front of the house on all three evenings, together with occasional records of Common Pipistrelles (possibly the same one) feeding around the barns. One of the residents noted that a single bat regularly flew up and down outside the front of the houses just after dusk but had not noticed any concentrations of emerging bats from the buildings.

3.2.2 It is thought unlikely that the buildings at Barton Farm provided roosting habitat for large numbers of bats, at the time of the survey, but it is possible that small numbers of bats were roosting there. Since not all potential exit points could be watched all the time, it is possible that bats exiting from the buildings went unobserved. Further evening surveys, earlier in the year when the bats are breeding and detailed internal examination of the buildings would be required to locate roosting sites, and to evaluate the possibility of the buildings supporting major maternity roosts.

Table 3.2. Summary of number of bat passes recorded around the buildings at Barton Farm on the three evenings of survey (CP=Common Pipistrelle).

	21/08/02	22/08/02	18/09/02
Bat passes recorded	20.45 1CP flies along conifer hedge on south side of farm track, appearing from easterly direction. Feeds up and down hedge for 15 minutes. 21.10 1CP feeding behind main barn, along tree line.	20.55 1CP flies along conifer hedge on south side of farm track, appearing from easterly direction. Feeds up and down hedge for 10 minutes. 21.10 1CP feeding behind second barn, along tree line.	19.30-20.30 Occasional CP flying along conifer hedge, along side of wooden office buildings and along tree line behind barns. Never more than 1CP recorded at a time, so possible that it is same individual.

3.2.3 Well House Farm comprises a house, a large metal barn and a number of outbuildings, including a long low outbuilding along the road which had many potential bat access points. None of the buildings were inspected in detail, but the most likely places for bats to roost were thought to be in the roof of the house, particularly behind the fascia boards, and in the low outbuilding.

3.2.4 Table 3.3 reports the bats recorded around Well House Farm during the two evening watches. No bats were observed emerging and only the occasional Common Pipistrelle and Soprano Pipistrelle was observed in the vicinity. The residents (M. & N. Parry) reported no sightings of bats exiting the buildings or knowledge of roosts in the area. On the first night of observation a bat was observed flying along the side of the long low outbuilding on the roadside and then crossing the road – it was considered likely that this was a Brown Long-eared Bat as only a very brief, weak signal was picked up on the bat detector.

3.2.5 It is thought unlikely that the buildings at Well House Farm provided roosting habitat for large numbers of bats, at the time of the survey, but it is possible that small numbers of bats were roosting there. Since not all potential exit points could be watched all the time, it is possible that bats exiting from the buildings went unobserved. Further evening surveys, earlier in the year when the bats are breeding and detailed internal examination of the buildings would be required to locate roosting sites, and to evaluate the possibility of the buildings supporting major maternity roosts.

Table 3.3. Summary of number of bat passes recorded around the buildings at Well House Farm on the two evenings of survey.

(CP=Common Pipistrelle; SP=Soprano Pipistrelle; BLEB=Brown Long-eared Bat).

	06/09/02	22/08/02
Bat passes recorded	20.00 1 CP flies along side of long low outbuilding, but not seen emerging from building. 20.05 1BLEB? flies along side of long low outbuilding but not seen emerging from building. 20.25 1SP feeding along road beside house.	20.20 1CP feeding around shed at entrance to horse field opposite house entrance.

3.3 Assessment of trees for potential bat roosts

Site A

3.3.1 A bus shelter was situated opposite the entrance to Stoney Lane; when facing Stoney Lane, the third tree to the left of the bus shelter had a small depression/cavity, but the next two trees did not appear to have potential roost sites. To the right of the bus shelter the first tree did not appear to have roost sites, the next tree was ivy-covered so it was not possible to assess this tree in detail, but the ivy itself may provide potential roosting habitat. Beyond this point, almost without exception all the trees extending from this point to the footpath entrance (the footpath leading up to the line of Beech trees) had small holes, wells and crevices.

Site B

3.3.2 The trees and hedgerow running from the footpath entrance (the footpath leading up to the line of Beech trees) to Site B, opposite a garage and where Andover Road North becomes a dual carriage way, were all quite young and did not appear to have potential roost sites for bats.

3.3.3 Once the positions of the access roads have been finalised, further work will be needed to evaluate any trees on Andover Road which will be felled, to determine whether bat roosts are present in the trees. This will either comprise detailed evening emergence surveys of particular trees or inspection of potential roost sites using bat workers with an endoscope.

4 CONCLUSIONS

4.1 Survey of bat foraging activity

4.1.1 The Barton Farm site is considered to support a relatively species-poor bat community, with only three, or possibly four, species recorded (Common Pipistrelle, Soprano Pipistrelle, Brown Long-eared Bat (possibly, at Well House

Farm) and Noctule). All these bats are widely distributed in England (Richardson, 2000).

- 4.1.2 In general the number of bat passes recorded was low, suggesting that all four species recorded during the survey occur at relatively low density. The most likely reason for this is that the majority of the Barton Farm site provides relatively poor quality bat foraging habitat, comprising large intensively farmed arable fields which do not support high densities of invertebrates on which bats feed. The areas where bats were most frequently encountered were the strip of Beech trees through the centre of the western part of the site, together with some of the taller hedgerows.

4.2 Survey of buildings

- 4.2.1 It is understood that the buildings at Barton and Well House Farm will be unaffected by the proposed development. However, emergence surveys were carried out to provide background information on the site. It is thought unlikely, due to the low numbers of bats recorded in the area, that either Barton Farm or Well House Farm supported major bat roosts at the time of the survey. However, due to the timing and the limited extent of the survey, the potential for the site to support roosts could not be fully evaluated. The surveys were carried out too late in the year to detect maternity roosts, which by August/September are likely to have broken up and the bats dispersed.

4.3 Potential impact of the proposed development on bats

- 4.3.1 The arable fields which comprise the majority of the site do not currently provide good bat foraging habitat and, consequently, the few bats recorded were concentrated along the hedgerows and treelines. As a result the loss of the arable habitat is not likely to have a significant detrimental effect on the local bat population. Retention of the two areas of Beech trees together with as many of the hedgerows and mature boundary trees as possible will minimise the impact of the proposed housing development on bats. In addition, adaptive management of the proposed Country Park could enable this area to support higher densities of a range of bat species (see Section 4.4 below).
- 4.3.2 Pipistrelles are commonly recorded feeding in and around urban developments and it is likely that they will adapt to the change in use of the site. However, minimisation of light pollution through the use of low-level lighting wherever possible will minimise adverse impacts on any bats foraging in the area.

4.4 Enhancement of bat habitat over the whole Barton Farm Site

- 4.4.1 There are a number of opportunities for enhancing the bat habitat on the Barton Farm site, in terms of both foraging and roosting habitat. In particular, the provision of a Country Park on the eastern part of the site will provide a large area of potential bat foraging habitat. The area could be managed to increase habitat diversity and provide improved bat foraging habitat, for example, by planting species-rich seed mixes in areas of open grassland, creating ponds, and planting small copses of deciduous trees joined by hedges, shrubs or tree lines. It is thought that suitable management could increase both the abundance and diversity of bats in the local

area in the long term, in particular by attracting *Myotis* bats, none of which are currently recorded on site.

- 4.4.2 Hedges over the whole site could also be managed more appropriately for bats, as well as other wildlife. In particular, hedge cutting should be kept to the minimum required to maintain hedge structure (not more than every two years) and trees should be allowed to mature along hedge lines at regular intervals (every c. 20m or so). Further information is provided in JNCC (2001). Many species of bat rarely cross open areas but follow hedgerows, tree lines and grassy banks when moving between roosts and foraging sites. Gaps in hedges and tree lines of as little as 10m can discourage bats from using the feature as a flight path. Consequently, infilling any gaps in the hedges or tree lines would ensure that bats make full use of these areas. All new hedges should be designed wherever possible to be continuous, with regular standard emergent trees at intervals (c. every 20m), and be allowed to mature to >2m in height if possible.
- 4.4.3 Although there are mature trees on the site, primarily in the patches of Beech and long Andover Road, the provision of bat boxes would provide some additional roosting habitat and encourage bats to make use of the new habitat provided in the country park area.

5 REFERENCES

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