

**2022 Bat Survey Report for
North Rye House, Donnington,
Moreton-in-Marsh, GL56 0XU**



Cotswold Wildlife Surveys

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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 a replacement dwelling. The works include the demolition of the existing house.

The house originally contained a maternity roost of Brown Long-eared Bats *Plecotus auritus* in the attic rooms, but these were excluded from the building in February 2020 under licence from Natural England. A replacement roost site (bat house) was created in a nearby barn.

However, whilst surveying the Brown Long-eared Bats in 2018, small numbers of Common and Soprano Pipistrelles *Pipistrellus pipistrellus* and *P. pygmaeus* were found roosting under the roof tiles.

Two nocturnal emergence surveys were subsequently carried out on the evenings of 4th and 20th August 2021.

During the first survey, a total of four Common Pipistrelles emerged from tile gaps in the west facing roof slope, three from the front of the house and one from the rear. Also recorded were overflying Noctule and Leisler's Bats *Nyctalus leisleri*, along with at least two Soprano Pipistrelles, a Whiskered/Brandt's Bat *Myotis mystacinus*/*M. brandtii*, a Natterer's Bat *M. nattereri*, one or two Daubenton's Bats *M. daubentonii*, at least one or two Brown Long-eared Bats and a Lesser Horseshoe Bat *Rhinolophus hipposideros*, the latter roosting in the nearby log store building.

On 20th August 2021, just two Common Pipistrelles were observed emerging from the roof of the house, with again several species noted flying round or overhead, including Noctule and Leisler's Bats, a Soprano Pipistrelle, single Natterer's and Daubenton's Bats, and a Brown Long-eared Bat, the latter roosting in the log store. A second, dead, Brown Long-eared Bat was also noted in the stables.

There were no signs of bat activity in the bat house.

The 2021 surveys confirmed the absence of roosting Brown Long-eared Bats in the house, but confirmed up to four Common Pipistrelles roosting in the roof slopes, with two Soprano Pipistrelles also roosting under roof tiles in 2018.

As the roost sites will be lost, a development licence from Natural England will be required consenting to the loss. Mitigation measures will include a pre-works toolbox talk to contractors, and ecological supervision of the roof stripping, this undertaken by hand.

In compensation for the loss of the roost sites, eight bat tiles will be incorporated into the roof slopes of the proposed leisure building. In addition, two Harlech bat boxes will be erected on nearby trees to provide replacement roost sites in case a bat is discovered during demolition.

1. INTRODUCTION

At North Rye House near Donnington, Moreton-in-Marsh, planning permission is being sought for a replacement dwelling. The works include the demolition of the existing house.

The house originally contained a maternity roost of Brown Long-eared Bats in the attic rooms, but these were excluded from the building in February 2020 under licence from Natural England.

However, small numbers of Common and Soprano Pipistrelles were found roosting under the roof tiles.

As the pipistrelle roost sites will be lost, a mitigation strategy is proposed, with details included in this report.

The results of the latest nocturnal emergence surveys are also included.

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, Myotis bats (Natterer's and Whiskered/Brandt's), and Lesser Horseshoes, 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 19th October 2018 a thorough inspection of the attic rooms of the house and the external roof was made by Andy Warren (Natural England bat licence No. 2015-16489-CLS-CLS), including the exterior and interior walls, eaves, gables, window casements 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 20th October 2018 by Andy Warren 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.

On 13th July 2021 a thorough re-inspection of the house was made by Andy Warren.

Nocturnal emergence surveys were subsequently undertaken on 4th and 20th August 2021 by Andy Warren and seven assistants. The surveys started 15 minutes before sunset and continued for one and a half hours after sunset.

The surveys were aided by the use of Wildlife Acoustics Echo Meter Touch detectors and iPads, and BatBox Duet detectors.

The results of the visits and surveys are detailed in Section 3.

3. RESULTS

3.1 Desk Study

In view of the known presence of bats in the 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 and Barbastelle *Barbastella barbastellus*.

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

3.2 Location

North Rye House is located 3.3 km northeast of Stow-on-the-Wold near the small hamlet of Donnington (1.4 km to the west-southwest). The house is accessed via a long driveway off the Fosse Way, and lies at Ordnance Survey Grid Reference SP 20621 28638 (Appendix 1).

3.3 Site Description

The survey site comprised a large, detached stone house with a pitched tile roof. It was built in a 'T-shape' and had gable ends facing northwest, southwest and southeast (Figs. 1 and 2).



Figs. 1 & 2 North Rye House

The ridges and roof tiles of the pitched roofs were all present (Fig. 3), although some small gaps were noted under a few tiles where they were slightly raised or dislodged.

The verges originally had a few gaps which appeared to provide access to the attic rooms in the roof void (Fig. 4), but these were all re-pointed under licence in February 2020.



Figs. 3 & 4 Roof and northwest facing gable end

The external stonework was largely sound, and the window casements and door frames were tightly fitting, as were the eaves soffits.

Internally there were several attic rooms, with the two main voids lying above the higher part of the house (Figs. 5 and 6).

The roof was lined with foil-backed insulation, and until the verges had been re-pointed in February 2020, light penetrated from narrow gaps at the gable ends.



Figs. 5 & 6 Attic rooms

A maternity roost of Brown Long-eared Bats was present in 2018, but these were excluded from the house under licence from Natural England in February 2020.

In July 2021 there were no signs of recent bat activity in the attic rooms, including the void above the integral garage, and it was assumed that the interior of the house was no longer accessible to bats.

The house was set in extensive private grounds, these mature and well-wooded.

Approximately 50 m to the west-northwest of the house lay a single storey garage building (Fig. 7), this partially open-fronted, with a large, open-ended timber barn another 50 m beyond that (Fig. 8).

A replacement roost site in the form of a bat house was created in the barn for the Brown Long-eared Bats.

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



Figs. 7 & 8 Garage building (L) and barn (R)

Bat house

The bat house was also inspected in July 2021 to see if it was being used by bats. No signs of bat activity or occupation were found, and it was evident that animals had not yet started using the structure (Figs. 9 and 10).



Figs. 9 & 10 Exterior (L) and interior (R) of bat house

3.4 Other species

Apart from spiders and insects, in particular large numbers of cluster flies, there were no signs of other species using the attic rooms of the house.

No birds' nests were found in or on the house, but two Blue Tits *Cyanistes caeruleus* were seen going to roost on 20th October 2018; one in a roof end gap at the northwest facing gable, and the second in a soffit hole at the front of the house.

3.5 2021 Emergence Surveys

3.5.1 4th August 2021 survey

The first of the 2021 emergence surveys was conducted on 4th August, 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 1.

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

Table 1 Weather conditions during the emergence survey

A total of four Common Pipistrelles emerged from tile gaps in the west facing roof slope, three from the front of the house and one from the rear.

Also recorded were overflying Noctule and Leisler's Bats, along with at least two Soprano Pipistrelles, a Whiskered/Brandt's Bat, a Natterer's Bat, one or two Daubenton's Bats, at least one or two Brown Long-eared Bats and a Lesser Horseshoe Bat, the latter roosting in the nearby log store building.

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

Time	Observation
20:53	Noctule flew over
21:00	Common Pipistrelle emerged from west facing slope of house roof and flew off social calling
21:01	Noctule flew over
21:05	2 x Noctules flew over Common Pipistrelle flew over from west and away southeast
21:09	2 nd Common Pipistrelle emerged from west facing slope of house roof and flew off
21:12	Soprano Pipistrelle flew past
21:14	Noctule flew over
21:15	3 rd Common Pipistrelle emerged from west facing slope of house roof and flew off. Lesser Horseshoe Bat detected in log store
21:17	Whiskered/Brandt's Bat flew past, with 2 x Soprano Pipistrelles flying round
21:21	4 th Common Pipistrelle emerged from west facing slope of house roof and flew off
21:22	Noctule flew over and Lesser Horseshoe Bat flew out of log store
21:23	Daubenton's Bat flew past
21:24	2-3 Common Pipistrelles flying round
21:27	Daubenton's Bat flew past
21:28	Common Pipistrelles still present

21:29	Brown Long-eared Bat detected in the garden, with Natterer's Bat flying past
21:32	Leisler's Bat flew over
21:33	Common Pipistrelle still present
21:34	Daubenton's Bat flew past, and Lesser Horseshoe Bat now foraging in the stables
21:38	Brown Long-eared Bat flew past
21:40	1-2 Common Pipistrelles present
21:52	Common Pipistrelle still present
22:00	Common Pipistrelle still present
22:07	Intermittent pipistrelle activity
22:20	No more detections or observations and the survey ended

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

3.5.2 20th August 2021 survey

The second of the 2021 emergence surveys was conducted on 20th August, commencing at 20:00 and finishing at 21:45. The weather conditions during the time of the survey were recorded and are presented in Table 2.

Parameter	Value
Temperature (°C)	19.5 start; 18.0 finish
Cloud cover (%)	100
Precipitation	None
Wind speed (Beaufort scale)	0
Sunset	20:19

Table 2 Weather conditions during the emergence survey

Just two Common Pipistrelles were observed emerging from the roof of the house, with again several species noted flying round or overhead, including Noctule and Leisler's Bats, a Soprano Pipistrelle, single Natterer's and Daubenton's Bats, and a Brown Long-eared Bat, the latter roosting in the log store.

A second, dead, Brown Long-eared Bat was also noted in the stables.

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

Time	Observation
20:25	Common Pipistrelle emerged from west facing slope of house roof and flew off
20:29	Another Common Pipistrelle flew past social calling

20:32	Soprano Pipistrelle flew past
20:33	Noctule flew over
20:34	Common Pipistrelle flew past
20:38	Common Pipistrelle flew past and Noctule flew over
20:40	Brown Long-eared Bat emerged from log store and flew off
20:42	2 nd Common Pipistrelle emerged from west facing slope of house roof and flew off.
20:48	Noctule flew over and Soprano Pipistrelle flew past
20:50	Noctule over again
20:52	Daubenton's Bat flew past
20:54	Daubenton's Bat flew past again
20:57	2 x Common Pipistrelles flying round
20:59	Common Pipistrelles still present and Daubenton's Bat flew past
21:02	Brown Long-eared Bat flew past and 1-2 Common Pipistrelles present
21:07	Daubenton's Bat flew past again
21:11	Leisler's Bat flew over with Natterer's Bat flying past and Common Pipistrelle still present – social calling
21:20	Intermittent pipistrelle activity
21:45	No more detections or observations and the survey ended

The bat flight paths at emergence are shown in Appendix 4.

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.

The suitability for roosting pipistrelles was originally considered to be moderate, as there were gaps under a few roof tiles and at the roof verges. The presence of roosting pipistrelles was subsequently confirmed by the 2018 nocturnal survey, when at least two Common and two Soprano Pipistrelles emerged from the southeast gable end of the house.

Although the verges were re-pointed in 2018/19, roosting pipistrelles were still present in 2021, with at least four Common Pipistrelles noted emerging from roof tile gaps on the west facing slope.

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.

A maternity roost of Brown Long-eared Bats was present in the attic rooms of the house in 2018, but these were subsequently excluded from the building under licence from Natural England in February 2020. A re-inspection on 13th July 2021 confirmed the absence of Brown Long-eared Bats in the attic.

North Rye is now under new ownership, and as noted, it is intended to replace the existing house with a new dwelling.

As the roost sites will be lost, a development licence from Natural England will be required consenting to the loss. Mitigation measures will include a pre-works toolbox talk to contractors, and ecological supervision of the roof stripping, this undertaken by hand.

In compensation for the loss of the roost sites, eight bat tiles will be incorporated into the small gable extensions in northeast facing roof slope of the proposed leisure building (Fig. 11).



Fig. 11 Proposed leisure building showing locations of bat tiles

The tiles will be purpose built from stone so they match the surrounding tiles, and will create gaps 20-25 mm high. These will allow the bats to access the space between the tile and lining. The latter will consist of a 500 mm x 500 mm square of 1F felt placed under each bat tile. The felt will sit on top of the breathable membrane so that the bats won't get caught in the fibres of the membrane.

In addition, two Harlech bat boxes will be erected on nearby trees to provide replacement roost sites in case a bat is discovered during demolition (Fig. 12).



Fig. 12 Locations of bat boxes ■

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 4: Bat flight paths at emergence on 20th August 2021

Appendix 1: Location plan

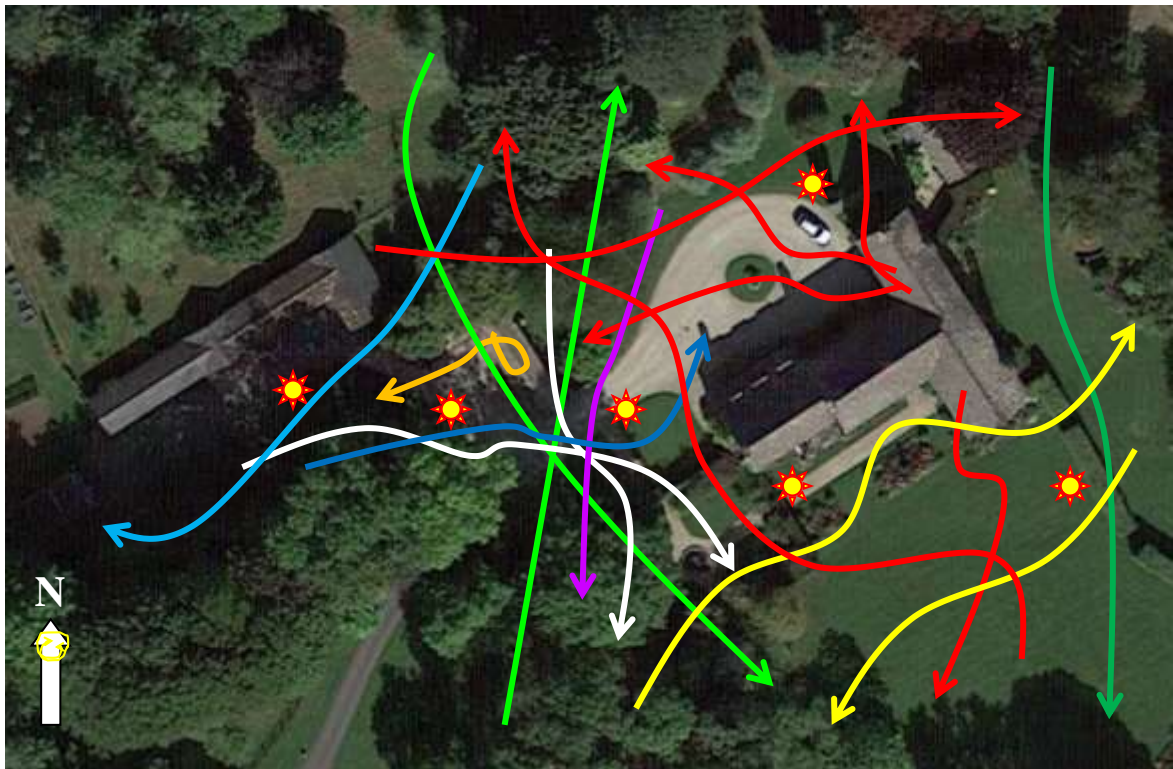


North Rye House

Appendix 2: Site layout

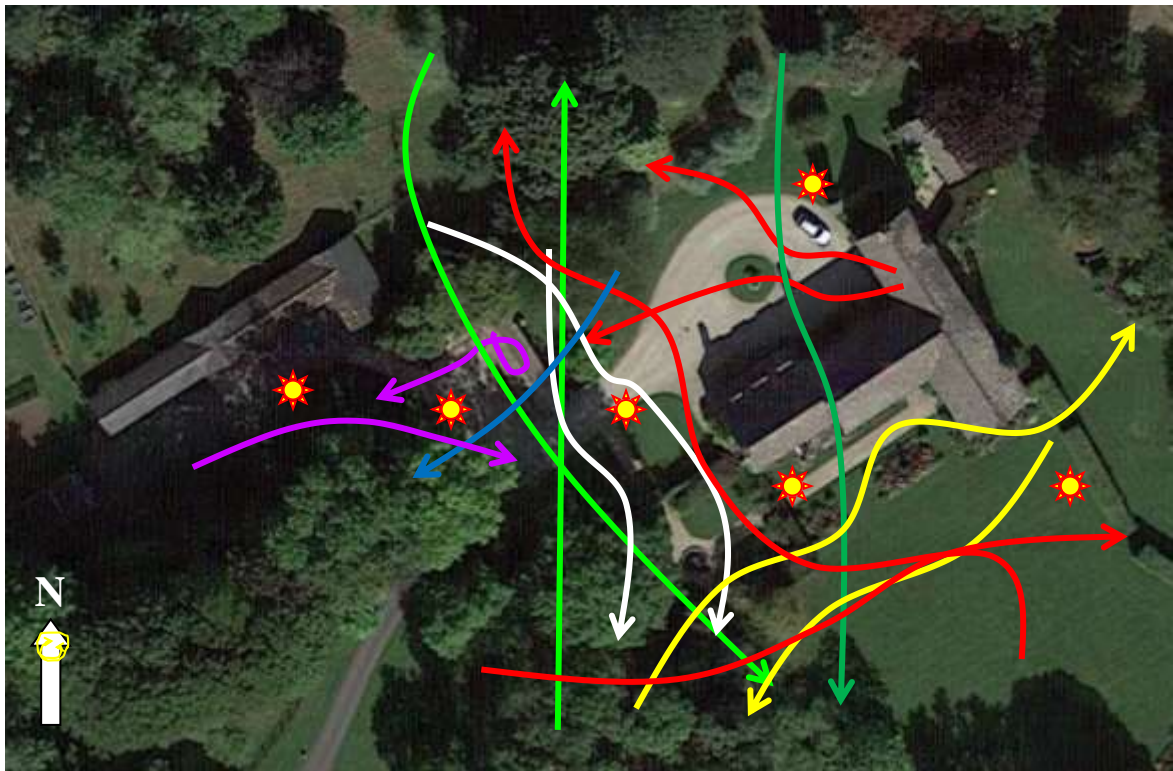


Appendix 3: Bat flight paths at emergence on 4th August 2021



- Brown Long-eared Bat** →
- Common Pipistrelles** →
- Soprano Pipistrelles** →
- Leisler's Bat** →
- Noctule Bat** →
- Lesser Horseshoe Bat** →
- Natterer's Bat** →
- Whiskered/Brandt's Bat** →
- Daubenton's Bat** →
- Positions of observers** *

Appendix 4: Bat flight paths at emergence on 20th August 2021



Brown Long-eared Bat →

Common Pipistrelles →

Soprano Pipistrelles →

Leisler's Bat →

Noctule Bat →

Natterer's Bat →

Daubenton's Bat →

Positions of observers *

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