

**Bat Survey Report for
Lemell Hooks Buildings at
North Rye House, Donnington,
Moreton-in-Marsh, GL56 0XU**



Cotswold Wildlife Surveys

13th July and 4th August 2021

QUALITY CONTROL

Date	Version	Name
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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 North Rye House near Donnington, Moreton-in-Marsh, planning permission is being sought for conversion to residential use of a set of outlying agricultural buildings called Lemell Hooks Buildings.

As this could impact on features typically used by bats as roosting places, a diurnal inspection was undertaken on 13th July 2021, to assess the buildings for signs of bat occupation.

All the external and internal structures, especially those associated with the roofs and walls of the buildings were examined.

Although no signs of bat activity or occupation were found, the suitability for roosting pipistrelles *Pipistrellus sp* was considered to be low, as there were a few gaps under the tiles and ridge of the stone roofed barn.

Given the low suitability, a nocturnal emergence survey was undertaken on the evening of 4th August 2021 to ascertain the bat use of the buildings.

The survey revealed very low levels of bat activity. A single Common Pipistrelle *Pipistrellus pipistrellus* flew past the buildings, with a single Barbastelle *Barbastella barbastellus* recorded later in the survey. A Noctule Bat *Nyctalus noctula* was also noted flying overhead. No bats emerged from the buildings.

At the times of the surveys, the Lemell Hooks Buildings were not identified as a bat roost, and as such no further surveys or mitigation measures are required.

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No birds' nests were found in or on the Lemell Hooks Buildings.

1. INTRODUCTION

In June 2021, Cotswold Wildlife Surveys was instructed to undertake a bat survey of the Lemell Hooks Buildings at North Rye House, Donnington, Moreton-in-Marsh. On 13th July 2021, a visit was made to the buildings to carry out a diurnal inspection to check for signs of bat occupation.

Although no evidence of bat occupation was found, the suitability of the buildings for roosting bats was considered to be low. As such a nocturnal emergence survey was undertaken on the evening of 4th August 2021.

The results of the 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 suitability of roosting is considered to be medium to 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 *Plecotus auritus*, Myotis bats (Natterer's *Myotis nattereri* and Whiskered/Brandt's *M. mystacinus/M. brandtii*), 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 13th July 2021 a thorough inspection of the Lemell Hooks Buildings was made by Andy Warren (Natural England bat licence No. 2015-16489-CLS-CLS), including the exterior and interior walls, roof covering, roof spaces, eaves, gables and door frames.

10x42 Nikon binoculars and a Fenix TK75 torch were used for the inaccessible/unreachable areas. On this occasion an endoscope was not used, as there were no crevices and cavities that could not be inspected with a torch or by use of binoculars from a ladder.

A nocturnal emergence survey was subsequently undertaken on the 4th August 2021 by Neil Musgrave (Natural England bat licence No. 2020-44602-CLS-CLS), and two assistants. The survey started 15 minutes before sunset and continued for one and a half hours after sunset.

The survey was aided by the use of Wildlife Acoustics Echo Meter Touch detectors and iPads.

The results of the visit and survey are detailed in Section 3.

3. RESULTS

3.1 Desk Study

In view of the known presence of bats in North Rye House, a background data search was not carried out in this case.

However, CWS has carried out many surveys in the area, i.e. within a 10 km radius, over the last 13 years, with species recorded including Common and Soprano Pipistrelles, Brown Long-eared, Natterer's, Whiskered/Brandt's, Daubenton's *Myotis daubentonii*, Noctule, Leisler's *Nyctalus leisleri*, Lesser Horseshoe, Serotine *Eptesicus serotinus* and Barbastelle.

These include several maternity roosts, in particular for Brown Long-eared, Lesser Horseshoe and Barbastelle.

3.2 Location

The Lemell Hooks Buildings at North Rye House are located 3.3 km northeast of Stow-on-the-Wold near the small hamlet of Donnington (1.4 km to the west-southwest). The buildings are accessed via a long driveway off the Fosse Way, and lie at Ordnance Survey Grid Reference SP 20242 28742 and What3Words location; spinning.fights.strategy (Appendix 1).

3.3 Site Description

The survey site comprised a set of redundant agricultural buildings, these consisting of a stone barn with pitched stone tiled roof, a single storey, open fronted cart-hovel with pitched corrugated steel roof, and a partly walled courtyard on the west side of the buildings (Figs. 1 and 2).



Figs. 1 & 2 Lemell Hook Buildings

The buildings were set in open fields adjacent to a hedgerow with large trees within it.

The buildings (Figs. 3 and 4) lay approximately 350m to the west-northwest of North Rye House.



Figs. 3 & 4 Lemell Hooks buildings

The layout of the site is shown in the aerial photograph in Appendix 2.

3.4 Building Survey

The daytime inspection was carried out on 13th July 2021 commencing at 14:30. The weather conditions during the time of the survey were recorded and are presented in Table 1 below.

Parameter	Value
Temperature (°C)	15.5
Cloud cover (%)	100
Precipitation	None
Wind speed (Beaufort scale)	0

Table 1 Weather conditions during the diurnal survey

3.4.1 Bats

Barn

The ridge and roof tiles of the pitched stone roof were fully intact, although some small gaps were noted under a few tiles on the slopes where they were slightly raised or dislodged (Figs. 5 and 6).



Figs. 5 & 6 Roof of stone barn

There were also a few cavities created by some missing mortar in the stonework, and gaps behind the gable barge boards, although the latter were choked with cobwebs. The verges were tight (Figs. 7 and 8).



Figs. 7 & 8 Verges (L) and stone wall showing cavities in the pointing (R)

No signs of bat activity were found around the outside of the barn.

Internally the roof was lined with intact bitumen felt and there was no light penetration to the interior through the roof slopes (Figs. 9 and 10).



Figs. 9 & 10 Interior of stone barn

No evidence of bat occupation was discovered inside the barn.

Cart-hovel

Adjoining the barn was a fairly long, single storey building with a pitched roof covered by corrugated metal sheets (Fig. 11). These were all intact and the ridge was sealed by metal flashing, although there were gaps under the corrugations.

There were gaps under the roof sheets at the gable end (Fig. 12), but the eaves were clipped on the east side and the metal sheets were tight against timber wall plates.

The west elevation of the building was open-fronted and supported by stone pillars (Ref. Fig. 11). These were fully pointed, as was the east elevation and south gable end (Fig. 12).

The interior was open to the roof, this unlined and unsuitable for bat roosting.



Figs. 11 & 12 Cart-hovel

3.4.2 Other species

Apart from spiders and insects, there were no signs of other species using the buildings. No birds' nests were found in or on the buildings, and there were no signs of owl use.

3.5 Emergence Survey

The emergence survey was conducted on 4th August 2021, commencing at 20:30 and finishing at 22:20. The weather conditions during the time of the survey were recorded and are presented in Table 2.

Parameter	Value
Temperature (°C)	18.5 start; 17.0 finish
Cloud cover (%)	30
Precipitation	None
Wind speed (Beaufort scale)	0
Sunset	20:51

Table 2 Weather conditions during the emergence survey

The survey revealed very low levels of bat activity. A single Common Pipistrelle flew past the buildings, with a single Barbastelle detected later in the survey. A Noctule Bat was also noted flying overhead. No bats emerged from the buildings.

The times of bat detections and observations are shown in the table below.

Time	Observation
21:02	Noctule flew over
21:16	Common Pipistrelle flew past
21:53	Barbastelle Bat flew past
22:20	No more detections or observations and the survey ended

The bat flight paths at emergence are shown in Appendix 3.

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 the suitability for roosting was also assessed.

This was considered to be low, as there were a few gaps under stone roof tiles and there were a few areas of missing mortar in the stonework of the walls.

However, the absence of roosting pipistrelles was confirmed by the nocturnal survey, when only one Common Pipistrelle was noted flying over the buildings having merged from elsewhere.

Another bat frequently encountered in buildings is the Brown Long-eared. This is also a common species, but unlike pipistrelles, they prefer the dry, warm space of the loft or roof void, and can often be found hanging from roof timbers, especially rafters and the ridge board next to chimney breasts.

No signs of Brown Long-eared Bat activity were found, nor indeed signs of other species which are commonly found in roof spaces.

At the time of the surveys the Lemell Hooks buildings were not identified as a bat roost, and as such no further surveys or mitigation measures are required.

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No birds' nests were found in or on the buildings, and there were no signs of owl activity.

5. REFERENCES

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APPENDICES

Appendix 1: Location plan

Appendix 2: Site layout

Appendix 3: Bat flight paths at emergence on 4th August 2021

Appendix 1: Location plan



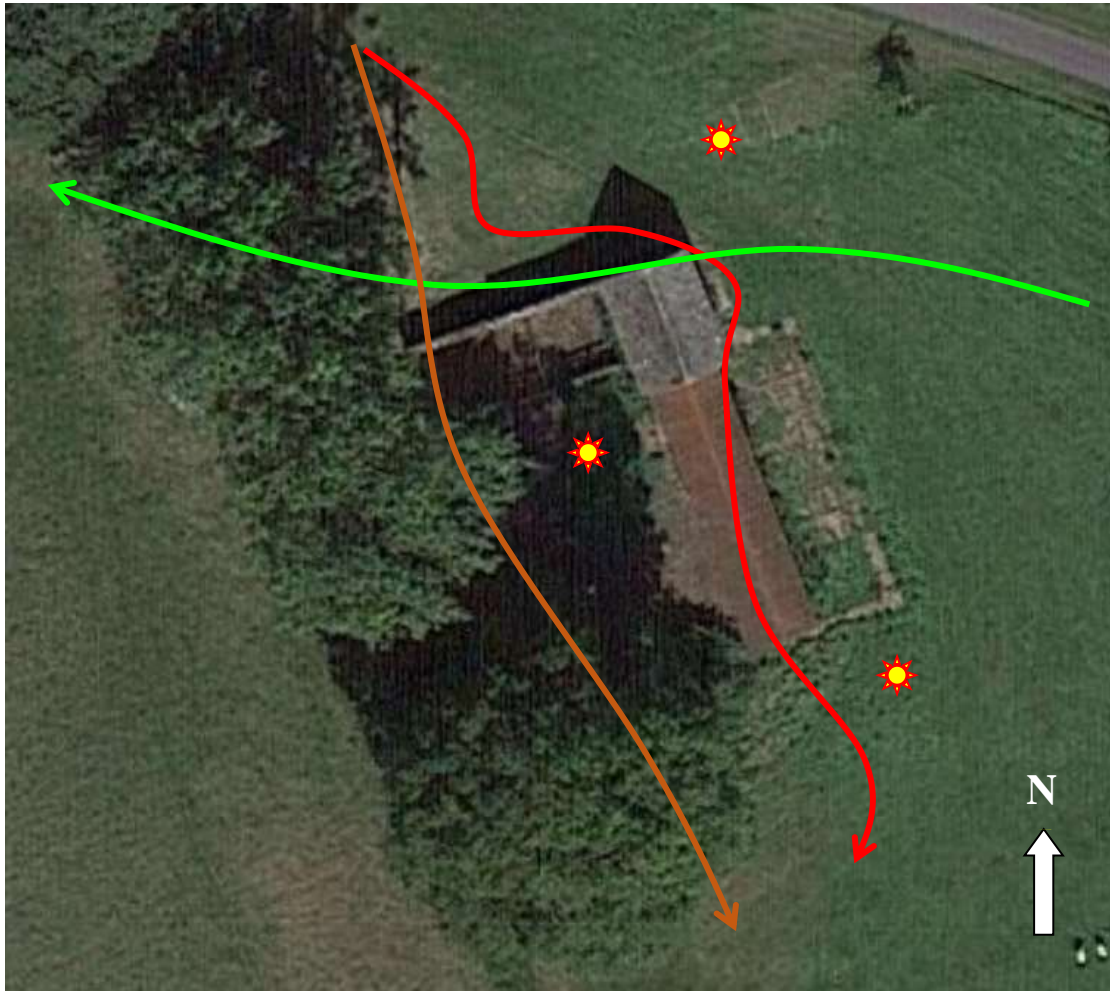
Lemell Hooks Buildings, North Rye House

Appendix 2: Site layout



North Rye House

Appendix 3: Bat flight paths at emergence on 4th August 2021



Common Pipistrelle/s 

Barbastelle Bat 

Noctule Bat 

Positions of observers 

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Lemell Hooks Buildings, North Rye House, Donnington – Bat Survey Report

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Report Number: 3239-CWS-05

Version: 01

Date: 15th October 2021