# Barn at Elms Farm, East Hewish, Weston-super-Mare, BS24 6RZ

# Dusk Emergence and Pre-dawn Re-entry Surveys for Bats

June 2021

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## Document Control

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## Notice to Readers:

The results of the survey and assessment work undertaken by All Ecology are representative at the time of surveying.

Every endeavour has been made to identify the presence of protected species on site, where this falls within the agreed scope of works.

The flora and fauna detailed within this report are those noted during the field survey and from anecdotal evidence. It should not be viewed as a complete list of flora and fauna species that may frequent or exist on site at other times of the year.

Up to date standard methodologies have been used, which are accepted by Natural England and other statutory conservation bodies. No responsibility will be accepted where these methodologies fail to identify all species on-site.

All Ecology cannot take responsibility where Government, national bodies or industry subsequently modify standards.

All Ecology cannot accept responsibility for data collected from third parties.

Reference to sections or particular paragraphs of this document taken out of context may lead to misrepresentation.

# Contents

# 1.0 Introduction

## Background

1.1 In May 2021, All Ecology was commissioned to undertake Dusk Emergence and Pre-dawn Re-entry Surveys for Bats on a stone barn at Elms Farm, East Hewish, Weston-super-Mare, BS24 6RZ.

1.2 The barn is the subject of a planning application to permit its conversion from agricultural to residential use.

1.3 An inspection survey of the building was carried out by All Ecology on the 30th March 2021. Evidence of bats was found in the barn in the form of a small number of scattered droppings and possible feeding remains. The barn main interior was considered to be poor habitat for day roosting bats due to it being well lit and draughty; evidence found was indicative of a night roost.

1.4 The building provides other potential for day roosting bats within the small void between roof lining and tiles, within crevices in stone walls and behind barge boards. No evidence of bats was recorded in association with these potential roosting features. These features would ordinarily be classified as low potential but due to the presence a probable night roost, the building is considered to have **moderate potential for day roosting bats**.

1.5 The barn appears to support night roosting bats. A static detector was installed within the building interior to monitor bat activity in the barn over a number of nights to ascertain, which species are present and the level of use.

1.6 In regards to day roosting potential, where the absence of bats cannot be confidently concluded by the inspection of a building alone, further surveys are usually required to give confidence in a negative result or confirm the status of any roosts discovered. In accordance with the Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd Ed (Collins, 2016), where a building is deemed to be of moderate potential for day roosting bats, the buildings should be subject to two survey visits, usually, one dusk emergence survey and a pre-dawn re-entry survey, to give sufficient confidence in negative result. In the event roosting bats are discovered, an additional dusk or dawn survey would be required in order to classify the roost. Surveys can take place from May to September but in the event roosting bats are found and three surveys are required, two surveys must take place before the end of August. The surveys should be at least two weeks apart and take place in suitable weather conditions. These surveys were therefore carried out.

## Objectives and Aim

1.7 The main objectives and aim of the survey were to establish the following:

- Presence/absence of bat roosts.
- Status of roosts if present.
- Whether a European Protected Species (EPS) licence is required to ensure legal compliance.
- Which type of mitigation measures would need to be employed.

## Site and Building Location

Figure 1: Site location plan.

Figure 2: Building location plan.

# 2.0 Legislation and Status

## Bats

2.1 All species of bat are listed on Schedule 5 of The Wildlife and Countryside Act (1981) and as such receive protection under Section 9 of this Act. This has been amended several times, most recently by the Countryside and Rights of Way Act 2000, which added 'or recklessly' to Section 9(4) (a) and (b). In summary, it is a criminal offence to:

- Intentionally kill, injure or take a wild bat.
- Be in possession of, or control, any live or dead wild bat or part of, or anything derived from a wild bat.
- Intentionally or recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection.
- Intentionally or recklessly disturb any wild bat whilst it is occupying a structure or place that it uses for shelter or protection.
- Transport for sale or exchange, or offer for sale or exchange, a live or dead bat or any part of a bat.

2.2 The Conservation of Habitats and Species Regulations 2010, consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994, in respect of England and Wales. It is an offence to possess, sell or offer or transport for sale any European species of bat or any part derived from such a species. These Regulations also remove the 'incidental result defence'. In other words, it is no longer a defence to show that the killing, capture or disturbance of a species covered by the Regulations or the destruction or damage of their breeding sites or resting places was the incidental and unavoidable result of a lawful activity. Natural England can grant European Protected Species (EPS) licenses in respect of development to permit activities that would otherwise be unlawful.

2.3 Under Section 40 of the Natural Environment and Rural Communities Act (2006) public bodies, including Local and Regional Planning 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. In compliance with Section 41 of the Act, the Secretary of State has published a list of species considered to be of principal importance for conserving biodiversity in England. This is known as The England Biodiversity List, all of which make up the UK BAP Priority Species. This list forms the basis of the UK Biodiversity Framework, and in England, Biodiversity 2020: A strategy for England's wildlife and ecosystem services (Defra, 2011). Regional Planning Bodies and Local Planning Authorities will use it to identify the species that should be afforded priority when applying the requirements of the National Planning Policy Framework (NPPF) to maintain, restore and enhance species and habitats.

2.4 Seven bat species are NERC Priority Species (JNCC, 2007). These are:

- Barbastelle *Barbastella barbastellus*
- Bechstein's *Myotis bechsteinii*
- Noctule *Nyctalus noctula*

- Soprano Pipistrelle *Pipistrellus pygmaeus*
- Brown Long-eared *Plecotus auritus*
- Greater Horseshoe *Rhinolophus ferrumequinum*
- Lesser Horseshoe *Rhinolophus hipposideros*

2.5 Greater Horseshoe, Lesser Horseshoe, Barbastelle and Bechstein's, are afforded greater protection under European legislation, being listed under Annex II of the EC Habitats Directive which lists species whose conservation requires the designation of Special Areas of Conservation (SACs).

# 3.0 Methodology

## Personnel

3.1 The survey was carried out by experienced bat surveyors and was overseen by James Godbeer BSc Hons MCIEEM, an ecologist with over 14 years' experience working as a consultant, and an experienced bat surveyor. James has extensive experience of managing environmental contracts, and particular experience in surveying, assessment and mitigation for rare and protected species. He has considerable knowledge of the development and planning process including Ecological Impact Assessments, sustainable ecological design and he has completed ecology chapters of Environmental Statements. James holds a number of protected species licences including bats (all species, all counties, Class Licence Registration No. 2015-12313-CLS-CLS), and Great Crested Newts (Class Licence Registration No. 2019-44282-CLS-CLS). He has successfully obtained European Protected Species mitigation licences for a number of bat species including Lesser Horseshoe, Greater Horseshoe, Serotine, Brown Long-eared, Common Pipistrelle and Natterer's bats, for a number of roost types including maternity and hibernation sites.

## Automated Bat Survey

3.2 Evidence of bats was found in the barn in the form of a small number of scattered droppings. The barn interior provides negligible potential for day use due to it being well lit and draughty. The evidence found was indicative of a night roost; therefore, the decision was taken to install an automated detector in the building interior to ascertain which species are present and the level of use. The automated detector was installed on the 17th of May 2021 and collected on the 2nd June.

## Dusk Emergence and Pre-dawn Re-entry Surveys

3.3 The building was subject to a dusk emergence survey on the 17th May 2021 and a pre-dawn re-entry survey on the 2nd June 2021. In order to adequately cover the building, two surveyor positions were used.

3.4 In accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd Ed (Collins, 2016), dusk surveys should begin 15 minutes before sunset and continue for 1.5 – 2 hours after sunset with the survey start time adjusted on subsequent surveys or a repeat of the survey should bats already be in flight at 15 minutes before sunset. The dusk survey therefore began 30 minutes before sunset to avoid the risk of having to repeat the survey as species such as pipistrelles will often emerge well before sunset.

## Equipment

3.5 The automated survey was carried out with a Wildlife Acoustics' Song Meter Mini Bat, which was positioned in the centre of the barn.

3.6 During the dusk emergence and pre-dawn re-dawn re-entry surveys, surveyors were equipped with Echo Meter Touch 2 Pro bat detectors. Registrations were recorded on the devices and notes were made on species recorded, behaviour, time of registration, location and direction of flight where possible, including incidental observations from surrounding habitats.

3.7 Audio recordings were later analysed using Wildlife Acoustics' Kaleidoscope software.

## Assessment

3.8 The surveyed building has been evaluated to assess which of the following categories it falls into, if any (Mitchell-Jones, 2004 & Collins, 2016):

- Transitional roost (April-September/October) - On waking from hibernation or in the period prior to hibernation, bats search for roosts in which they stay for only a few days or on some occasions several weeks. These transitional roosts can be occupied by a few individuals or occasionally small groups. The transitional roosts used prior to hibernation are generally cool and thus may allow bats to reduce their energy requirements before going into hibernation.
- Maternity roost (May-August) - Breeding females gather together around the beginning of May to form nursery colonies. During this period gestation begins with births typically occurring between June and July. The females and their young remain within the maternity roost until the young are weaned and independent (late July-August). These roosts tend to break up between August and September. Adult males are rarely found within these colonies. However, the adult males of long-eared bats, Daubenton's, Natterer's, and horseshoe bats can be found roosting within maternity colonies with their numbers increasing throughout the active season.
- Satellite roost (May-August) - Breeding females may have alternative roost sites in close proximity to the main nursery colony. These are referred to as 'satellite roosts'. The numbers of bats using these roosts can vary greatly, from a few individuals, to small groups.
- Mating roost (September-November) - All British bats are polygynous i.e. males mate with several females. Mating generally takes place from late summer and can continue through the winter. A number of different mating strategies are used by bats, though males of some species establish mating roosts, whereby they defend territory and display/call to females to mate.
- Hibernation roost (October-March) - Depending on the weather and food availability, bats tend to move to hibernation sites from October. Hibernation roosts can vary greatly in terms of the number of individuals and the diversity of species that occupy them. However, they tend to have a constant cool temperature and high humidity, which allows the bats to use less energy regulating their temperature. Bats will wake occasionally during hibernation to drink and feed.
- Night roost (March-November) - Bats may use roosts other than traditional day roosting sites to rest in during the night. These roosts vary in their conservation significance. Night roosts may be used by a single individual on occasion or they could be used regularly by the whole colony. Studies have shown that night roosts may be of particular importance to some species i.e. the Lesser Horseshoe, providing key resting places within core foraging areas.
- Day roost (March-November) - These roosts are used during the day to rest in. Males of most British species spend the summer roosting alone or in small groups with other males in such roosts. Bats may regularly use a number of day roosts, switching between them on a daily basis, though conversely they may occupy the same roosting site for several weeks.

- Feeding roost (May-November) - These roosts can be occupied by a single animal or a few individuals throughout the active season. They vary in their significance as they may be used by the whole colony or just a few individuals to feed, to shelter from the weather or to rest temporarily. Feeding roosts are often used by long-eared and horseshoe species.
- Other considerations, Swarming sites - Swarming takes place between August and November, whereby large numbers of bats from several species gather, generally around caves and mines. They are often dominated by the *Myotis* species and appear to be important mating sites with some bats travelling several kilometres to reach these areas. A proportion of the bats that travel to these sites will remain to hibernate.

## Limitations

3.9 There were no limitations to carrying out the surveys in accordance with the Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd Ed (Collins, 2016).

3.10 The surveys only provide a 'snapshot' of the bat activity associated with the building and immediate surroundings and although the absence of a maternity roost can determined with a high level of confidence as well as other roost types at the time of the surveys, it is possible that bats could roost at other times of the year.

# 4.0 Results

## Automated Bat Survey

4.1 The automated survey recorded one or more Common Pipistrelle, and a Soprano Pipistrelle bat using the barn occasionally between the night of the 17th May to the morning of the 2nd June. Seventeen recordings were made of bats using the barn on six nights during the survey period of sixteen days. These recordings were mostly of Common Pipistrelle bats with one single recording of a Soprano Pipistrelle. All bats were recorded during the early night period of between 21:37 to 00:05. No other bat activity was recorded associated with the barn.

4.2 The building interior was inspected on the morning of 2nd June for any new evidence of bats such as fresh droppings and feeding remains. The building is being used for storage and therefore single or low numbers of droppings may have been missed in more cluttered areas, however, no new evidence was recorded and no significant evidence of bat activity is likely to have been missed.

## Dusk Emergence and Pre-dawn Re-entry Surveys

4.3 No bats were recorded emerging from, or entering the building during the survey.

4.4 During the dusk survey the following species were recorded foraging in the area surrounding the building.

Table 1: Survey results for 17th May 2021 dusk survey.

| Species | Times | No. Passes | Comments |
|---|---|---|---|
| Common Pipistrelle | 21:54 | 1 | A single bat observed briefly foraging over the yard south of the building before flying west. |
| Soprano Pipistrelle | 22:32 | 1 | A single bat observed foraging past the barn flying southeast to northwest. |

Table 2: Survey results for 2nd June 2021 dawn survey.

| Species | Times | No. Passes | Comments |
|---|---|---|---|
| Common Pipistrelle | 03:56 – 04:08 | 2 | Two foraging passes south of the barn. Bats observed flying west to east. |

Table 3: Weather conditions and sunset/sunrise times.

| Date | Temperature (ºC) | Sunset/Sunrise Times | Wind | Cloud Cover (%) |
|---|---|---|---|---|
| 17/05/21 (dusk) | 12-10 | 20:59 | Light | 25 |
| 02/06/21 (dawn) | 14 | 05:00 | None | 20 |

# 5.0 Evaluation

## Automated Bat Survey

5.1 A total of seventeen bats were recorded either within the barn or flying very close to the building exterior throughout the sixteen day period of automated survey. These were predominantly Common Pipistrelles with one recording of a Soprano Pipistrelle. Bats were recorded on six nights throughout the survey period and many of the recordings were within 1 hr of dusk indicating that some of the recordings made may be bats briefly flying into the barn or flying close to the building exterior.

## Dusk Emergence and Pre-dawn Re-entry Surveys

5.2 No bats were recorded emerging from, or entering, the building during the survey and it is therefore concluded that day roosting bats were absent from the building at the time of the survey. The presence of a maternity roost can be ruled out with a high level of confidence and although individual bats could roost at any time, the present surveys indicate general absence.

5.3 Activity recorded on and around the site was that of Common Pipistrelle, comprising a low number of bats making foraging passes, and a single pass by a Soprano Pipistrelle. Pipistrelle bats are the most common species of bat in the UK with widespread distributions, most commonly found in England and Wales; Pipistrelle bats exploit a wide range of habitats (BCT, 2010, 2010a).

5.4 No other bats were recorded and there was no activity associated with the building as such. There was no indication that the site or adjacent areas were important commuting routes for any nearby roosts.

## Site Status Assessment

5.5 The results from the installed automated detector and previous inspection suggests the building is used infrequently as a night roost by an individual or low numbers of pipistrelle bats.

5.6 No other roosts have been identified on site. The habitats around the building provide some limited foraging habitat where likely low numbers of bats forage and feed during the night throughout the active season, with most bat foraging activity likely to be in the wider area away from the site. Based on the number of recordings, small size and nature of the site, it is unlikely that the site is important for any particular species of bat.

# 6.0 Impacts and Recommendations

## Impacts

6.1 The barn is the subject of a planning application to permit its conversion from agricultural to residential use.

6.2 In the absence of mitigation, the following impacts and potential impacts with regard to bats have been identified:

- Conversion of the barn causing the destruction of a potential occasional pipistrelle night roost used by a small number of individual bats. Adjacent farm buildings will continue to offer night roosting potential; the impact to local populations is considered to be negligible.
- Loss of features suitable for day roosting bats; no roosts have been identified during the surveys.
- Potential for disturbing bats that could roost at other times of the year or those that could begin roosting at any time.
- Temporary/permanent disruption of areas of bat foraging habitat on site and the immediate surroundings through potential increase/changes in external lighting.

## Further Surveys

6.3 No further surveys are required at this time. Sufficient surveys been carried out to satisfy the recommended survey effort and repeat surveys would not be required unless the proposals are delayed by one year or more.

## Legal Compliance

6.4 The Wildlife and Countryside Act 1981 as amended by The CRoW Act 2000 and The Conservation of Habitats and Species Regulations 2010 makes it illegal to recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection, whether the bat is occupying the shelter at the time or not.

6.5 European Protected Species (EPS) Licences to permit the above for the purposes of development must be obtained from Natural England. To gain a licence the scheme must have been issued with detailed planning permission and must not result in a loss of conservation status of the species concerned. Based on the survey evidence gathered to date and the proposal for the building, an occasional Pipistrelle night roost would be destroyed. Although this meets the legal definition of a roost, Natural England will not usually expect a licence application to be made for such a roost, provided bats are not left without a potential roosting site and adequate mitigation is put in place. The existing agricultural buildings surrounding the barn, particularly the building a short distance north, is of similar design, offers direct flight access to its interior, and will continue to provide roosting opportunity for night roosting bats, and new roosting features in the converted building are proposed (see below); this being the case, an EPS Licence will not be required to permit the works. No other bats were recorded using the building during the dusk emergence and pre-dawn re-entry surveys and it has been concluded that day roosting bats are likely to be absent and an **EPS Licence will not be required** to permit the works.

## Mitigation

Timing of Works

6.6 There are no restrictions on the timing of works with respect to bats.

Care and Vigilance During Works

6.7 It should be noted that although there was nothing to indicate the presence of day roosts on site, it is possible that crevice-dwelling bats e.g. Common Pipistrelle, could be present at other times or could begin roosting in crevices at any time. The contractor(s) should therefore be advised to carry out all work with care and vigilance for bats.

6.8 During the proposed works the contractor should be advised to adhere to the following procedures in the unlikely event bats are found during works:

- If the roost is still in the structure and bats are not injured, stop work and contact a licensed ecologist. If help is not available, allow bats to fly out of harm's way.
- If material containing a roost has been removed, the roost is not exposed and the bats are not injured, temporarily seal and isolate the roost, stop work and seek advice from a licensed ecologist. If advice is not readily available, re-open it and allow bats to relocate of their own accord.
- If the roost has been exposed, and especially if bats have been injured, stop work, collect bats in a secure box or bag (using a glove) and contact a licensed ecologist

Habitat Creation

6.9 No day roosting bats were recorded and any roosting activity associated with the building was limited to sporadic night use by low numbers of pipistrelle bats. The surrounding buildings will continue to provide night roosting opportunities and it should be noted that the majority of the existing roosting features would not be directly affected by the works and will remain available for use once works have been completed. In order to enhance the converted building single bat boxes will be installed at the apices of each of the gable ends (two boxes in total). The Schwegler 2FE Bat Shelter is proposed btu a similar specification box will be used depending on availability.

Lighting

6.10 Common Pipistrelles are very tolerant of increased light levels but it is possible that other species that are more susceptible to disturbance from lighting, forage near to the house at other times. It has been concluded that the site is unlikely to be important for bats, but nevertheless it is recommended that external lighting be kept to minimum in order to minimise disturbance of bats. Any lighting around new roost entrances should be avoided. Where lighting is necessary for reasons of security and/or health and safety, highly directional warm white LED lighting, an example being down spots at 2.5 m high using warm white (2700 K) 8W LED lamps, 550 lumens, 35 degree beam angle, should be used. These could be individually activated by PIR sensors on a 5 minute cut off to further reduce their impacts. These will assist in lighting only the areas where lighting is required and minimising light spill either directly or through reflected light.

# 7.0 References

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# 8.0 Plans

## Plan 1 – Survey Results