

**Updated Bat and Owl Survey Report for
Broadmoor Farm stables, Broadmoor,
Bourton-on-the-Water,
Gloucestershire, GL54 2LQ**



Cotswold Wildlife Surveys

11th January, 3rd June, 21st June and 12th July 2021

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

- i. At Broadmoor Farm in Broadmoor, near Bourton-on-the-Water in Gloucestershire, planning permission is being sought for the conversion of the stables and an outbuilding.
- ii. As this could impact on features typically used by bats as roosting places, a diurnal inspection was undertaken on 11th January 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.
- iii. The suitability for roosting pipistrelles *Pipistrellus sp* in both of the buildings was considered to be moderate, as there were gaps under the roof tiles.
- iv. Inside the stables, a single hibernating Brown Long-eared Bat *Plecotus auritus* was found. There were also a few very old bat droppings on the dividing walls which were thought to be from a Brown Long-eared. The stored items in the building had been cleared out in recent days, so any other droppings which had been present may have been removed.
- v. Given the above, on the evenings of 3rd June, 21st June and 12th July 2021, nocturnal emergence surveys of the stables were undertaken by Caroline Warren, Mollie Paxford and assistants, to characterise the roost and check for the presence of other species.
- vi. Prior to the first survey commencing, a re-inspection of the stables revealed a roosting Lesser Horseshoe Bat *Rhinolophus hipposideros* in the north corner. This was later seen to emerge, along with a Brown Long-eared Bat, and an unidentified bat, presumed to be a second Brown Long-eared. Several species of bat were observed using the yard, adjacent garden and surrounding fields as foraging areas, including small numbers of Common Pipistrelles *Pipistrellus pipistrellus*, a Soprano Pipistrelle *P. pygmaeus*, a Whiskered/Brandt's Bat *Myotis mystacinus/M. brandtii* and a Daubenton's Bat *M. daubentonii*.
- vii. During the second survey on 21st June 2021, a Common Pipistrelle appeared from the direction of the farm and then flew in and out of the stables. Small numbers of Common and Soprano Pipistrelles, Noctule Bats *Nyctalus noctula* and Brown Long-eared Bats flew around and over the site having emerged elsewhere. No bats emerged from the stables.
- viii. A Brown Long-eared Bat was recorded inside the stables on the third survey and later emerged. Other species of bats recorded foraging around the stables included Common and Soprano Pipistrelles, Daubenton's Bat and overflying Noctules.
- ix. Taking all the visits into account, the status of bats in the stables at Broadmoor Farm is considered thus:
 - Brown Long-eared Bat – hibernation site for one individual, and day roost for two bats;

- Lesser Horseshoe Bat – day roost used intermittently by a single animal;
 - x. Since the proposed works will cause the loss of the bat roosts and hibernation site, a development licence from Natural England will be required. A bat loft will therefore be created to replace the bat hibernation site in the roof space of the stables. This will be a minimum of 1.8 m high (ridge to joists) by 4.0 m wide and 4.0 m long.
 - xi. Two Schwegler 1FF bat boxes, or similar, will also be fixed to the external walls of the stables, one on the southwest facing gable at the south end of the building and one on the southeast facing wall at the southern end.
 - xii. Since both roosts are in the same building, a single bat loft will be sufficient as a replacement, especially as Brown Long-eared and Lesser Horseshoe Bats commonly share the same roost site.
 - xiii. Other 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 the two aforementioned Schwegler bat boxes or similar, in which to relocate a bat if one is discovered before or during works.
 - xiv. It should be noted that hibernating bats should not be disturbed, so if a hibernating bat is again present, works which might impact on the bat will have to be undertaken outside the main hibernation period (November to February inclusive). This doesn’t apply to the whole building, just the section containing the bat.
 - xv. If no hibernating bat is present, works can take place at any time, provided the bat loft has been created first, as a roosting Lesser Horseshoe Bat cannot be transferred to a bat box, and has to be relocated to a loft space.
- *
- xvi. In addition to a bat survey, the buildings were also checked for signs of owl use. At the southeastern end of the stables, a Barn Owl *Tyto alba* was seen to exit the building. Barn Owl pellets were found inside the stables and inside the outbuilding.
 - xvii. A number of Swallows’ *Hirundo rustica* nests were also found inside both buildings, as well as a few nests from other species such as Robin *Erithacus rubecula* and Blackbird *Turdus merula*.
 - xviii. As the Barn Owl roost will be lost when the buildings are converted, appropriate mitigation will need to be provided. This will be in the form of two Barn Owl boxes which will be erected on large mature trees nearby. Alternative nesting sites for the Swallows will also be provided by allowing access into the other outbuildings on the farm.

- xix. Since all in-use bird's nests and their contents are protected from damage or destruction, any works which affect nests, should ideally be undertaken outside the period March to August inclusive. If this time frame cannot be avoided, a close inspection of the buildings affected will be undertaken prior to clearance.

- xx. Work will not be carried out in close proximity to any in-use nest, and a minimum buffer of 5.0 metres will be established, although this could be more depending on the sensitivity of the species. Any in-use nest will be allowed to fledge before it is disturbed.

1. INTRODUCTION

In January 2021, Cotswold Wildlife Surveys was instructed to undertake a bat survey of Broadmoor Farm in Broadmoor, near Bourton-on-the-Water in Gloucestershire. On 11th January 2021, a visit was made to the property to carry out a diurnal inspection of the stables and outbuilding to check for signs of bat occupation.

On the evenings of 3rd June, 21st June and 12th July 2021, nocturnal emergence surveys of the stables were undertaken by Caroline Warren, Mollie Paxford and assistants, to determine the presence or absence of roosting bats, and if so, what species and in what numbers.

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.

In Britain, all wild birds, their nests and eggs are protected under the Wildlife & Countryside Act 1981. There are penalties for:

- ❑ *Killing, injuring or capturing them, or attempting any of these*
- ❑ *Taking or damaging the nest whilst in use*
- ❑ *Taking or destroying the eggs*

Barn Owls are on Schedule 1 of the Act. Schedule 1 species carry special penalties and it is an offence to even disturb these near the nest.

2. METHODOLOGY

2.1 Bats

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 *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 11th January 2021 a thorough inspection of the stables and outbuilding was made by Mollie Paxford (Natural England bat licence No. 2020-47378-CLS-CLS), including the exterior and interior walls, roof coverings, roof spaces, eaves, gables, window casements and door frames.

10x42 binoculars and a Fenix TK75 torch were used for the inaccessible/unreachable areas.

On the evenings of 3rd June, 21st June and 12th July 2021, nocturnal emergence surveys of the stables were undertaken by Caroline Warren, Mollie Paxford and assistants, to confirm the presence or absence of roosting bats, and if so, what species and in what numbers.

The surveys began 15 minutes before and continued for one and three quarter hours after sunset.

The surveys were aided by the use of electronic Echo Meter Touch bat detectors and iPads.

The results of the surveys are detailed in Section 3.

2.2 Owls

Barn Owls, and Little Owls *Athene noctua* too, are commonly encountered in or near farm buildings. Being non-migratory species, they can be searched for at any time of year and if a bird is in residence the signs are usually obvious.

Indicators of owl occupation include pellets, droppings and feathers. As pellets can be aged relatively easily, the frequency and recentness of occupation can be determined.

Barn Owl breeding is indicated by large, flattened piles of guano on top of a shelf, wall plate or internal fixture, and the accumulated droppings are often dotted with broken egg shells or food remains. If nesting, the female often sits tight on eggs or young birds and will defend the brood by attacking any would-be predator. Caution should therefore be exercised if checking the tops of high shelves or platforms.

Little Owls tend to nest in a cavity of some kind, usually high up. Both Barn and Little Owls are also very vocal at night, and can be heard up to half a kilometre away.

Barn Owls are most active at dusk and dawn, but can be observed hunting in full daylight, especially during the winter. Little Owls are primarily diurnal predators.

Birds using buildings are easily disturbed, so care should be taken to minimise the length and impact of the visit.

Evidence of owl use was looked for during the diurnal inspection on 11th January 2021.

The inspection findings are detailed in Section 3.

3. RESULTS

3.1 Desk Study

In view of the small scale of the proposed works, the likely low impact on bats, and in line with current guidance on accessing and using biodiversity data (CIEEM, 2016), a background data search was not carried out in this case.

However, third party and personal observations of bats in Great Rissington 2.5 km to the east in 2019 and 2020 revealed the following species: Common and Soprano Pipistrelles *Pipistrellus pipistrellus* and *P. pygmaeus*, Brown Long-eared, Noctule *Nyctalus noctula*, Lesser Horseshoe and Whiskered/Brandt's Bat. At Clapton Manor, Clapton-on-the-Hill 1.45 km northwest, in May and July 2019, Common and Soprano Pipistrelles, a Myotis species and Brown Long-eared Bats were recorded during nocturnal surveys.

In addition, the following European Protected Species licences for bats were granted by Natural England within 2.0 km:

- EPSM2009-1423 1.3 km northwest at Upper Farm for Common Pipistrelle, Natterer's, Brown Long-eared and Lesser Horseshoe Bats;
- EPSM2012-4425 1.5 km northwest for Brown Long-eared Bat.

A Barn Owl was also noted flying through the village on the evening of 9th May 2020.

3.2 Location

Bourton-on-the-Water is a town located approximately 5.0 km southwest of Stow-on-the-Wold in Gloucestershire. Broadmoor Farm is situated 3.5 km south of Bourton-on-the-Water. The stables are at the eastern end of the farm, at Ordnance Survey Grid Reference SP 17446 17059 (Appendix 1).

3.3 Site Description

The site comprised a long barn/stable building with a pitched stone tile roof, and an outbuilding with a pitched and hipped tiled roof (Figs. 1 and 2).



Figs. 1 & 2 Stables and outbuilding

The site was set on a farm with a large farmhouse, many other buildings and extensive arable and pastoral farmland (Figs. 3 and 4).



Figs. 3 & 4 Surrounding area

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

3.4 Buildings Survey

3.4.1 Bats – daytime inspection

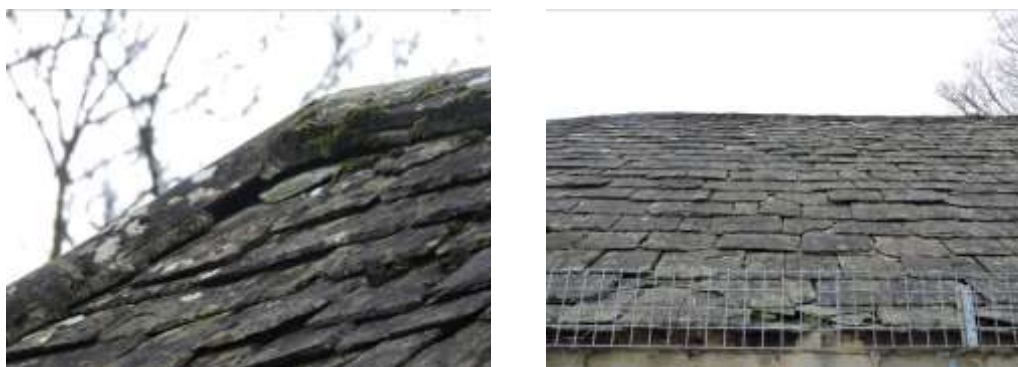
The daytime inspection was carried out on 11th January 2020 commencing at 10:00. The weather conditions during the time of the survey were recorded and are presented in Table 1 below.

Parameter	Value
Temperature (°C)	5.0
Cloud cover (%)	40
Precipitation	None
Wind speed (Beaufort scale)	0

Table 1 Weather conditions during the diurnal survey

Stables

The ridge was in good condition, although cement had fallen out in places which had left gaps (Fig. 5).



Figs. 5 & 6 Ridge and roof tiles

The southwest roof slope had stone roof tiles with a number of gaps (Figs. 6 and 7). The northeast roof slope had been more recently re-roofed, with the tiles tightly overlapping, and none raised, missing or dislodged (Fig. 8).



Figs. 7 & 8 Ridge and roof tiles

The gable ends were finished with a parapet wall resting on top of the gable wall plates (Figs. 9 and 10). This was sealed with cement. The clipped eaves were closed, although access to the interior of the stables was open through open doorways.



Figs. 9 & 10 Gable ends

The stonework was sound throughout, with no cracks or gaps, whilst the doorframes were tightly fitting.

Internally the stables were open to the underside of the roof, which was lined with tarred felt (Figs. 11 and 12).



Figs. 11 & 12 Underside of roof

Inside the stables a single hibernating Brown Long-eared Bat was found next to the ridge beam (Fig. 13).

There were also a few very old bat droppings on the dividing walls which were thought to be from a Brown Long-eared (Fig. 14).

The stored items in the building had been cleared out in recent days, so any other droppings which had been present may have been removed.



Figs. 13 & 14 Hibernating Brown Long-eared Bat and droppings

Light penetrated the building through the open doorways.

The location of the hibernating Brown Long-eared Bat and droppings are shown in Appendix 3.

Outbuilding

The roof of the outbuilding was in a poor state of repair. The pitched section was covered with clay tiles (Figs. 15 and 16), whilst the hipped roof had stone roof tiles (Figs. 17 and 18).

There were a number of broken, missing, raised and dislodged ridge and roof tiles.



Figs. 15 & 16 Ridge and roof tiles

The eaves were clipped, whilst the gable end was finished with a parapet wall and a hay door (Fig. 19).



Figs. 17 & 18 Ridge and roof tiles



Fig. 19 Gable end

The stone and brickwork were sound throughout, whilst the doorframes were tightly fitting. The doorways were open, allowing access to the whole of the interior.

Internally the pitched roof was unlined (Fig. 20), whilst the hipped roof section was lined with tarred felt (Fig. 21). There were gaps in the roof throughout.



Figs. 20 & 21 Underside of roof

No evidence of bat activity or occupation was found in or around the outbuilding.

3.4.2 Owl Survey

In addition to a bat survey, the buildings were also checked for signs of owl use. At the southeastern end of the stables, a Barn Owl was seen to exit the building. Barn Owl pellets were found inside the stables and inside the outbuilding (Figs. 22 and 23).



Figs. 22 & 23 Barn Owl pellets

A number of Swallows' nests were also found inside both buildings, as well as a few nests from other species such as Robin and Blackbird.

The locations of the Barn Owl and pellets are shown in Appendix 3.

3.4.3 1st Emergence Survey

The first emergence survey was conducted on 3rd June 2021, commencing at 21:00 and finishing at 22:45. The weather conditions during the time of the survey were recorded and are presented in Table 2.

Parameter	Value
Temperature (°C)	15.0 start; 14.0 finish
Cloud cover (%)	75
Precipitation	None
Wind speed (Beaufort scale)	0
Sunset	21:21

Table 2 Weather conditions during the 1st emergence survey

Prior to the survey commencing, a re-inspection of the stables revealed a roosting Lesser Horseshoe Bat in the north corner (Fig. 24). This was later seen to emerge, along with a Brown Long-eared Bat, and an unidentified bat, presumed to be a second Brown Long-eared. Several species of bat were also observed using the yard, adjacent garden and surrounding fields as foraging areas, including small numbers of Common Pipistrelles, a Soprano Pipistrelle, a Whiskered/Brandt's Bat and a Daubenton's Bat.



Fig. 24 Roosting Lesser Horseshoe Bat

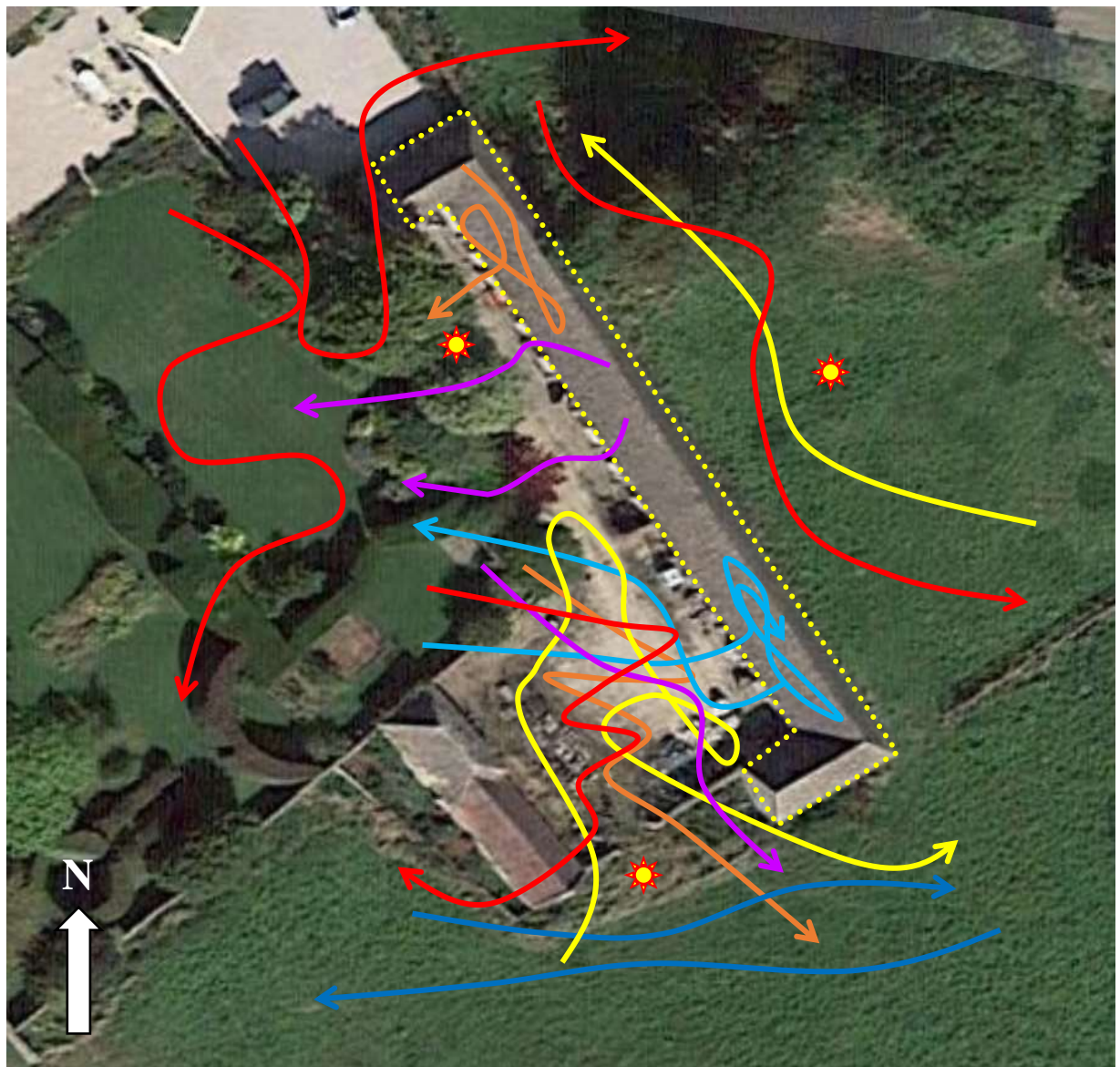
The times of bat observations and detections are shown in the table below.

Time	Observation
20:50	Pre-survey – one Lesser Horseshoe Bat (LHB) roosting in north corner of stables
21:39	Brown Long-eared Bat (BLE) bat flew along the SW elevation
21:43	BLE again flew along the SW elevation
21:45	Common Pipistrelle (CP) flew past east elevation
21:48	CP foraging in yard
21:49	CP foraging in yard

21:54	CP foraging in yard
21:55	Whiskered/Brandt's Bat (W/B) flew into the stables
21:55	BLE flew past
22:00	CP in adjacent garden
22:03	LHB emerged from stables
22:06	Unidentified bat emerged from stables not echolocating (BLE?)
22:12	BLE emerged from stables
22:13	LHB flew along SW elevation
22:14	W/B flew along SW elevation
22:16	Unidentified bat seen again
22:17	CP still present foraging around yard and garden
22:19	LHB foraging in yard
22:21	Daubenton's Bat flew past
22:24	Soprano Pipistrelle (SP) foraging in yard
22:24	CP still foraging
22:25	Two CP foraging in garden
22:27	Two different CP in fields to the east of the buildings
22:30	LHB in yard
22:30	Daubenton's Bat flying past
22:32	W/B flew past
22:25	SP flew past
22:45	No further observations or detections and the survey ended

The bat flight paths at 1st emergence are shown in plan 1 overleaf:

Plan 1 – Bat flight paths at emergence on 3rd June 2021



Common Pipistrelle Bats →

Soprano Pipistrelle Bat →

Brown Long-eared Bats →

Lesser Horseshoe Bat →

Whiskered/Brant's Bat →

Daubenton's Bat →

Positions of surveyors ☀

3.4.4 2nd Emergence Survey

The second emergence survey was conducted on 21st June 2021, 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 3.

Parameter	Value
Temperature (°C)	16.0 start; 15.0 finish
Cloud cover (%)	100
Precipitation	Light rain
Wind speed (Beaufort scale)	0
Sunset	21:30

Table 3 Weather conditions during the 2nd emergence survey

A Common Pipistrelle appeared from the direction of the farm and then flew in and out of the building. Small numbers of Common and Soprano Pipistrelles, Noctule Bats and Brown Long-eared Bats flew around and over the site having emerged elsewhere.

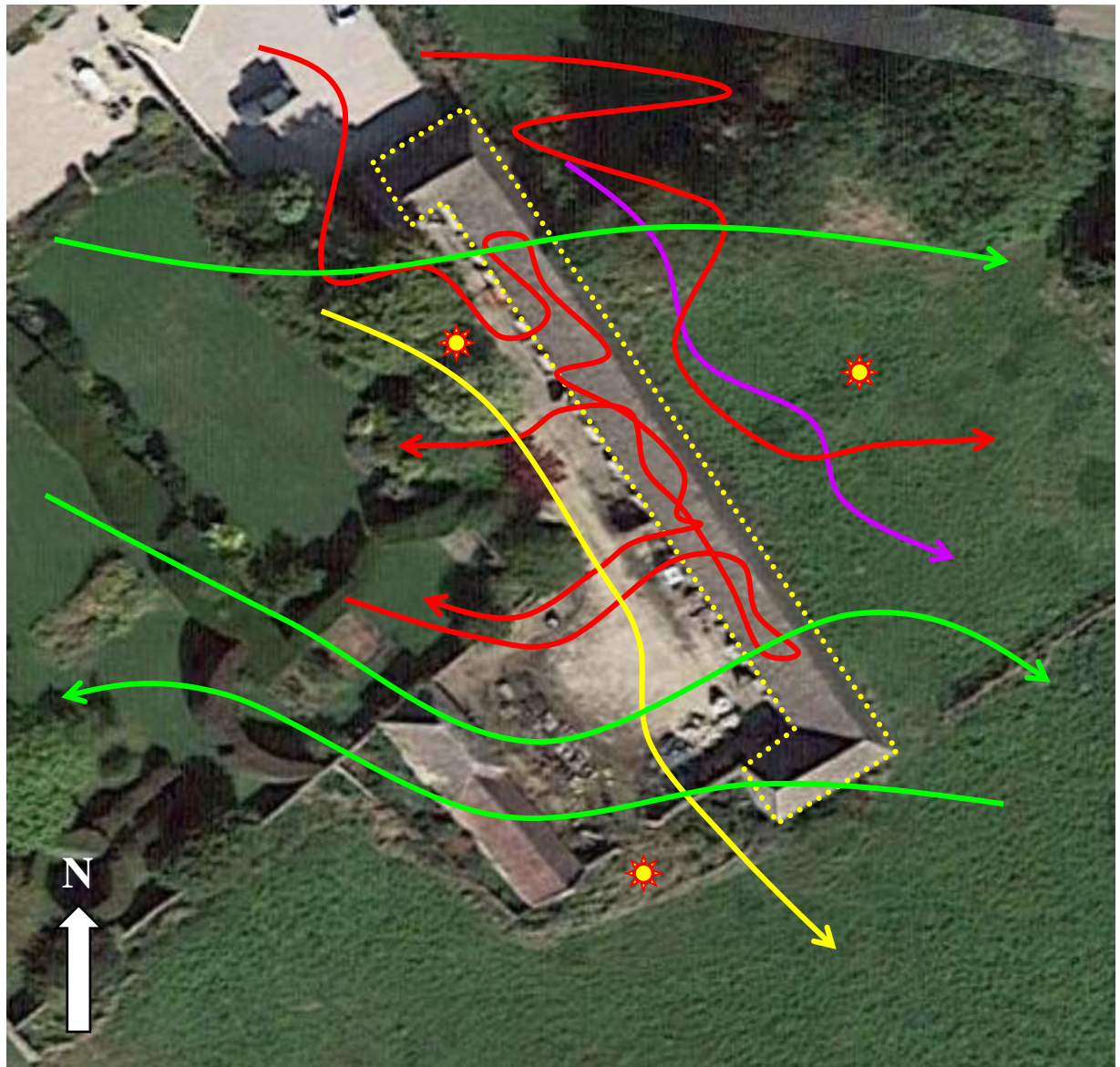
No bats emerged from the stables and none were noted inside the building.

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

Time	Observation
21.46	Noctule flew over
21.51	Noctule flew over
21.53	Common Pipistrelle (CP) flew from farm then in and out of the stables
22.02	CP flew along the front of the stables from the far end
22.03	Noctule heard in the distance
22.09	CP foraging around the yard
22.15	Noctule flew past
22.19	Brown Long-eared Bat flew past the rear
22.2	Noctule flew past
22.21	Soprano Pipistrelle flew past the front of the building
22.23	CP foraging to the front of the stables
22.25	Noctule flew over
22:30	Survey ended with no further observations or detections

The bat flight paths at second emergence are shown in plan 2 overleaf:

Plan 2 – Bat flight paths at emergence on 21st June 2021



Common Pipistrelle Bats →

Soprano Pipistrelle Bat →

Brown Long-eared Bats →

Noctule Bat/s →

Positions of surveyors *

3.4.5 3rd Emergence Survey

The third emergence survey was conducted on 12th July 2021, 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 4.

Parameter	Value
Temperature (°C)	15.0 start; 13.0 finish
Cloud cover (%)	100
Precipitation	None
Wind speed (Beaufort scale)	0
Sunset	21:23

Table 4 Weather conditions during the 3rd emergence survey

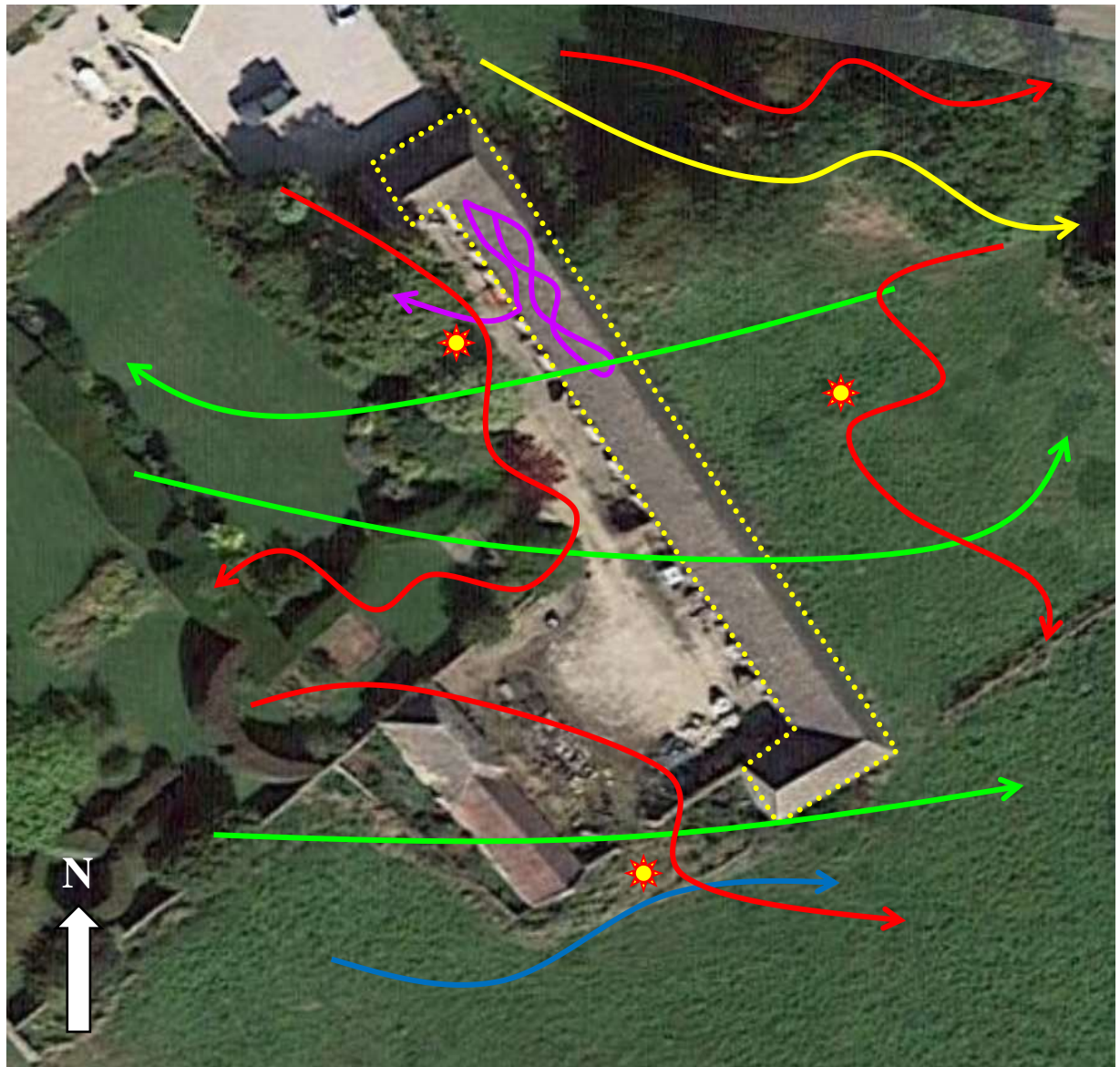
A Brown Long-eared Bat was recorded inside the stables and later emerged. Other species of bats recorded foraging around the stables included Common and Soprano Pipistrelles, Daubenton's Bat and overflying Noctules.

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

Time	Observation
21.37	Common Pipistrelle (CP) heard in the distance
21.46	Noctule flew over west to east
21.54	CP heard flying along the stables
21.55	CP flew past
21.58	Brown Long-eared Bat detected inside the stables
22:00	CP flying along stables
22.07	Brown Long-eared Bat emerged from open doorway
22.10	Noctule over
22.11	Daubenton's Bat flew past
22.15	Noctule flew over
22.17	Soprano Pipistrelle flew past
22:30	Intermittent CP and Noctule activity until survey ended at 23:00

The bat flight paths at third emergence are shown in plan 3 overleaf:

Plan 3 – Bat flight paths at emergence on 12th July 2021



Common Pipistrelle Bats →

Soprano Pipistrelle Bat →

Brown Long-eared Bats →

Daubenton's Bat →

Noctule Bat/s →

Positions of surveyors ☀

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.

The suitability for roosting pipistrelles in both buildings was considered to be moderate, as there were gaps under the roof tiles.

The absence of roosting pipistrelles was subsequently confirmed by the nocturnal surveys, when no animals emerged from the stables, although small numbers of Common and Soprano Pipistrelles were noted during the surveys.

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.

Inside the stables a single hibernating Brown Long-eared Bat was found. There were also a few very old bat droppings on the dividing walls which were thought to be from a Brown Long-eared. Two Brown Long-eared Bats were found to be roosting inside the stables during the nocturnal surveys, along with a single Lesser Horseshoe Bat during the first visit on 3rd June 2021.

Taking all the visits into account, the status of bats in the stables at Broadmoor Farm is considered thus:

- Brown Long-eared Bat – hibernation site for one individual, and day roost for two bats;
- Lesser Horseshoe Bat – day roost used intermittently by a single animal;

Since the proposed works will cause the loss of the bat roosts and hibernation site, a development licence from Natural England will be required.

A bat loft will therefore be created to replace the bat hibernation site in the roof space of the stables. This will be a minimum of 1.8 m high (ridge to joists) by 4.0 m wide and 4.0 m long (Figs. 25 and 26).

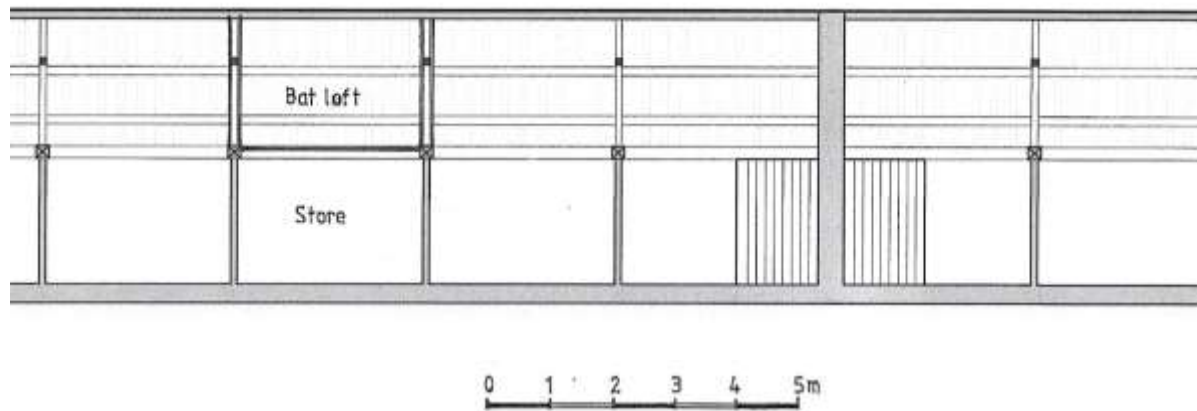


Fig. 25 Elevation view showing bat loft

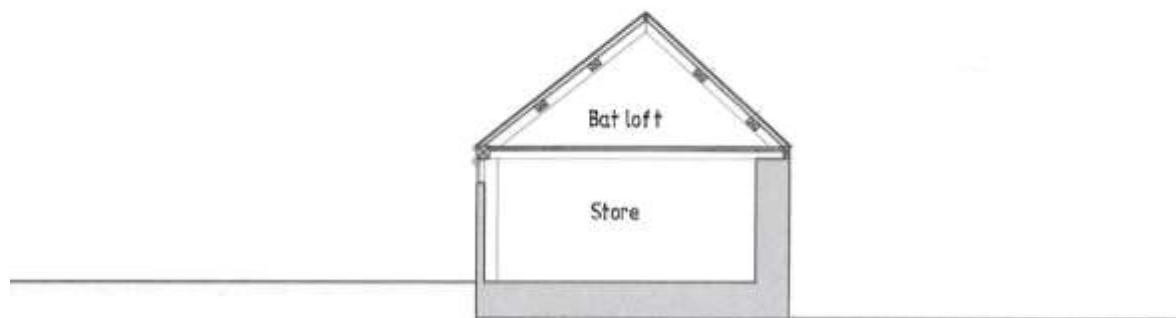


Fig. 26 Cross section of bat loft

Two bat boxes will also be fixed to the external walls of the stables, one on the southwest facing gable at the south end of the building and one on the southeast facing wall at the southern end.

The recommended bat box is the Schwegler 1FF (Fig. 27), or similar. The rectangular shape makes the 1FF suitable for attaching to the sides of buildings. It has a narrow crevice-like internal space to attract pipistrelle and Noctule Bats.

Schwegler woodcrete boxes have the highest rates of occupation of all box types. The 75% wood sawdust, concrete and clay mixture allows natural respiration, stable temperature, and durability.

They are extremely long lasting and rot- and predator-proof, and will hang from a tree branch near the trunk, or can be fixed to a trunk.



Fig. 27 Schwegler 1FF Bat Box

Since both roosts are in the same building, a single bat loft will be sufficient as a replacement, especially as Brown Long-eared and Lesser Horseshoe Bats commonly share the same roost site.

Other 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 the aforementioned two Schwegler bat boxes or similar, in which to relocate a bat if one is discovered before or during works.

It should be noted that hibernating bats should not be disturbed, so if a hibernating bat is again present, works which might impact on the bat will have to be undertaken outside the main hibernation period (November to February inclusive). This doesn't apply to the whole building, just the section containing the bat.

If no hibernating bat is present, works can take place at any time, provided the bat loft has been created first, as a roosting Lesser Horseshoe Bat cannot be transferred to a bat box, and has to be relocated to a loft space.

*

In addition to a bat survey, the buildings were also checked for signs of owl use. At the southeastern end of the stables, a Barn Owl was seen to exit the building. Barn Owl pellets were found inside the stables and inside the outbuilding.

A number of Swallows' nests were also found inside both buildings, as well as a few nests from other species such as Robin and Blackbird.

As the Barn Owl roost will be lost when the buildings are converted, appropriate mitigation will need to be provided. This will be in the form of two Barn Owl boxes which will be erected on large mature trees nearby. Alternative nesting sites for the Swallows will also be provided by allowing access into the other outbuildings on the farm.

Since all in-use bird's nests and their contents are protected from damage or destruction, any works which affect nests, should ideally be undertaken outside the period March to August inclusive. If this time frame cannot be avoided, a close inspection of the buildings affected will be undertaken prior to clearance. Work will not be carried out in close proximity to any in-use nest, and a minimum buffer of 5.0 metres will be established, although this could be more depending on the sensitivity of the species. Any in-use nest will be allowed to fledge before it is disturbed.

5. REFERENCES

Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines. (3rd edn).* Bat Conservation Trust, London.

English Nature, 2004. *Bat mitigation guidelines.* English Nature, Peterborough.

Mitchell-Jones A. J. & McLeish, 2004. *Bat Workers' Manual.* Joint Nature Conservation Committee, Peterborough.

Russ, J., 1999. *The Bats of Britain and Ireland. Echolocation Calls, Sound Analysis and Species Identification.* Alana Ecology Ltd., UK.

Stebbins R.E., 1986. *Which bat is it?* The Mammal Society and The Vincent Wildlife Trust, London.

The Vincent Wildlife Trust, 2003. *The Bats of Britain and Ireland.* The Vincent Wildlife Trust, Ledbury.

APPENDICES

Appendix 1: Location plan

Appendix 2: Site layout

Appendix 3: Locations of hibernating & roosting bats & roosting owl

Appendix 1: Location plan



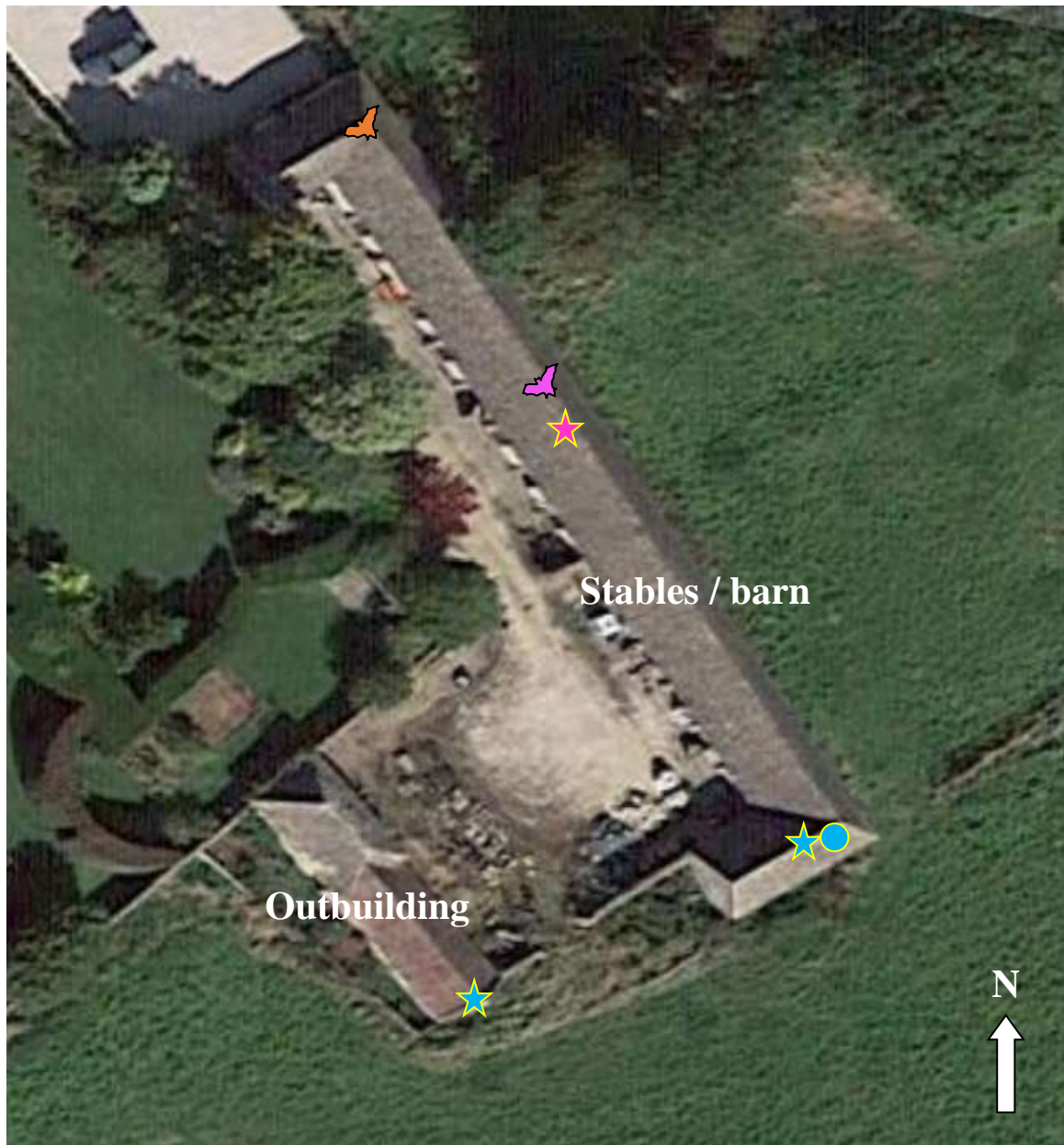
Broadmoor Farm

Appendix 2: Site layout



Stables and outbuilding at Broadmoor Farm

Appendix 3: Locations of hibernating & roosting bats & roosting owl



Roosting Barn Owl ●

Barn Owl pellets ★

Hibernating Brown Long-eared Bat 🦇

Brown Long-eared Bat droppings ★

Roosting Lesser Horseshoe Bat 🦇

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