



Mark Tunmore BSc, MCIEEM

The Boat House, Church Cove, Lizard,
Helston, Cornwall, TR12 7PH

T: 01326 290287

M: 0797 9013257

22 August 2023

1. INTRODUCTION

1.1 Background

Mark Tunmore was instructed by Caroline Robinson in May 2023 to carry out a programme of bat surveys at a semi-detached house known as Trenance, located at Townshend, Hayle, TR27 6AQ. The survey was requested in preparation for a planning application to extend the house at the back (PA23/01558). This followed an initial assessment by Cove Ecological Surveys on 16 March 2023, which identified the building as holding moderate potential for roosting bats using the national survey guidelines and found approximately 100 bat droppings in the loft area, confirming its use as a bat roost. Two emergence surveys and a period of remote monitoring in the loft were recommended, in keeping with the survey guidelines. This report summarises the results of the further surveys and offers advice on mitigation and licensing.

1.2 Site description

The survey site (SW59133284) consisted of a two storey semi-detached house located beside the B3280 in the village of Townshend in west Cornwall (Figures 1–3).



Figure 1. Southern aspect of the building.

The house was built of stone and the walls were tightly pointed; the eastern gable of the building was rendered (Figure 2). The pitched roof was composed of slate; some slates were lifting in places and there was a large gap beneath a section of the ridgeline (Figure 4); a single chimney was present on the eastern end of the building and lead flashing around the base of this was lifting (Figure 5). A wooden fascia was present at the front of the house, which had a large gap behind it. These features provided potential roost features and access points for bats. A small porch was also present on the front of the house (Figure 1), which had a pitched slate roof.

A roof void of approximately 1.25m internal height was present above the top floor (Figure 6), which had a layer of fibreglass insulation on the floor and the roof was lined with bitumen felt (this was torn in places and could allow access for bats). The roof void was being used for light storage purposes. A second void was present on the lower part of the roof on the north side of the building (Figure 8), above the bathroom with space at the top of this void potentially allowing bat access to the main roof void above.

At the back of the house a dormer was built into the roof, which had a section of vertical slates on one side and a wooden fascia with a gap behind it, which was suitable for roosting bats (Figure 3). Beneath the dormer a flat roofed extension projected north (Figure 7), which was bitumen felted with a layer of gravel on top. The wooden fascia here also held suitable gaps for roosting bats.



Figure 2. Eastern gable of the building.



Figure 3. Northern aspect of the building.



Figure 4. Gap beneath roof ridge.



Figure 5. Gap beneath lead flashing around the base of the chimney.



Figure 6. Roof void.



Figure 7. Flat-roofed extension.



Figure 8. Roof void above the utility room on the north side of the building.

Also at the back of the house was a single storey conservatory and joined on utility room with a flat corrugated perspex roof (Figure 3).

A long raised garden was present on the north side of the house, which contained hedges, a small pond and small trees. The site was located beside a relatively minor road in a rural landscape dominated by arable and pasture fields with mature hedgerows and scattered blocks of woodland. The surrounding countryside thus offered a high degree of habitat connectivity and relatively low levels of light pollution, providing high potential for foraging bats.

1.3 Proposed works

It is proposed to convert the existing outbuilding into a shower room; an existing window will be opened up to create a new doorway. On the first floor a new bathroom will be constructed by converting part of the current roof void. A new landing will be constructed and there will be various internal rearrangements, as well as alteration to windows. All external modifications will take place at the rear of the property.

1.4 Aims of the survey

The aims of the surveys were to establish if roosting bats were present and if so, what species and numbers, as well as the location of any roosts and means of access.

1.5 Evaluation

The potential of the site for roosting bats is categorized using the terms specified in *Bat Surveys for Professional Ecologists* (Collins, 2016), assigning suitability to one of four categories specified below:

- Negligible. Negligible habitat features on site likely to be used by roosting bats.
- Low. A structure with one or more potential roost sites that may be used by individual bats opportunistically but which does not provide appropriate conditions to be used regularly or by large numbers of bats.

- Moderate. A structure with one or more potential roost sites that could be used by bats but is unlikely to support a roost of high conservation value.
- High. A structure with one or more potential roost sites with obvious suitability for use by large numbers of bats on a more regular basis.

2. METHODS

2.1 Visual surveys

A visual survey was carried out on 16 March 2023, searching for evidence of bat use, including droppings, feeding remains and staining from urine or grease from fur. A high-powered torch was used to examine all parts of the building, including behind fascia boards and lintels. A visual search was also carried out for evidence of nesting birds: presence of nests, accumulation of droppings or alarm calls from birds.

2.2 Emergence surveys

Two dusk emergence surveys were carried out at the site in May and June 2023. The first was conducted on 18 May starting at 20.50 (15 minutes before sunset) and finishing at 22.35; sunset was at 21.05 B.S.T. The second dusk emergence survey was conducted on 23 June, commencing at 21.20 (15 minutes before sunset) and finishing at 23.05; sunset was at 21.35 B.S.T.

Two surveyors were present on each survey supported with 'night vision aids' (NVA). Surveyor one was located in the street at the front of the property viewing the southern and western aspects and roof, with surveyor two in the back garden viewing the northern aspect and roof. This strategy enabled all aspects of the property containing potential bat roosting features to be viewed. Table 1 summarises the personnel and equipment used, Figure 9 shows the surveyor and equipment locations and Figure 10 shows infrared illumination at the darkest part of the surveys.

Date (2023)	Surveyor number	Surveyor name	Equipment used	Method of detection
18 May	1	Anthony Blunden	Echo Meter Touch 2 Pro & Petterson 240dx	Time expansion & heterodyne
18 May	2	Scott Barron	Anabat Scout, Canon XA15 & 2 x Nightfox XB5 IR torches	Frequency division, heterodyne & infrared
23 June	1	Mark Tunmore	Anabat Walkabout, Sony AX100EB & 2 x infrared lighting	Pitch shifting & infrared
23 June	2	Scott Barron	Anabat Scout, Canon XA15 & 2 x Nightfox XB5 IR torches	Frequency division, heterodyne & infrared

Table 1. Surveyor and equipment information.

Methods of detection are described below:-

- Full spectrum records at very high sample rates, enabling high frequency sounds to be recorded in real time. Files are recorded for subsequent sound analysis.
- Heterodyne plays back sound in real time, operating at a narrow bandwidth of frequencies, dependent upon the frequency the observer is tuned into.
- Pitch shifting compresses the ultrasonic spectrum into an audible band by shifting the pitch of the sound, allowing calls to be heard in real time. Harmonic components and amplitude of bat calls are kept in the process. Files are recorded for subsequent sound analysis.
- Frequency division divides the frequency of ultrasound by a pre-set ratio (typically 16) so that ultrasonic noises can be heard. Calls are recorded for subsequent sound analysis.
- Time Expansion plays back recorded sound at a slower than normal speed (typically 1/10th), which has the effect of lowering the frequency of sound so that it is audible to the human ear. Calls are played in real time and recorded for subsequent sound analysis.

2.3 Surveyor information

Mark Tunmore (Natural England licence number 2015-14995-CLS-CLS), Anthony Blunden (Natural England licence number 2015-10884-CLS-CLS Level 2) and Scott Barron are all experienced bat surveyors with a wide range of experience on similar development projects.

2.4 Weather conditions

During the dusk emergence survey on 18 May conditions were dry with 4/8 to 7/8 cloud cover and a northerly wind of Beaufort Force 1. Temperatures started at 11.5°C, falling to 8.6°C by the end of the survey.

Weather conditions during the dusk emergence survey on 23 June were dry with full cloud cover and a south-westerly wind of Beaufort Force 2. Temperatures started at 18.5°C, falling to 18.0°C by the end of the survey.

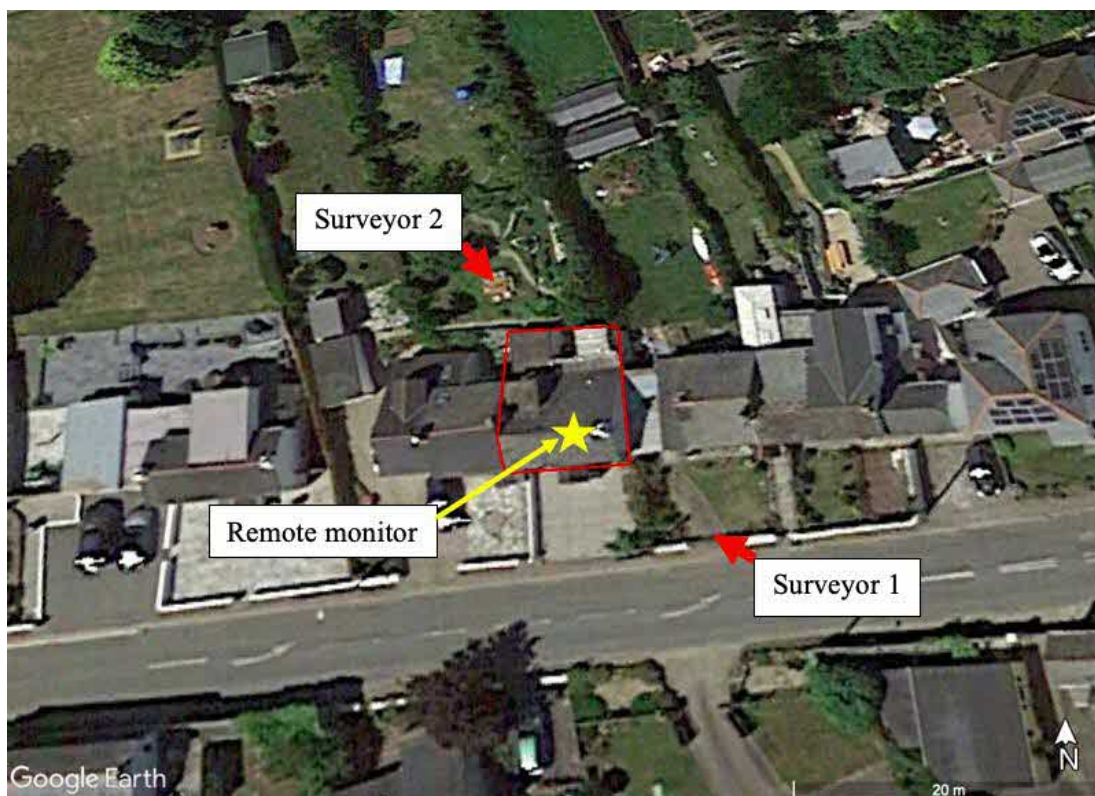


Figure 9. Surveyor and equipment locations.



Figure 10. Infrared illumination. Left: Surveyor 2 (18 May). Middle: Surveyor 1 (23 June). Right: Surveyor 2 (23 June).

2.5 Remote monitoring

An Anabat Express detector was left recording bat activity inside the main roof void at the front of the house on the nights of 18 to 24 May 2023 inclusive. The unit was programmed to switch on 30 minutes before sunset and to switch off 30 minutes after sunrise. This equipment uses frequency division to record bat activity.

3. RESULTS

3.1 Visual survey

On 16 March 2023 a scattering of bat droppings was found on the fibreglass insulation in the roof void (Figure 11) with a concentration of 100 droppings found close to the gable wall. A sample of the droppings was taken for DNA analysis, which confirmed the presence of two species—Common Pipistrelle *Pipistrellus pipistrellus* and Brown Long-eared Bat *Plecotus auritus*.

3.2 Emergence surveys

During the first emergence survey on 18 May five **Common Pipistrelle** emerged from one location beneath the fascia board on the southern facing aspect between 21.12 and 21.16 (see Figure 12). Common Pipistrelle activity was recorded regularly throughout the survey from 21.06 B.S.T. onwards, with Noctule *Nyctalus noctula* heard high overhead on three occasions.

During the second emergence survey on 23 June five **Common Pipistrelle** emerged from beneath the fascia board on the southern aspect between 21.46 and 21.52 B.S.T., this time spread over three points (see Figure 3). Brown Long-eared Bat calls were recorded on three occasions by surveyor one at the front of the property between 22.37 and 22.59 B.S.T.



Figure 11. Bat droppings found in the roof void.

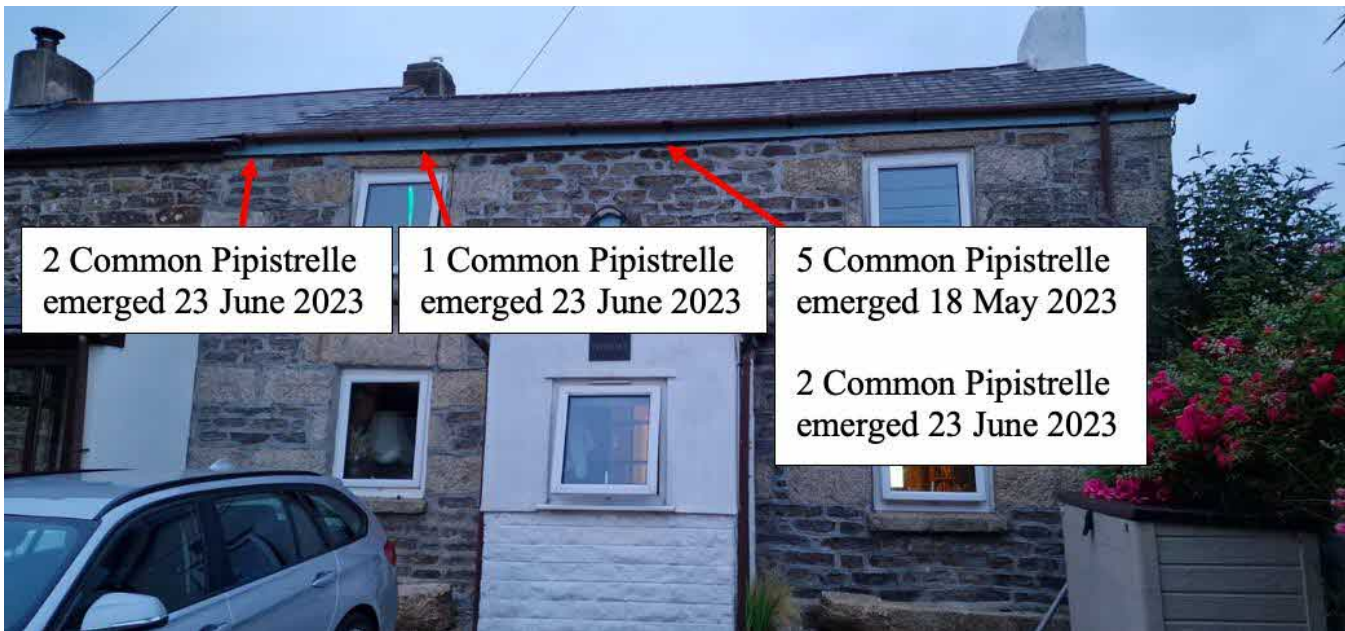


Figure 12. Common Pipistrelle emergence locations on the southern aspect of the building.

3.3 Remote monitoring

Table 2 summarise the data recorded by the remote monitoring equipment left in the building and the findings are discussed below.

Date (2023)	Species	Number of recordings	First time	Last time	Sunset/sunrise time
18 May	Brown Long-eared Bat	6	05.08	05.51	21.05/05.29
19 May	Brown Long-eared Bat	1	21.16	21.16	21.07/05.27
20 May	Brown Long-eared Bat	29	21.23	04.56	21.08/05.26
21 May	Brown Long-eared Bat	4	21.14	23.34	21.09/05.25
22 May	Brown Long-eared Bat	0	21.28	05.01	21.11/05.24
23 May	Brown Long-eared Bat	1	21.59	05.03	21.12/05.23

Table 2. Bat activity recorded by remote monitoring equipment, May 2023.

The remote monitoring survey showed nightly activity within the roof void by Brown Long-eared Bat. The regular occurrence of recordings close to sunset and sunrise indicated the presence of a day roost, whilst the low number of recordings suggested the presence of a single bat. This species was not observed to leave the building during the emergence surveys and it is concluded that the bat emerged late, after surveys had finished, or that it somehow managed to emerge unseen.

4. LEGISLATION AND POLICY

4.1 Bats

As a result of the substantial declines in bat populations that have taken place over the last century bats are legally protected by domestic and European legislation. All British bats are European Protected Species (EPS), listed under Annex IV (a) of the EC Habitats Directive. They receive legal protection under the Conservation of Habitats and Species (amendment) (EU Exit) Regulations 2019. Additional legal protection

is afforded under Section 9 of the Wildlife and Countryside Act (as amended by the Countryside and Rights of Way Act 2000), all British Bats being listed under Schedule 5 of the Act. In combination this makes it an offence to:

Intentionally kill, injure or take a wild bat

Intentionally or recklessly damage, destroy or obstruct access to a wild bat roost (regardless of whether bats are present at the time or not)

Intentionally or recklessly disturb a wild bat while it is occupying a structure or place it uses for shelter or protection

Since 2007 it is no longer a valid defence to show that the killing, capture or disturbance of a species covered by the Conservation Regulations or the destruction or damage of their breeding sites or resting places was the incidental or unavoidable result of an otherwise lawful activity.

4.2 Nesting birds

All nests and eggs of wild birds are protected under Part 1 of the Wildlife and Countryside Act 1981 (and amendments).

4.3 Planning policy

The National Planning Policy Framework (NPPF) 2018 sets out government policy with regard to the consideration of biodiversity in planning decisions. The presence of a protected species is a material consideration when a planning authority is considering a development proposal that would be likely to cause harm to the species or its habitat. The NPPF states that if significant harm from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated or, as a last resort, compensated for, then planning permission should be refused.

Under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 local authorities have a duty to have regard to the conservation of biodiversity in England when carrying out their normal functions, which includes consideration of planning applications. The England Biodiversity List was published in compliance with section 41 of the Act and includes 941 species which make up the UK Biodiversity Action Plan Priority Species list. This includes seven of the UK's bat species (listed below).

The UK Biodiversity Action Plan (UK BAP) is the national strategy developed in response to the Convention on Biological Diversity signed in Rio in 1992. It identified the species requiring priority action to address their causes of decline and take action to maintain and conserve their biodiversity. Listed bats are:

Barbastelle *Barbastella barbastellus*

Bechstein's Bat *Myotis bechsteinii*

Noctule *Nyctalus noctula*

Soprano Pipistrelle *Pipistrellus pygmaeus*

Brown Long-eared Bat *Plecotus auritus*

Greater Horseshoe Bat *Rhinolophus ferrumequinum*

Lesser Horseshoe Bat *Rhinolophus hipposideros*

5. EVALUATION

The surveys have shown that five Common Pipistrelles are day-roosting behind the gap along the length of the fascia at the front of the building. The presence of droppings from this species in the roof void indicates that they are also using this space on occasion. A single Brown Long-eared Bat is day-roosting within the

roof void and whilst the means of ingress was not proven it is likely to be from behind the fascia at the front of the house or via gaps beneath the roof slates.

The species found roosting are discussed individually below:

Brown Long-eared Bat is common and widespread throughout the UK. The population remained stable during the monitoring period 1999–2022 (BCT, 2023). It is listed as a priority species for conservation in the UK Biodiversity Action Plan (UKBP, 2007) and within the Cornwall Biodiversity Action Plan (CBI, 2010). It is also listed as vulnerable within the Red Data Book for Cornwall and the Isles of Scilly (CISFBR, 2009).

Common Pipistrelle is common and widespread throughout the UK. The population has increased during the monitoring period 1999–2022 (BCT, 2023). The species is listed as vulnerable within the Red Data Book for Cornwall and the Isles of Scilly (CISFBR, 2009).

Roost types are valued using the system proposed by Wray *et al.* (2010), in which bat species are categorized by distribution and rarity (Table 3) and roosts assigned to a geographic frame of reference based on the rarity of the species (Table 4). Using these criteria, Trenance has district importance for bats.

Table 3. Categorising bats by rarity in England (adapted from Wray *et al.*, 2010).

Rarity in England	Species
Common	Common Pipistrelle <i>Pipistrellus pipistrellus</i> , Soprano Pipistrelle <i>P. pygmaeus</i> , Brown Long-eared Bat <i>Plecotus auritus</i>
Rarer	Lesser Horseshoe <i>Rhinolophus hipposideros</i> , Whiskered Bat <i>Myotis mystacinus</i> , Brandt’s Bat <i>M. brandtii</i> , Daubenton’s Bat <i>M. daubentonii</i> , Natterer’s Bat <i>M. nattereri</i> , Leisler’s Bat <i>Nyctalus leisleri</i> , Noctule <i>N. noctula</i> , Nathusius’ Pipistrelle <i>Pipistrellus nathusii</i> , Serotine <i>Eptesicus serotinus</i>
Rarest	Greater Horseshoe <i>Rhinolophus ferrumequinum</i> , Bechstein’s Bat <i>Myotis bechsteinii</i> , Alcatheo Bat <i>M. alcathoe</i> , Greater Mouse-eared Bat <i>Myotis myotis</i> , Barbastelle <i>Barbastella barbastellus</i> , Grey Long-eared Bat <i>Plecotus austriacus</i>

Table 4. Valuing bat roosts (taken from Wray *et al.*, 2010).

Geographic Frame of Reference	Roost Type
District, local or parish	Feeding perches (common species) Individual bats (common species) Small numbers of non-breeding bats (common species) Mating sites (common species)
County	Maternity sites (common species) Small numbers of hibernating bats (common and rarer species) Feeding perches (rarer/rarest species)

	Small numbers of non-breeding bats (rarer/rarest species)
Regional	Mating sites (rarer/rarest species) including well-used swarming sites Maternity sites (rarer species) Hibernation sites (rarest species) Significant hibernation sites for rarer/rarest species or all species assemblages
National/UK	Maternity sites (rarest species) Sites meeting SSSI guidelines
International	SAC sites

6. RECOMMENDATIONS

In the absence of mitigation the development proposals will result in the loss of day roosts of Brown Long-eared Bat and Common Pipistrelle.

Before work can lawfully proceed the site must be registered by the ecologist under the Bat Mitigation Class Licence (WML-CL21). An appropriate mitigation strategy will need to be proposed as part of the licence application in order to maintain the favourable conservation status of the species roosting there. **Until the site has been confirmed as registered under the WML-CL21 class licence, no work must take place upon the building.** The following recommendations are made:

- There are no seasonal restrictions on the timing of work although it would be advantageous to do the work over the winter outside the nesting bird season.
- Prior to works commencing two Schwegler 2F woodcrete bat boxes will be appropriately fitted to nearby trees, under the supervision of the bat ecologist. These boxes must be kept away from any forms of artificial lighting. Any bats uncovered during works will be relocated by the ecologist to these boxes.
- A pre-works inspection will be carried out by the bat ecologist before work begins.
- Contractors will be given a toolbox talk by the bat ecologist prior to commencing works.
- Roofs will be soft stripped by hand in the presence of a licensed bat ecologist with roof tiles removed with care and checked for bats underneath. Any other features identified by the ecologist as holding potential for roosting bats will also be removed under a watching brief.
- The existing fascia at the front of the house will remain unchanged so it will be possible to return the Common Pipistrelle roost where it is; 20mm gaps will additionally be left behind all new fascias and barge boards throughout.
- The main roof void where Brown Long-eared Bat is roosting will not be developed and will remain available for use by bats with no loss of space. Repairs will be carried out to the roof and loft insulation/roof lining may be replaced. The roof will remain lined with 1F Bitumen felt and no breathable membranes will be used in this area, which are known to be harmful to bats. It is possible that in carrying out roof repairs that the bat access point may be lost. Therefore two bat slates will be fitted to the roof at the front of the house and slits of approximately 15cm long x 2cm wide will be cut in the roof lining below to allow bats access to the roof void.

- Care will be needed to ensure any external lighting is placed away from bat access points.
- A precautionary approach to nesting birds must be adopted during building works. Birds may nest between March and September inclusive and if any nests are found within 5m of the works then work must cease until nesting has finished. All wild birds, their nests and eggs are protected by law.

Under the Environment Act recently passed into law (HM Government, 2021) there is a legal requirement for all development requiring planning permission to deliver at least a 10% Biodiversity Net Gain (BNG). Provision is made for this in terms of planning policy under NPPF (2021) in the Cornwall Local Plan (Cornwall Council 2016). Best practice guidance for developers is provided in the Cornwall Planning for Biodiversity Guide (Cornwall Council, 2018). Cornwall Council require a minimum of one bird box (or bat box if more appropriate) to be erected at a rate of one per new dwelling. See <https://www.cornwall.gov.uk/media/v1roqk0x/planning-for-biodiversity-v14.pdf> for more information.

Two Schwegler 1SP Sparrow terraces (or equivalent) will be fitted to the building as high off the ground as possible and in a sheltered location.

The findings of this report are valid for 12 months and if work does not proceed in this time then an update survey will be required.

7. REFERENCES

Bat Conservation Trust, 2023. The National Bat Monitoring Programme Annual Report 2022. Bat Conservation Trust, London. Available at www.bats.org.uk/our-work/national-bat-monitoringprogramme/reports/nbmp-annual-report.

CBI [Cornwall Biodiversity Initiative], 1997–2010. *Cornwall's Biodiversity Volumes 1, 2, 3 & 4*. Cornwall Wildlife Trust, Truro.

CISFBR, 2009. *Red Data Book for Cornwall and the Isles of Scilly*. Second Edition. Croceago Press, Praze-an-Beeble.

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

Cornwall Council, 2016. <https://www.cornwall.gov.uk/planning-and-building-control/planning-policy/adopted-plans/>

Cornwall Council, 2018. *Cornwall Planning for Biodiversity Guide* <https://www.cornwall.gov.uk/planning-and-building-control/planning-policy/adopted-plans/cornwall-planning-for-biodiversity-guide/>

HM Government, 2021. The Environment Act.

UKBP, 2007. *UK List of Priority Species*. UK Biodiversity Partnership.

Wray, S., Wells, D., Long, E. & Mitchell-Jones, T., 2010. Valuing Bats in Ecological Impact Assessment. *In Practice* 70: 23–25.