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Bat Survey:

Holton Hall, Holton St. Mary, Suffolk

On behalf of:

Mr. and Mrs. Greene

Prepared by:
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Summary

Hybrid Ecology Ltd. was instructed by Mr. and Mrs. Greene to carry out a bat survey on a barn at Holton Hall, Holton St. Mary, Suffolk (grid reference TM 05624 36909). The survey was required to support a planning application for a barn conversion. This survey follows on from an initial survey visit carried out in December 2022, during which bat evidence was identified and further survey recommended.

The Preliminary Roost Assessment (PRA) was carried out by licensed bat surveyor Gemma Holmes (BSc, ACIEEM) in December 2022, further dusk bat surveys were carried out between May and June 2023.

During the PRA, bat droppings, characteristic of *pipistrelle sp.* were found inside the building, and there were several external features, including gaps under ridge tiles that could reasonably allow bat access and support a roost. To establish the species and use, further bat surveys were recommended between May and August inclusive in accordance with Bat Conservation Trust Guidelines (2016). The surveys were needed so that the Local Planning Authority could be confident on the impacts to legally protected species and ensure that appropriate mitigation, reflecting the status of the roost could be secured.

Bat surveys were carried out on 18th May, 5th June and 22nd June 2023. One common pipistrelle *Pipistrellus pipistrellus* was identified to be roosting in a crevice in the barn. A soprano pipistrelle maternity roost was identified in the adjacent garage building – this will be unaffected. There were high levels of foraging activity focused over the lake, and around the outbuildings, small numbers of bats also use the courtyard for foraging purposes.

One common pipistrelle uses a crevice in the barn on an occasional basis for day roosting as conditions suit. The roost is of low conservation significance. Notwithstanding, the proposed conversion will result in the disturbance / destruction of a bat roost. For work to proceed legally, a licence will be required from Natural England. It is recommended that the project is registered under the "Bat Mitigation Class Licence" (BMCL) scheme as this is appropriate for low numbers of common species. The BMCL allows a Registered Consultant – or accredited agent - to manage work that could result in the disturbance and capture of up to three of the seven most 'common or widespread' bat species and the damage or destruction of up to three of their 'low conservation status roosts' on a site to facilitate development.

The mitigation will involve timing the works to the period the bat is least likely to be present, ecological supervision during the roof strip, and the provision of artificial bat roost features on the site. The roost is a legally protected entity; therefore, no work will start until the licence has been granted. The licence can be applied for once planning permission has been granted.

Provided the recommendations in this report are followed, there is no reason that this development would impact the Favourable Conservation Status of the species concerned. Furthermore, the development provides an opportunity to improve the environment for roosting bats.

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1.0 Introduction

Personnel

1.1 This report has been prepared by Gemma Holmes; Consultant Ecologist at Hybrid Ecology Ltd. Gemma is a qualified ecologist with 16 years' experience in professional survey work and is an Associate member of the Chartered Institute of Ecology and Environmental Management. Gemma holds a level 2 licence to survey for bats in the UK (Licence number 2016-27305-CLS-CLS).

Purpose/context

1.2 Hybrid Ecology Ltd. was instructed by Mr. and Mrs. Greene to undertake bat emergence and re-entry surveys at Holton Hall. A location plan is in Figure 1 and survey boundary is in Figure 2. The project involves the completion of a barn conversion.

1.3 Bats (all species) are legally protected under the Conservation of Habitats and Species Regulations (2019, EU Exit) and Wildlife and Countryside Act (1981, as amended) from killing, injury, disturbance, roost destruction and roost obstruction. Building work can result in the destruction of/disturbance to bat roosts and trigger offences under the above legislation, in the absence of appropriate controls. Therefore, the purpose of the survey was to identify and characterise bat roosts so that mitigation/licensing can be prescribed and give the Local Planning Authority confidence that all legal biodiversity duties have been met by the applicant.

Surveys

1.4 All surveys were undertaken by a team of competent, experienced and licenced surveyors in compliance with the BCT Guidelines (2016):

- Gemma Holmes, lead surveyor. 16 years' experience and level 2 bat licence (reference 2016-27305-CLS-CLS).
- Anthony Owers, assistant surveyor, 16 years' experience and level 1 bat licence (reference 2021-55145-CLS-CLS).
- Ollie Coyne, assistant surveyor, 8 years' experience and level 1 bat licence (reference 2022-10349-CL17-BAT).

Limitations

1.5 Bats are transient and highly mobile, and there is a risk that bats could be missed during surveys. We have made every effort to locate roosts and utilised additional methods including night-vision aids to pinpoint roosts accurately. As that surveys were carried out in the peak activity season, spread 2 weeks apart and supplemented by night vision aids (thermal and infra-red cameras), there is no reason this data cannot be relied upon for planning purposes.

1.6 This report is valid for 12 months, after which bat use of the site may have changed to warrant a re-survey. Beyond 12 months, this report should not be used for planning submission purposes nor should it be relied upon in any capacity.

Figure 1. Location plan

Figure 2. Survey boundary (approximate)

2.0 Legislation

Please refer to wildlife legislation here - Bats: protection and licences - GOV.UK (www.gov.uk) *The text below is a summary only and is not a legal interpretation.*

2.1 In the UK, all bat species and their roosts are legally protected, by both domestic and international legislation (Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, and the Wildlife and Countryside Act, 1981 as amended). This means you may be committing a criminal offence if you:

- Deliberately take, injure or kill a wild bat
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats
- Damage or destroy a place used by bats for breeding or resting (roosts) (even if bats are not occupying the roost at the time)
- Intentionally or recklessly obstruct access to a bat roost

2.2 A European Protected Species Mitigation Licence (EPSML) (or Bat Mitigation Class Licence for low impact projects) can be issued by Natural England for scientific and research purposes (including survey work). An EPS licence can also be issued by Natural England for the disturbance of an EPS in relation to a development. Licences can only be granted if there is no satisfactory alternative or if the action authorised will not be detrimental to the maintenance of the population of the species at a Favourable Conservation Status in their natural range and can only be obtained once planning permission has been granted.

3.0 Methodology

Desktop study

3.1 The immediate landscape was assessed for any significant bat-roosting and foraging habitats (woodland, water etc.) connecting to the site.

3.2 Multi-agency Geographical Information for the Countryside (MAGIC) was used to identify any European Protected Species licensing relevant to the site location.

Field survey: Preliminary Roost Assessment (buildings)

3.3 The site was visited on 19th December 2022 by Gemma Holmes, during which the barn identified in Figure 2 was subject to an internal and external inspection. A systematic search was carried out using Nature Hawke binoculars to identify potential or actual bat access points and roosting places. The search included the ground, particularly beneath potential access points, where accessible. The internal inspection included the roof space – which was inspected for droppings, insect remains, staining. The barn was assigned a "roost suitability" based on features/evidence found, in accordance with Table 1.

Table 1. Bat roost potential of structures (BCT, 2016)

Suitability	Description of roosting habitats
Negligible	Negligible habitat features likely to be used by roosting bats
Low	A structure with one or more potential roost features (PRF) that could be used by individual bats opportunistically, but do not provide enough space, shelter, protection, appropriate conditions, and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats. A structure of sufficient size and age to contain PRFs but with none seen from the ground/using ladders or features seen with only very limited roosting potential.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (for roost type only).
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.

Emergence (dusk) and re-entry (dawn) bat surveys

3.4 As the PRA identified potential access points and bat droppings, the barn was assigned "high" roost suitability, requiring at least three dusk/dawn surveys in accordance with BCT Guidelines. The surveys followed standard survey BCT methodology.

3.5 Surveys were carried out on 18th May, 5th June and 22nd June by a team of three surveyors. All surveyors were equipped with Echo Meter Touch 2 Pro (professional grade) bat detectors, and Clu-lite torches with red filters.

3.6 Surveyors were also equipped with night-vision aids including thermal FLIR A65 camera and Sionyx infra-red camera. All night-vision aids have a wide field of view and appropriate frame rate for this application. All footage was reviewed following the survey utilising relevant software.

3.7 Each surveyor watched for any bats emerging/re-entering, foraging or commuting and made notes accordingly. Recordings were made and stored on the Echo Meter Touch 2 Pro/Ipad.

3.8 Behaviour was recorded in 2-minute intervals, within which the number of "passes" were recorded. Levels of activity were determined as follows:

- Low: 8 or less passes
- Moderate: 8 - 20 passes
- High: Over 20 passes

3.9 Dusk surveys were carried out up to 30 minutes prior to dusk, until up to 2 hours after dusk. The dawn survey was carried out up to two hours prior to dawn, until sunrise.

Figure 3. Surveyor positions

4.0 Results

Desktop study

4.1 The site is in a rural location on the north-western edge of Holton St. Mary in Suffolk. The site is bordered by Holton Hall and well-kept ornamental gardens to the east and south. There is a large lake to the north and a commercial site to the west.

European Protected Species Mitigation Licenses

4.2 There are no granted EPS licenses within 2km of the site.

Preliminary Roost Assessment

Photographs are provided in Figure 4.

Assessment: Roosting

4.3 The barn is a single storey building arranged in an L shape, including three rooms, two used for storage and one open bay. The barn continues to the south with a series of open bays. We understand the barn was part-converted c.25 years ago. The barn has block/brick walls and a part slate part pan tile roof. The window and door frames are timber, and there are boxed timber soffits. There were no observable gaps around window frames.

4.4 There are several places bats could potentially access the barn:

- Gap via open bay.
- Subsidence crack on the northern aspect.
- Lifted ridge tiles.
- Gap around lead flashing.
- Small gaps under slate roof tiles facing east.

4.5 Bat droppings were identified in the open bay on a bin (maximum 5 droppings, well scattered) and in the northern room below the western gable apex, scattered close to the western wall. A small number of bat droppings were found scattered throughout the northern room on stored items. Holton Hall itself is a large, detached house with high roost suitability. This project will not impact the house or any other outbuildings.

Assessment: Foraging/commuting

4.6 There are several places around the site that bats could reasonably use for foraging, notably the large lake to the north-west. The ornamental garden contains mature boundary trees, and the courtyard to the east of the barn is well-sheltered by ornamental hedgerows and climbers, creating a good environment for foraging. Overall, the landscape shows high suitability for foraging activity. There are no linear habitats on the site that are likely to be used by commuting bats.

Figure 5. Photographs

a) Common pipistrelle roost entry point in open bay.

a) Western aspect and open bay.

b) Bat dropping found on bin in open bay.

c) Northern room

d) Northern aspect

e) Eastern aspect and garden.

5.0 Dusk emergence/ dawn re-entry surveys

The weather conditions and survey data are provided in Table 2 and Table 3. A map showing roosts and peak foraging locations is provided in Figure 5.

Table 2. Weather conditions

Date	Sunset / Sunrise Time	Start Time	End Time	Temperature (°C)		Wind (mph)	Rain	Cloud Cover %
				Max	Min			
18th May	20:48	20:30	22:30	11	10	3	None	45
5th June	21:10	20:40	22:40	13	12	10	None	100
22nd June	04:36	02:36	04:40	16	16	3	None	Clear

Table 3. Survey results

Date	Surveyor	Summary	Emergence/re-entry?
18th May	S1 (south-east)	First bat: 21:06 (soprano pipistrelle) Last bat: 21:49 (brown long-eared) **Summary of activity**: No emergence. Moderate levels of foraging by soprano pipistrelle, noctule and common pipistrelle. One brown long-eared bat seen at 21:49. Focus of foraging was around the courtyard to the east of the barn, individual bats only.	**No**
	S2 (south-west)	First bat: 21:12 (soprano pipistrelle) Last bat: 21:56 (common pipistrelle and soprano pipistrelle) **Summary of activity**: No emergence. Constant foraging by common pipistrelle, soprano pipistrelle and noctule throughout the survey period. Bats observed commuting along western aspect of the barn towards the pond at the beginning.	**No**
	S3 (north)	First bat: 21:06 (soprano pipistrelle) Last bat: 21:41 (noctule) **Summary of activity**: No emergence. Moderate/high levels of foraging by soprano pipistrelle, serotine and noctule close to the site and over the lake.	**No**

Date	Surveyor	Summary	Emergence/re-entry?
5th June	S1	First bat: 21:21 (pipistrelle sp.) Last bat: 22:18 (soprano pipistrelle) **Summary of activity**: No emergence. Moderate levels of foraging activity by soprano pipistrelle, common pipistrelle, noctule, Leisler's bat heard briefly at 21:53 and 22:06.	**No**
	S2	First bat: 21:23 (common pipistrelle) Last bat: 22:25 (Myotis sp.) **Summary of activity**: One common pipistrelle seen emerging from a crevice in the open bay, and flying to the west at 21:23. Otherwise, low levels of foraging by common pipistrelle, noctule, soprano pipistrelle above the site and along the western aspect of the barn. Myotis sp. (likely Daubenton's) heard briefly at 21:59 and 22:25.	**One common pipistrelle**
	S3	First bat: 21:20 (soprano pipistrelle) Last bat: 22:20 (common pipistrelle and soprano pipistrelle) **Summary of activity**: No emergence. Small numbers of bats until 21:52 – beyond this there was continuous, high levels of foraging activity by common pipistrelle and soprano pipistrelle between the house and barn, and over the roof.	**No**
22nd June	S1	First bat: 03:27 (soprano pipistrelle) Last bat: 03:51 (common pipistrelle) **Summary of activity**: No re-entry. Three species recorded: Common pipistrelle, soprano pipistrelle, noctule. Only small numbers of bats occasionally foraging to south of barn. Common pipistrelle was observed continuously foraging for 6 minutes – individual bats.	**No**
	S2	First bat: 03:07 (Common pipistrelle) Last bat: 03:44 (soprano pipistrelle) **Summary of activity**: **Maternity roost identified in garage building to the north – between 35 and 45 bats were seen returning to the western apex.** One pipistrelle sp. returned to the barn via a gap in the open bay at 04:41. Otherwise, individual common pipistrelle and noctule observed foraging occasionally along the western aspect	**One common pipistrelle**

Date	Surveyor	Summary	Emergence/re-entry?
	S3	First bat: 03:00 (soprano pipistrelle) Last bat: 04:07 (soprano pipistrelle) **Summary of activity**: No re-entry. Continuous foraging from 03:00 to 04:00 by several soprano pipistrelle bats to the north of the barn.	**No**

Figure 5. Roost access and foraging areas

6.0 Discussion and mitigation

Roosting bats

Table 4. Summary of roosts

Roost	Number of bats	Roost location	Feature Type	Roost Type	Conservation significance
Common pipistrelle	1	Crevice in main barn, accessed via the open bay.	Crevice	Non-breeding, occasional summer roost	Low

6.1 The proposed work will impact the above roost in the absence of mitigation. Building work will therefore need to be carried out under licence. Since the roost comprises one bat, (i.e. low number, common species) a Bat Mitigation Class Licence (BMCL) can be used.

6.2 In accordance with the current Bat Mitigation Guidelines (2004), for non-hibernation roosts with small numbers of common species, there are no/minimal timing constraints for when works can commence, but it is recommended that work takes place between September/October or March/April wherever possible when bats are least vulnerable to disturbance. Note that if works are undertaken during winter, and hibernating bats are unexpectedly encountered, work will need to cease, the feature re-instated and the roost left undisturbed until an EPS licence has been obtained.

6.3 Upon receipt of a BMCL from Natural England, and to avoid direct harm to any bats which may be present in and around the roof/external cladding, the roof strip will be supervised by the named ecologist on the BMCL or their accredited agent.

6.4 As there will be a permanent loss of a roost it will be necessary to provide alternative roosting provision for bats both during work and post-construction. All new features must be located away from sources of artificial lighting, at around eave height (2 metres and above), as close as possible to the existing roosts, and ideally as close as possible to vegetated boundary features.

6.5 It is recommended that at least one “crevice” bat box is installed on a tree in the garden to provide habitat for bats while the work takes place. Tree mounted bat boxes will be installed above 2 metres and face south or south-east. We recommend Greenwoods Eco Habitats bat boxes for their durability and thermal properties. In our experience bats readily occupy these boxes.

6.6 To replace the roost lost, it is recommended that at east one crevice style integrated roost feature is installed on the converted barn.

Please refer to Appendix 1 for recommended bat roost features.

6.7 This report confirms that mitigation is entirely possible within the remit of design, and that the Favourable Conservation Status of roosting bats in their natural range will not be affected by the development.

6.8 There is a confirmed maternity roost of soprano pipistrelle bats in the building to the north of the barn. There will be no direct impact on this roost and given that the work only requires the completion of a conversion, no disturbance impacts are predicted. It is recommended, where possible that work avoids the peak maternity period of July/August, when pups are heavily dependent on adults.

Foraging/commuting bats

6.9 The site provides small areas for foraging, consisting of the front and rear gardens and the adjacent lake. None of these areas will be impacted. To avoid disturbance to foraging bats, and as general best practice, all external lighting on the site should be minimal, directed to the ground and preferably on motion-activated timers. The advice provided in The Bat Conservation Trust's Artificial Lighting Guidelines (2018) should be followed. In summary:

- The garage, garden and lake will be maintained as a dark habitat as far as possible. No lighting should be directed towards these areas.
- New bat roost features on buildings and trees will not be illuminated.
- LED luminaires will be used where possible (No UV elements: Metal halide, fluorescent sources should not be used).
- A warm white spectrum (ideally <2700Kelvin) will be used to reduce the blue light component.
- Peak wavelengths higher than 550nm should be used to avoid the component of light most disturbing to bats (Stone, 2012).
- The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered (where this is feasible and meets safety standards).
- Column heights will be as low as functionally feasible to minimise light spill.
- Only luminaires with an upward light ratio of 0% and with good optical control will be used (See ILP 2011).
- Luminaires will be mounted on the horizontal to avoid upward tilt.
- Any external security lighting will be set on motion-sensors - sensitive to large moving objects only, and short (<1 minute) timers.
- All external lighting will be kept to the minimal feasible level and be directed downward: Baffles, hoods or louvres can be used to reduce light spill and directed only to where needed.

6.10 If the recommendations of this report are followed, the proposals are unlikely to result in any adverse impact upon foraging or commuting bats.

7.0 Conclusions

7.1 Hybrid Ecology Ltd. was instructed to carry out bat surveys on a barn at Holton Hall. Surveys consisted of a Preliminary Ecological Appraisal/Preliminary Roost Assessment carried out in December 2022 and further dusk and dawn surveys carried out between May and June 2023.

7.2 The surveys identified that the barn supports one common pipistrelle using a crevice in a non-breeding capacity. Typical of the species, the roost is occasional.

7.3 A Bat Mitigation Class Licence will be obtained once planning permission has been granted which will allow the work to commence lawfully. No work will be undertaken until the appropriate licence has been obtained.

7.4 Mitigation will involve ecological supervision during works and compensatory roost provision to accommodate the existing roosts and to ensure no net-loss of roosting habitat after development. Artificial lighting will be controlled to ensure the adjacent maternity roost, and activity by foraging bats can be maintained.

7.5 Provided the advice in this report is followed, there is no reason the Favourable Conservation Status of bats in their natural range will be affected.

References

BCT, 2018. Bats and Artificial Lighting . Available at: https://www.bats.org.uk/news/2018/09/new-guidance-on-bats-and-lighting

BCT, 2016. Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London. Available at: http://www.bats.org.uk/pages/batsurveyguide.html?_sm_au_=ijVSrSJrZMlR1Psj

Conservation of Habitats and Species Regulations, 2019. Available at: The Conservation of Habitats and Species Regulations 2017 (legislation.gov.uk)

HM Government, 2015a, as amended. Protected species and sites: how to review planning proposals. Available at: https://www.gov.uk/guidance/protected-species-and-sites-how-to-review-planning-proposals

Multi-agency Geographic Information for the Countryside (MAGIC) Interactive Map. Department for Environment, Food and Rural Affairs.

Mitchell-Jones, A.J, 2004. Bat Mitigation Guidelines, English Nature, Peterborough

Wildlife and Countryside Act, 1981 (as amended). Available at: Wildlife and Countryside Act 1981 (legislation.gov.uk)

Appendix 1. Artificial bat roost features appropriate for the site

a) Bat access tile set - [Bat Access Tile Set | NHBS Practical Conservation Equipment]

b) Integrated Eco Bat Box for buildings – [Integrated Eco Bat Box | NHBS Practical Conservation Equipment]

c) Greenwoods Eco Habitats bat boxes for trees - [Wildlife Boxes | Greenwood's Ecohabitats (greenwoodsecohabitats.co.uk)]