

**LAND AT ROYAL BRITISH LEGION, LLAY,
WREXHAM**

BAT SURVEY

2021

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EXECUTIVE SUMMARY

- Cheshire Ecological Services (CES) the commercial division of Cheshire Wildlife Trust was commissioned to undertake a daytime bat roost appraisal and dusk emergence bat survey of land at the Llay Royal British Legion, Watts Dyke, Llay, Wrexham where a residential development is proposed.
- The objective of the surveys was to establish whether or not bats are using the buildings and a cherry tree on site to roost and if so to assess the type and importance of roosts in order to inform the planning process, following recommendations made in the earlier Preliminary Ecological Appraisal (PEA). The surveys were carried out to recognised guidelines, timings and weather conditions, with particular reference to Natural England and Bat Conservation Trust (BCT) publications.
- Plans have been proposed to develop the site for a residential scheme, resulting in some building demolition, the moving of a building and felling several cherry trees.
- Building 1, 2 and 4 are of Negligible suitability for roosting bats, and the loss of these buildings will not impact upon bats.
- Building 3 has Low suitability for roosting bats with potential roosting features found beneath bargeboards.
- A dusk emergence survey was subsequently conducted of Building 3, and a roosting status of 'likely absent' has been concluded following the findings of the survey.
- A single cherry tree has Low suitability for roosting bats and no bats or evidence of bats was recorded during the daytime inspection.
- The cherry tree should be subject to a pre-commencement check for bats by a licensed bat ecologist prior to felling. If bats are found during the pre-commencement check, then works to fell the tree must cease and advice sought from Natural England.

1.0 INTRODUCTION

- 1.1 Cheshire Ecological Services (CES) the commercial division of Cheshire Wildlife Trust was commissioned to undertake a daytime bat roost appraisal and dusk emergence bat survey of land at the Llay Royal British Legion, Watts Dyke, Llay, Wrexham where a residential development is proposed.
- 1.2 The survey follows recommendations for further detailed survey for bats made within the Preliminary Ecological Appraisal (PEA) for the site (refer to CES report CES_052_RoyalBL_PEA_Apr21_KM) and comments made by the Natural Resources Wales.

Site Description

- 1.3 The Ordnance Survey grid reference for the site is SJ 33129 55284
- 1.4 The site is located to the south of Watts Dyke (Road), within Llay; a village 5km north of Wrexham town centre. The site comprised predominantly of amenity grassland and hardstanding, with boundary hedgerows, scattered trees and a number of buildings.
- 1.5 Land use in the wider area comprised the village of Llay, the surrounding area of which is dominated by agriculture. The urban area of Wrexham is approximately 2.2km south-east at its closest point.
- 1.6 The buildings and a single cherry tree previously noted within the PEA as possessing bat roost potential were the focus of the survey. The Royal British Legion Building itself is outside the proposed development boundary of the site, and as such was not subject to assessment. No other trees noted within the PEA as possessing bat roost potential are to be lost as part of development proposals.

Proposed Development

- 1.7 Plans have been proposed to develop the site for a residential scheme, resulting in some building demolition, the moving of a building and felling the cherry tree.

Survey Aims

- 1.8 The aims of the surveys was to:
- assess the site and adjacent areas for the potential presence of bats;
 - establish bat presence or likely absence by conducting a dusk emergence survey of the building;
 - assess the impact the proposed development may have on any populations of bats that may be present within or near the site; and
 - recommend any actions that may be required resulting from the above.

2.0 METHODOLOGY

General

- 2.1 All surveys were undertaken to recognised guidelines, timings and weather conditions, with particular reference to Natural England and Bat Conservation Trust (BCT) publications (Refer to Section 8.0 - References).

Building inspection

- 2.2 The buildings were searched externally and internally, where access was possible, for evidence of bat presence, such as droppings or feeding remains and any potential roosting features including bat access points and roosting places, as detailed in the BCT Good Practice Guidelines (Collins, 2016).
- 2.3 External inspections of the buildings were carried out from the ground using binoculars, a high-powered hand torch, ladders and a fibre optic endoscope, where necessary.

Areas searched (where present) included:

- | | |
|---------------------|---------------------------------|
| • Windowsills | • Boxed soffits |
| • Window panes | • Fascia's |
| • Walls | • Lead flashing |
| • Hanging tiles | • Gaps in felt |
| • Weather bordering | • Under tiles |
| • Eaves | • Gaps in brickwork / stonework |

- 2.4 Internal areas including all accessible rooms and roof voids within the buildings were searched using a ladder, high-powered hand torch and a fibre optic endoscope (where necessary).

Inspections in the roofs (where present) included:

- | | |
|----------------------------|---------------------------------------|
| • Ridge and hip beams | • Behind tiles and roof lining |
| • Mortise and tenon joints | • Top of gable ends or dividing walls |
| • Junctions of timbers | • Top of chimney breasts |

Inspections in rooms (where present) included:

- | | |
|--------------------------------|---------------------------------|
| • Behind wooden panelling | • Behind items on walls |
| • Behind shutters and curtains | • Inside cupboards and chimneys |

- 2.5 Additional information on bats in buildings is available in Appendix A.

Tree Assessment

- 2.6 The aerial assessment of the tree involved the use of ladders, a powerful hand torch, and an endoscope where required, in order to gather information on potential roost features (PRF) and their likely suitability for bats.

2.7 Evidence of bats in trees include:

- Live or dead bats
- Noise (squeaking or chittering) from within the PRF
- Droppings – in or below the PRF
- Staining – caused by urine or natural oils in bats' fur
- Odour

2.8 Additional information on bats in trees is available in Appendix B.

Assessment criteria

2.9 Based on the number, location and type of any potential roost features, the buildings and tree were categorised as having **negligible, low, moderate** or **high potential** to support roosting bats, or confirmed roost, as detailed in Table 4.1 of BCT guidelines (Collin 2016), and summarised in Table 1 below.

2.10 The surrounding habitat was assessed for its potential with regards to roosting, foraging and commuting bats. The habitat features were categorised as having **negligible, low, moderate** or **high suitability** for foraging and commuting bats, as detailed in Table 4.1 of BCT guidelines (Collin 2016), and summarised in Table 1 below.

Table 1: Summary of BCT Bat Roost Potential Categories

Suitability	Description – Roosting habitats	Commuting and foraging habitats
Negligible	Buildings/trees with negligible habitat features to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats,
Low	Buildings/trees with one of more potential roost sites that could be used by individual bats opportunistically, although they are unlikely to be suitable for maternity or hibernation roosting. This category also includes buildings/trees of sufficient size and age that elevated inspection may reveal features not previously identified, or features seen that have very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as gappy hedgerows or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	Buildings/trees with one or more potential roost sites to support roosting bats but unlikely to support a roost of high conservation status (with respect to roost type only).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.

		Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Buildings/trees with one of 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.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

2.11 During the daytime survey the building/s and its/their associated features were assessed for their suitability for hibernating bats. The following aspects were considered (Middleton 2019):

- The suitability of features to support roosting bats and/or to allow access for roosting bats
- Suitable conditions including temperature and humidity likely to be present within the building during the winter period for hibernating bats
- Surrounding habitat for bats to forage and/or commute during the active bat season (i.e. bats are familiar with the area and thus aware of suitable roosting locations within the site)
- The presence of known roosts within the building, or adjacent buildings, or surrounding area during the active season.

Emergence/ re-entry surveys

2.12 Potential roosting features (PRFs) and access points identified within the buildings during the daytime assessment were the focus of the dusk survey and observed by an ecologist for emerging and/or re-entering bats (refer to Appendix C – Photographic Plates).

2.13 During the dusk survey the building was observed by two surveyors from static / semi-static positions ensuring the best possible observation points that covered all elevations and sections of the building with PRFs.

2.14 The daytime survey was conducted on 3rd June, and the dusk emergence survey was conducted on 21st June 2021.

2.15 The following surveyors undertook the survey/s:

- Lindsay Overstall BSc (Hons) MSc ACIEEM Consultant Ecologist with CES and licensed bat worker (daytime and dusk survey).
- Jack Helsby, Living Landscape Officer for Cheshire Wildlife Trust and experience bat surveyor (dusk survey only).

2.16 Each observer was equipped with a bat detector as an aid to locating and identifying bats. The following models of detector were used:

- Echo Meter Touch 2 Pro full spectrum bat detector
- Elekon Batlogger M full spectrum bat detector

2.17 The survey effort was also supported by the use of an infrared camera set up to focus in on specific potential roost features and to aid observations in dark conditions.

2.18 Each surveyor also had a two-way radio so that surveyors could communicate during the survey, to assist in noting bat sightings and flight routes.

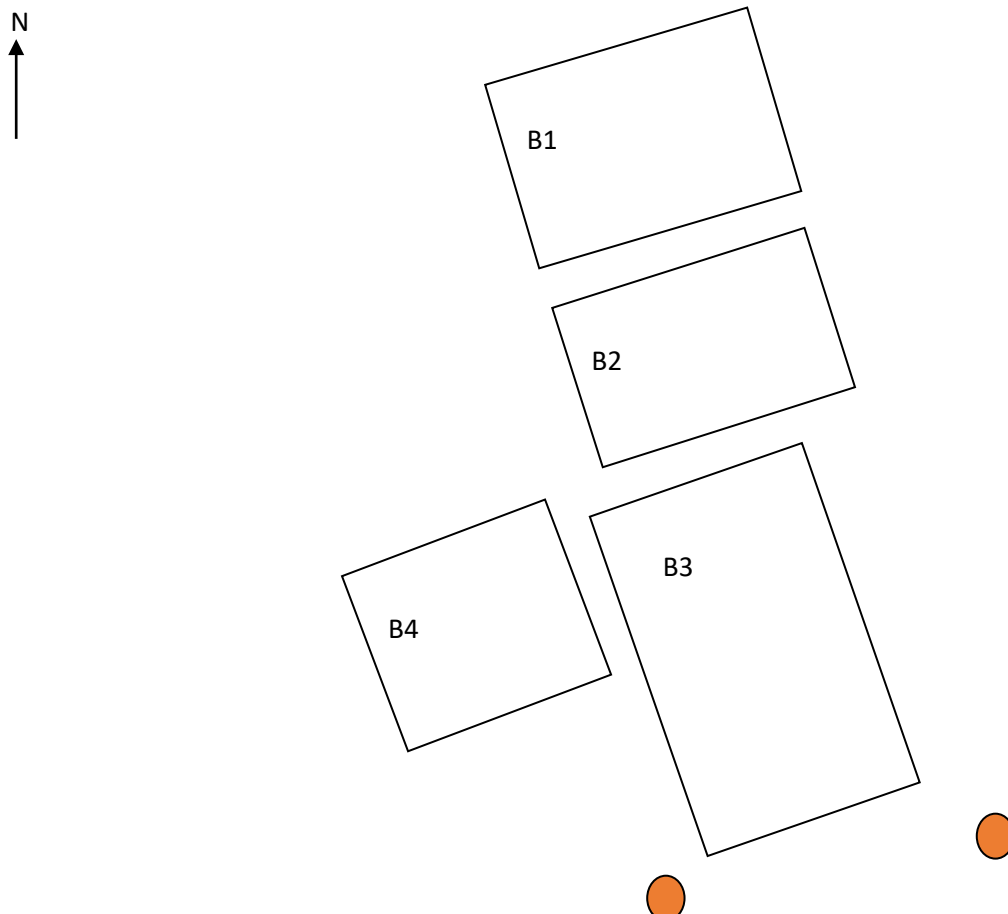


Figure 1: Simplified diagram of site. Circles denote surveyor locations during dusk survey.

Weather conditions, temperatures and timings

2.19 Table 2 shows survey timings and weather conditions during the surveys.

Table 2: Weather conditions and timing of surveys

Date	Survey Type	Sunset / sunrise	Timings	Temp (°C) Start/End	Precipitation	Beaufort wind scale ^a	Cloud Cover ^b
3/06/21	Daytime inspection	n/a	13:00-15:00	20°C/20°C	Dry	0 - Calm	2
21/06/21	Emergence	21.42	21.25 – 23.15	16°C/14°C	Dry	0 - Calm	8

- a. Beaufort wind scale: 0=Calm, 1=Light air, 2=Light breeze, 3=Gentle breeze, 4=Moderate breeze, 5=Fresh breeze, 6=Strong breeze, 7=Near gale, 8=Gale, 9=Strong gale, 10=Storm, 11=Violent storm, 12=Hurricane
- b. Oktas: 0=no cloud, 4=half cloudy, 8=completely cloudy

Limitations of the survey

2.20 The emergence survey was undertaken during the peak bat survey season, in optimal weather conditions. As such, there are not considered to be any significant limitations to the survey.

3.0 LEGAL PROTECTION FOR BATS

- 3.1 All UK bats and their roosts are protected under the Wildlife and Countryside Act (WCA) 1981 (as amended) and by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 which gives strong legal protection to all bat species and their roosts. For all countries in the UK the legal protection may be summarised as follows:

You will be committing a criminal offence if you:

1. Deliberately* capture, injure or kill a wild bat
2. Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats
3. Damage or destroy a place used by bats for breeding or resting (roosts) (even if bats are not occupying the roost at the time)
4. Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat
5. Intentionally or recklessly obstruct access to a bat roost even if bats are not present at the time

**In a court, 'deliberately' will probably be interpreted as someone who, although not intending to capture/injure or kill a bat, performed the relevant action, being sufficiently informed and aware of the consequence his/her action would most likely have).*

Defences include:

1. Tending/caring for a bat solely for the purpose of restoring it to health and subsequent release.
2. Mercy killing where there is no reasonable hope of recovery (provided that person did not cause the injury in the first place – in which case the illegal act has already taken place).

Penalties on conviction – up to six months' imprisonment and/or unlimited fines. Additionally, any profits made as a consequence of not following lawful process can be confiscated and items used to commit the offences such as vehicles, plant or machinery can be forfeited.

NB. Whilst the protection afforded to bats is virtually the same in all UK countries please refer to the specific legislation for England and Wales, Scotland and Northern Ireland for the precise wording – the above is a brief summary only.

Licensing Procedures

Licences to permit illegal activities relating to bats and their roost sites can be issued for specific purposes by the relevant licensing authorities in each country. These are sometimes called 'derogation licences' or 'European Protected Species' licences, and are issued under the Habitats Regulations. It is an offence not to comply with

the terms and conditions of a derogation licence. If you carry out work affecting bats or roosts without a licence, you will be breaking the law.

In the case of development works three tests must all be satisfied before the relevant licensing authority can issue a licence:

1. A licence MAY be granted *'to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment'*.
2. A licence may NOT be granted UNLESS the licensing authority is satisfied *'that there is no satisfactory alternative'*.
3. A licence CANNOT BE ISSUED unless the licensing authority is satisfied that the action proposed *'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range'*.

4.0 RESULTS

Daytime Survey (03/06/21)

- 4.1 Results of the daytime bat survey are detailed below including building descriptions. For photographic plates, refer to Appendix C.

Building 1 – Pigeon racing store

- 4.2 Building 1 was a single storey building with a gently pitched roof of corrugated material which could have been asbestos. The roof was unlined internally, with the corrugated sheets set on top of a steel frame. The walls were predominantly of single skin concrete slabs. There were several access points inside the building at eaves level but potential roost features (PRFs) were lacking and there was no evidence of bats within the building.
- 4.3 Building 1 has Negligible bat roost potential and is due to be demolished.

Building 2 – Former changing room

- 4.4 Building 2 was of a similar construction to Building 1, being single storey with a gently pitched roof of single skin corrugated material. There were windows on both the south-western and south-eastern aspects.
- 4.5 The south-western window was boarded on the inside and there was no glass or PRFs (bats are known to roost between boarding and glass windows). The window on the south-eastern aspect was also missing but blocked up with blockwork. There was a wide gap between the window and a single skin blockwork wall which was inspected. It was full of cobwebs and was well lit and not considered to offer a suitable roost feature. The blockwork was sealed at the top with a single row of bricks.
- 4.6 Internally the ceiling was boarded, though with large areas of missing boarding. No evidence of bats was recorded.
- 4.7 Building 2 has Negligible bat roost potential and is due to be demolished.

Building 3 – Boxing club

- 4.8 Building 3 was a flat roofed, single storey building currently used as a boxing club. It had a felt roof and several external windows which were well sealed.
- 4.9 There was wooden fascia boarding along the entire roofline of the building, which the roof felt lapped over. The boarding was warped in places, but for the most part was in good condition. Along both the north-eastern and south-western aspects there were numerous vents/holes at the base of the boarding, allowing access into the gap between the boarding and the external wall of the building. These gaps were approximately 6cm long by 1-2cm wide. Some of the vents were covered with cobwebs but others were clear and inspection with an endoscope did not find any evidence of bats but did confirm access into a potentially suitable cavity for roosting.

- 4.10 Internally the ceiling was boarded, but there was a hole in the boarding revealing wool insulation lining the gap between the roof and internal boarding.
- 4.11 Building 3 has Low bat roost potential and is due to be moved to another area of the site. The building was subsequently subject to a dusk emergence survey.

Building 4 – Store room

- 4.12 Building 4 was of a similar construction to Buildings 1 and 2. It has a gently pitched corrugated roof which was unlined and had sky lights, making the interior well lit. Walls were of a single concrete slab construction overlaid on a steel frame.
- 4.13 No evidence of bats was recorded.
- 4.14 Building 4 has Negligible bat roost potential and is due to be demolished.

Other structures

- 4.15 There were a number of metal storage containers also present adjacent to the buildings discussed above. They are of Negligible bat roost potential.

Tree Description

- 4.16 A single cherry tree present along the sites northern boundary had a lifted area of bark on the south-western elevation at approximately 4m high. Close inspection via ladder revealed a smooth sided cavity, open on one side. The entry point was approximately 15cm long, and ranged from 1 to 3cm wide. The cavity was smooth and dry, travelling back to approximately 10cm. There was no evidence of bats recorded and the cavity was considered to be relatively exposed but may offer a transient roost site. It was fully inspected and no bats were found.
- 4.17 The cavity was considered to offer Low bat roost potential.

Dusk Emergence Survey – Building 3 (21/06/2021)

- 4.18 Bat activity was extremely low during the survey with only three bat passes in total recorded, two from common pipistrelle (*Pipistrellus pipistrellus*) at 22.26 and 23.10, and one from noctule (*Nyctalus noctula*) at 23.01.
- 4.19 No bats were recorded as emerging from the building and at no point did any bats fly close to the building.

5.0 DISCUSSION

- 5.1 Habitats on site are of relatively poor quality for foraging and commuting bats, comprising predominantly of hardstanding and amenity grassland.
- 5.2 Boundary hedgerows along the sites southern and western edge offer more suitable habitat and link the site to higher quality foraging grounds in the form of Alyn Waters Wildlife Site located immediately adjacent the sites south-western boundary.
- 5.3 Building 1, 2 and 4 are of Negligible suitability for roosting bats, and the loss of these buildings will not impact upon bats.
- 5.4 Building 3 has Low suitability for roosting bats with potential roosting features found beneath bargeboards. A roosting status of 'likely absent' has been concluded following the findings of the dusk emergence survey.
- 5.5 The buildings are considered to have Negligible suitability for hibernating bats.
- 5.6 The cherry tree has Low suitability for roosting bats and no bats or evidence of bats was recorded during the daytime inspection.

6.0 IMPLICATIONS & RECOMMENDATIONS

- 6.1 There are no known implications regarding bats and the demolition of Building 1, 2 and 4, the moving of Building 3, or felling of the cherry tree. The development of the site is unlikely to impact upon bats in the local area or increase the level of disturbance for bats locally.
- 6.2 As no evidence of bat roosting has been found within the buildings or tree, a licence from Natural England is not currently required before the building works or tree removal.
- 6.3 However, bats can and do change their roost sites. In view of this, if bats are subsequently discovered roosting, all works should cease and CES be contacted for advice on how to proceed.
- 6.4 Bat roosting in trees is often extremely transient and evidence of bat roosting in trees does not persist like it does within buildings due to environmental factors. It is therefore recommended that the cavity within the cherry tree be subject to a pre-start check by a licensed bat ecologist immediately prior to the tree being felled.
- 6.5 If demolition or the moving of Building 3 has not taken place within one year from the date of this survey, then the building should be reassessed for its potential to support roosting bats prior to disturbing works taking place.

7.0 CONCLUSION

- 7.1 No evidence of bat roosting has been found and there are currently no implications regarding bats and the demolition of Building 1, 2 or 4, the moving of Building 3 or the felling of the cherry tree.
- 7.2 The cherry tree should be subject to a pre-commencement check for bats by a license bat ecologist prior to felling.

8.0 REFERENCES

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Appendices

Appendix A: Bat Ecology and Bats in Buildings

General

- 1.1 There are 18 species of bats in the UK, 17 of which are known to be breeding in the UK. Bat populations have declined considerably over the last century.
- 1.2 Bats are under threat from development and building work that affects roosts, loss of habitat, the severing of commuting routes by roads and threats in the home including cat attacks, flypaper and some chemical treatments of building material. Other potential treats can include lighting sited on key bat habitat or near roosts.

Bats in Buildings

- 1.3 Buildings provide a choice of safe, dry places made from materials like timbers, bricks, stone, tiles and slates.
- 1.4 Buildings present a whole range of potential roost sites for bats e.g.: -
In walls:
 - Behind external hanging tiles or weatherboarding
 - In cavity spaces
 - At top of solid wallsIn eaves:
 - Above soffit, or behind fascia and barge boardingIn roofs:
 - In tunnel under ridge tiles
 - Between underfelt and tiles or slates
 - In roof space along ridge beam and at timber joints, at gable end or around chimneybreast.
- 1.5 The most obvious use of buildings by bats is between May and August, when the pregnant females gather in maternity roosts to give birth and raise their young.
- 1.6 Females and young often remain in one site all summer or move about using several roosts.
- 1.7 Most summer colonies will have dispersed by the autumn, though brown long-eared *Plecotus auritus* bats often appear early in the year (early April) and leave later (October or later). These bats occasionally use the roost throughout the entire year.
- 1.8 Buildings may also be used as temporary or “transitional roosts” by small numbers of adult and immature bats of both sexes, particularly in spring and autumn.
- 1.9 Many outbuildings are attractive to bats for temporary night-time roosts or as sheltered feeding perches. The latter are indicated by the presence of a lot of insect remains, particularly of moths or large beetles and some droppings.
- 1.10 Cool, undisturbed, humid places are important as hibernation sites. Most species will tuck themselves into small crevices e.g. between bricks/stonework, and can easily pass the winter there unnoticed.
- 1.11 Bats are usually concealed in crevices, behind roofing felt, in cavity walls, behind soffits and barge boards, in old timber joints or under ridge tiles and are only occasionally seen out in the open in lofts. Consequently, the key identification feature is the

presence of droppings. Sometimes droppings may be found on the outside of buildings e.g. on windows, walls or windowsills. On other occasions droppings found in loft spaces beneath ridge-boards and around chimneys or gable ends is also typical of bats. Hibernating bats leave little or no field signs.

- 1.12 Other evidence to the presence of bats is a characteristic odour. A polished or clean surface near a place where light enters may also indicate habitual usage by bats. Sometimes bats can be heard “chittering” but this is usually in warm summer weather or when they are about to leave the roost to forage at dusk.
- 1.13 The species most commonly occurring in buildings (usually modern houses in summer) are two of the pipistrelle species, (*Pipistrellus pipistrellus*, *Pipistrellus pygmaeus*). These highly gregarious small bats use buildings for breeding during the summer and, in general, the bats disperse during the autumn. They often roost behind soffits, in cavity walls or behind external cladding. In such cases droppings are often found on external surfaces below the roost entrance/exit. The most likely place to find droppings in the roof void are at the gable end wall and along the eaves. In some cases, the bats may roost beneath ridge tiles, on top of the ridge beam or under insulation close to the eaves. Pipistrelles are frequently found overwintering deep in the cracks, crevices and cavities of usually uninhabited buildings (e.g. barns) and in such cases they leave little or no field signs.
- 1.14 The brown long-eared bat is one of the most common species in Britain and is the one most likely to be encountered in roof voids and may occasionally be seen clinging on to timbers near the apex of the roof. Like the pipistrelle, highest numbers may be seen on hot days between June and September when breeding colonies may be present. During the autumn and in cool weather, bats remain concealed in crevices or hollow walls but may appear on mild days or if disturbed. Brown long-eared bats tend to fly around in the open roof void and cling from the ridge during the night, so droppings are usually found scattered over the floor or concentrated in piles beneath favoured roosting areas, typically beneath the ridge beam. In hipped roofs, piles of droppings may also be found in the junction between two hips.
- 1.15 A number of other species - serotine *Eptesicus serotinus*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe *Rhinolophus hipposideros* are dependent on roofs but are not found locally in the area, though there has been the occasional record of serotine in the North West.
- 1.16 Whiskered *Myotis mystacinus*, Brandt’s *Myotis brandtii*, Natterer’s *Myotis nattereri* and Daubenton’s *Myotis daubentonii* bats may be present in the area and may be found in roofs but they are not particularly common in such sites. Roosting position is variable but they will be found in the same sorts of places as other species.
- 1.17 There are nine different types of bat roost (Table 3.1 BCT Bat Survey Guideline 2016)
 - I. Day roost
 - II. Night roost
 - III. Feeding roost
 - IV. Transitional / occasional roost
 - V. Swarming roost
 - VI. Mating roost
 - VII. Maternity roost
 - VIII. Hibernation roost
 - IX. Satellite roost

Bats regularly move from site to site even within the above categories.

Appendix B: Bats in Trees

Bats in Trees and Linear Landscapes

- 1.1 Some bat species rely exclusively on trees for roost sites; others use them for only a part of the year.
- 1.2 The availability of tree holes may limit the number of these species.
- 1.3 All UK bat species feed on insects associated with trees.
- 1.4 The importance of trees to bats varies with species, season and foraging behaviour.
- 1.5 Trees and hedgerows, especially native ones, play host to many species of insect, which are food for bats.
- 1.6 Bats rest; give birth, raise young, form groups and hibernate in natural holes, crevices and sheltered places. Such conditions occur particularly in mature trees.
- 1.7 Identification of tree roosts is an area with a poor record of success. Typical sites may be old woodpecker holes, cavities and cracks in trees, crevices behind peeling-off bark, woodpiles and behind ivy.
- 1.8 Bats favour native trees such as oak, beech, ash and Scots pine. Even in winter, deep cavities can provide protection against bad weather and fluctuations in temperature.
- 1.9 Over a period of time bats will use a number of trees to optimise roosting conditions. External disturbances, an internal build-up of parasites or distance from feeding area can influence the choice of tree.
- 1.10 Bats also use trees, lines of trees and hedges to navigate at night. Loss or damage to such features affects the ability of bats to commute safely and economically between roosts and feeding sites. A gap in a hedge as little as 10 metres may force some bats to seek an alternative route or to change roosts.
- 1.11 Even if not directly affected by development work, bat roosts may be abandoned if the connectivity of the landscape around it is lost by hedge or tree removal or breaking up of other linear features.
- 1.12 Evidence of bats in trees can be identified in a number of ways:
 - Obvious holes, cavities and splits
 - Dark staining caused by urine on the tree below a hole
 - Staining around a hole caused by the natural oils in bats' fur
 - A maze of tiny scratch marks around the hole made by bats' claws
 - Droppings below a hole – they look similar to those for rodents, but crumble to a powder of insect fragments
 - On close inspection a hole may contain droppings or smell of bats
 - Noise (squeaking or chittering) coming from a hole-especially on a hot day or at dusk

However, it should be noted that bats often produce little or no evidence of their occupation.

Appendix C: Photographic Plates



Plate 1: View of Building 1



Plate 2: Internal view of Building 1



Plate 3: View of Building 2



Plate 4: Internal view of Building 2



Plate 5: View of Building 3



Plate 6: View of Building 3 (L) and location of several PRFs.



Plate 7: View of one of several potential roost features beneath barge boarding (Building 3)



Plate 8: Internal view of Building 3



Plate 9: View of Building 4



Plate 10: View of Building 4



Plate 11: Internal view of Building 4



Plate 12: View of cherry tree with potential roost feature highlighted



Plates 13: View of PRF from ground



Plate 14: Close up view of PRF with Low bat roost potential



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