

Nocturnal Bat Survey Report

Site: Trinity Barns, Donnington, Moreton-in-Marsh,
Gloucestershire, GL56 0XZ

Client: Kate and Jane Molloy



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QUALITY CONTROL

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The information in this report has been prepared in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. The conclusions and recommendations expressed are reasoned judgements based on the evidence.

Every reasonable attempt has been made to comply with BS42020:2013 *Biodiversity – Code of practice for planning and development*, CIEEM *Guidelines for Ecological Report Writing* (CIEEM, 2017) and Bat Conservation Trust's *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edition, Collins, 2016). If there has been deviation from recognised practice, justification/explanation has been given.

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SUMMARY

At Trinity Barns in Donnington, near Moreton-in-Marsh, Gloucestershire, planning permission is being sought to convert the cart shed.

As this could impact on features typically used by bats as roosting places, a diurnal inspection was undertaken on 16th January 2023, to assess the building for signs of bat occupation.

The suitability for roosting pipistrelles *Pipistrellus sp.* was considered to be low to moderate, as there were a number of gaps under the roof tiles.

Furthermore, the cart shed allowed access into a small roof void over the adjoining barn. Within this, several hundred bat droppings were found beneath the plumb cut. The droppings ranged in age, with some appearing to be from within the last year. The shape, size and location of the droppings were typical of a Lesser Horseshoe Bat *Rhinolophus hipposideros*. The species was later confirmed by DNA analysis.

As such, two nocturnal surveys were carried out to assess the level of bat use on the site. The first emergence survey was undertaken on the evening of 6th June 2023, with the second survey on the evening of 20th June 2023.

During the first nocturnal survey on the evening of 6th June foraging was recorded by Common Pipistrelle *Pipistrellus pipistrellus*, with passes from Brown Long-eared *Plecotus auritus* and Noctule *Nyctalus noctula*. No bats were seen to emerge from the cart shed.

The second nocturnal survey on the evening of 20th June revealed foraging from Noctule and Common Pipistrelle, with a single pass from a Soprano Pipistrelle *Pipistrellus pygmaeus*. No bats emerged from the cart shed.

From the inspection and nocturnal surveys, the status of bats at the cart shed was considered thus:

- Lesser Horseshoe – occasional/transitory non-breeding roost for one animal.

As the entrance to the roost will be lost when the cart shed is converted a licence will be required. Given the low status of the roost, the site is eligible for registration under Natural England's Bat Mitigation Class Licence (BMCL) scheme.

Mitigation measures will include a 'toolbox talk' by a Registered Consultant (RC) to contractors about bats and what to do if one is unexpectedly encountered, a pre-works inspection of the roof void by the RC, supervision of the destructive roof works by the RC, the latter undertaken by hand and the provision of a Schwegler 1FD bat box (or similar) on a retained tree in the garden or on a gable end of the building in which to relocate a bat if one is discovered before or during demolition.

The roost site will be retained, with the entrance from the interior of the cart shed closed off and a new entrance created on the hipped end to the west of the barn. This will measure 300 mm wide and 200 mm high and will be built into the roof tiles.

It should be noted that under BMCL there will be no timing constraints, and an ecologist will be present at all key stages to ensure the replacement roosting provision is correctly installed.

1. INTRODUCTION

At Trinity Barns in Donnington, near Moreton-in-Marsh, Gloucestershire, planning permission is being sought to convert the cart shed.

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The suitability for roosting pipistrelles was considered to be low to moderate, as there were a number of gaps under the roof tiles.

Furthermore, the cart shed allowed access into a small roof void over the adjoining barn. Within this, several hundred bat droppings were found beneath the plumb cut. The droppings ranged in age, with some appearing to be from within the last year. The shape, size and location of the droppings were typical of a Lesser Horseshoe Bat. The species was later confirmed by DNA analysis.

As such, two nocturnal surveys were carried out to assess the level of bat use on the site. The first emergence survey was undertaken on the evening of 6th June 2023, with the second survey on the evening of 20th June 2023.

The results of the nocturnal surveys are contained in this report.

In England, Scotland and Wales, all bat species are fully protected under the Wildlife and Countryside Act 1981 (WCA) (as amended), through inclusion in Schedule 5. In England and Wales this Act has been amended by the Countryside and Rights of Way Act 2000 (CRoW), which adds an extra offence, makes species offences arrestable, increases the time limits for some prosecutions, and increases penalties.

All bats are also included in Schedule 2 of the Conservation (Natural Habitats, & c.) Regulations 1994, (or Northern Ireland 1995) (the Habitats Regulations), which defines 'European protected species of animals'.

The above legislation can be summarised thus (Mitchell-Jones and McLeish, 2004):

- ❑ *Intentionally or deliberately kill, injure or capture (or take) bats*
- ❑ *Deliberately disturb bats (whether in a roost or not)*
- ❑ *Recklessly disturb roosting bats or obstruct access to their roosts*
- ❑ *Damage or destroy roosts*
- ❑ *Possess or transport a bat or any part of a part of a bat, unless acquired legally*
- ❑ *Sell (or offer for sale) or exchange bats, or parts of bats*

The word 'roost' is not used in the legislation, but is used here for simplicity. The actual wording is 'any structure or place which any wild animal...uses for shelter or protection' (WCA), or 'breeding site or resting place' (Habitats Regulations).

As bats generally have both a winter and a summer roost, the legislation is clear that all roosts are protected whether bats are in residence at the time or not.

2. METHODOLOGY

In order to fully assess bat occupation of a particular site, the Bat Conservation Trust (2016) recommends that information gathered from a desk study of known bat records, and a daytime site walkover, is used to inform the type and extent of future bat survey work, potentially including nocturnal surveys.

The diurnal walkover provides an opportunity to check for signs of occupancy, such as droppings, scratch marks, feeding remains, carcasses, or even animals in residence, whilst nocturnal surveys (if required) allow numbers and species of bats to be confirmed. The latter are also used to determine the presence or absence of bats, where signs of bat activity are indeterminate or absent but the suitability for bat roosting is considered to be low, medium or high.

Roosting places vary depending on the species. Pipistrelles usually inhabit narrow cracks or cavities around the outside of buildings, but they will roost in similar niches inside larger barns. Typical sites include soffit spaces, gaps behind fascia boards and end rafters, crevices around the ends of projecting purlins, under warped or lifted roof and ridge tiles, or in gaps in stone and brickwork where mortar has dropped out.

Larger species such as Brown Long-eared Bats, Myotis bats (Natterer's and Whiskered/Brandt's), and Lesser Horseshoes *Rhinolophus hipposideros*, like to roost in the roof voids of buildings, and can often be found hanging singly or in small groups from ridge boards or roof timbers, especially where these butt up against gable walls or chimney breasts. They especially favour older structures with timber frames. Here they squeeze into tight crevices making them difficult to observe.

Diurnal walkovers can be carried out at any time of the year, but nocturnal surveys should only be undertaken when bats are out of hibernation and in their summer roosts. The recommended period is from May to September inclusive, with May to August optimum and September sub-optimum. The season can be extended into October, although particularly cold weather will render this inadvisable. Indeed, the air temperature at the start of each survey must be at least 10°C or above.

Visits will be a minimum of two weeks apart, and the number of surveys is dependent on the evidence found or the suitability of the site to bats.

Where bats are found, or there is evidence of bat occupation or activity, i.e. that bat use is confirmed, the number and timing of visits will be decided by the ecologist, and will be appropriate for the type of roost. In general at least two nocturnal surveys will be carried out, both of which can be emergence surveys, or one emergence and one dawn re-entry.

Where there is no evidence of bat presence, and no suitability for roosting, no nocturnal surveys will be needed.

For a site with no evidence but low suitability, just one nocturnal emergence survey is required, this to be in the optimum period.

For medium suitability a minimum of two visits are needed, of which one must be in the optimum period, and one must be a dawn re-entry survey. With high suitability, three visits will be necessary, of which two must be in the optimum period. At least one of these must be a dawn re-entry survey, with the third visit either an emergence or a dawn re-entry.

For sites < 5 ha in size, and/or regularly shaped structures, at least two surveyors must be present, with more surveyors at larger sites and more complex buildings, e.g. those with multiple elevations and/or roof structures.

On the evenings of 6th and 20th June 2023, nocturnal surveys of the cart shed were undertaken by Mollie Paxford and an assistant.

The emergence surveys began 15 minutes before sunset and continued for up to one and three quarters hours after.

The surveys were aided by the use of electronic Echo Meter Touch bat detectors and iPads. This facilitates the detection of bats, and computer analysis of recordings aids in the identification of individual species, in particular those which might be utilising different frequencies simultaneously.

The results of the nocturnal surveys are detailed in Section 3.

3. RESULTS

3.1 First Emergence Survey

The first emergence survey was carried out on 6th June 2023, commencing at 21:00 and finishing at 22:50. The weather conditions during the time of the survey were recorded and are presented in Table 1.

Parameter	Value
Temperature (°C)	14.5 start, 13.0 finish
Cloud cover (%)	40
Precipitation	None
Wind speed (Beaufort scale)	0
Sunset	21:22

Table 1 Weather conditions during the first emergence survey

During the first nocturnal survey foraging was recorded by Common Pipistrelle, with passes from Brown Long-eared and Noctule. No bats were seen to emerge from the cart shed.

The times of bat observations and detections are shown below.

Time	Observation
21:23	Noctule passed over the site
21:44	Common Pipistrelle (CP) flew along the lane
21:48	CP foraging around the yard
21:53	Noctule passed over the site
22:01	CP foraging in the yard briefly
22:06	CP flew down the lane from the west and off to the east
22:12	Brown Long-eared (BLE) flew along the lane
22:15	CP foraging in the yard
22:21	BLE heard along the lane
22:23	BLE heard along the lane
22:27	CP foraging in the yard
22:50	Intermittent CP activity until survey ended

The bat flight paths at first emergence are shown on Plan 1 overleaf.

Plan 1 Bat flight paths at first emergence on 6th June 2023



Common Pipistrelle Bat →

Noctule Bat →

Brown Long-eared Bat →

Positions of observers ✨

3.2 Second Emergence Survey

The second emergence survey was carried out on 20th June 2023, commencing at 21:15 and finishing at 23:00. The weather conditions during the time of the survey were recorded and are presented in Table 2.

Parameter	Value
Temperature (°C)	17.5 start, 16.0 finish
Cloud cover (%)	60
Precipitation	None
Wind speed (Beaufort scale)	0
Sunset	21:31

Table 2 Weather conditions during the second emergence

The second nocturnal survey revealed foraging from Noctule and Common Pipistrelle, with a single pass from a Soprano Pipistrelle. No bats emerged from the cart shed.

The times of bat observations and detections are shown below.

Time	Observation
21:48	Noctule passed over the site
21:52	Noctule and Common Pipistrelle (CP) flew along the road
21:57	Noctule and CP foraging over the yard
21:59	CP foraging opposite the cart shed
22:07	CP flew up the road from east to west
22:17	Soprano Pipistrelle flew down the road from west to east
22:21	Noctule foraging over the site
22:23	Intermittent CP and Noctule foraging until survey ended

The bat flight paths at second emergence are shown on Plan 2 overleaf.

Plan 2 Bat flight paths at second emergence on 20th June 2023



Common Pipistrelle Bat →

Soprano Pipistrelle Bat →

Noctule Bat →

Positions of observers *

4. CONCLUSIONS AND RECOMMENDATIONS

Bats tend to be seasonal visitors to properties, and are not usually in occupation all year round. The females normally form maternity colonies during May or June and then leave for adjacent trees and/or woodland during July or August once the young bats are able to fly and become independent. Here they will spend the winter months in hibernation before returning to the house or barn the following spring.

Male bats generally live alone and have a number of favoured roosts. During the summer they visit each of these for a few days at a time, before moving to their chosen hibernation site in mid-late October.

Different species have different habits, but this seasonal movement is common to all.

Bats choose their roosts carefully. During the summer they look for sites which are warmed by the sun, and as a result are most often found on the south and western side of buildings.

Pipistrelles, our smallest and commonest bats, prefer to roost in very confined spaces around the outside of buildings, typical places being behind hanging tiles, weather boarding, soffit, barge and eave boarding, between roof felt and roof tiles or in cavity walls.

As such they can be difficult to find, so suitability for roosting was also assessed. This was considered to be low to moderate, as there were a number of gaps under the roof tiles. However, nocturnal surveys confirmed the absence of roosting pipistrelles, although low levels of foraging were recorded.

The cart shed allowed access into a small roof void over the adjoining barn. Within this, several hundred bat droppings were found beneath the plumb cut. The droppings ranged in age, with some appearing to be from within the last year. The shape, size and location of the droppings were typical of a Lesser Horseshoe. The species was later confirmed by DNA analysis.

No Lesser Horseshoe Bats were seen to emerge from the cart shed, although Brown Long-eared Bats were recorded foraging in the area.

From the inspection and nocturnal surveys, the status of bats at the cart shed was considered thus:

- Lesser Horseshoe – occasional/transitory non-breeding roost for one animal.

As the entrance to the roost will be lost when the cart shed is converted a licence will be required. Given the low status of the roost, the site is eligible for registration under Natural England's Bat Mitigation Class Licence (BMCL) scheme.

Mitigation measures will include a ‘toolbox talk’ by a Registered Consultant (RC) to contractors about bats and what to do if one is unexpectedly encountered, a pre-works inspection of the roof void by the RC, supervision of the destructive roof works by the RC, the latter undertaken by hand and the provision of a Schwegler 1FD bat box (or similar) on a retained tree in the garden or on a gable end of the building in which to relocate a bat if one is discovered before or during demolition.

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It should be noted that under BMCL there will be no timing constraints, and an ecologist will be present at all key stages to ensure the replacement roosting provision is correctly installed.

5. REFERENCES

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APPENDICES

Appendix 1: Location plan

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Trinity Barns cart shed, Donnington