Bat Survey: Penyworlod Farm Barn, Penhow, Caldicot, NP26 3AJ

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Warning! The building is now a confirmed bat roost.

No works can be undertaken that may impact or disturb the roost without the legal owner being in possession of a European Protected Species License. Please refer to section 4 and section 9 of the report for further details.

If there is any doubt of what is permissible please contact the author on: Tel:07866461726 or Email rich@ecologicalservices.wales prior to any works commencing.

Disturbance or destruction of a bat roost is a criminal offence that may result in any granted planning permission being revoked, the legal owner receiving a fine and or a prison sentence.

1.0 Background and Purpose

1.1 The building being surveyed is a detached, traditional stone barn which sits in the land of Penyworlod Farm and is situated in a rural environment to the north west of the small village of Penhow. The barn is currently derelict and planning permission is sought to create a small gable extension to the eastern elevation of the building and to build two stable blocks to the south of the building. This report will investigate if there is potential to disturb bats and will be used to assist in the planning process.

1.2 To support the planning application a bat report has been commissioned to investigate if bats use the current property in any capacity during the maternity season, and for any evidence suggesting that bats use the property at other times of the year.

1.3 The report is prepared and undertaken by Mr. Richard Watkins BSc., an experienced bat ecologist with 13 years experience, and Aislinn Harris, a Natural Resources Wales licensed bat ecologist, license number S085699-1.

1.4 A data search was undertaken with SEWBReC (0223-175) to provide information on local bat and bird species in the area. The data search did not identify any historic records of bats being present in the property. The nearest recorded roosts are approximately 290m from the property which is an historic record for a Brown Long Eared Bat (*Plecotus auritus)* maternity roost from 1987; 840m from the property which is a record for a Common Pipistrelle (*Pipistrellus pipistrellus)* and a Lesser Horseshoe Bat (*Rhinolophus hipposideros)* maternity roost from 2010 and 845m from the property which is an historic record for a Common Pipistrelle day roost from 1991. There are no commuting or foraging records for bats within 1km of the property.

No records for nesting birds were returned as part of the data search within 500m of the proposed development site.

The property is not within 10km of a designated SAC for bats but is within 10km of 1 SSSI for bats (Parc Seymour Woods), however, due to the small scale of the proposed works, this site will not be adversely affected.

2.0 Site Description

2.1 The detached, traditional stone barn is single storey with a corrugated metal sheet apex roof and one stone chimney block. There are no fasciae; soffits or barge boards on the barn and there is no cavity wall present. There are two open window cavities; one to the eastern and one to the southern elevations of the barn and there are two open doorways to the eastern elevation of the barn.

2.2 The barn dates back to in excess of 100 years and is situated in a rural environment. There is unlikely to be any ambient lighting within the vicinity of the property.

2.3 The nearest significant watercourse is the River Usk, approximately 3.3km to the west of the property. Wentwood Reservoir lies approximately 1.7km to the north east of the property and there are small streams within the immediate and intermediate areas around the property.

2.4 The barn is situated in a rural environment to the north west of the small village of Penhow and is immediately situated within farmland on Penyworlod Farm. There is woodland immediately to the west of the property; Coed Gwent (Wentwood) lies approximately 560m to the north west of the property and Parc Seymour Park lies approximately 930m

to the south west of the property. The barn is immediately surrounded by woodlands; open fields and farmland in all directions and there is optimal ecological connectivity for bats to the wider environment.

2.5 The National Grid Reference of the site is: **ST 4131 9227.**

3.0 Report Constraints

3.1 Bats use different roosts throughout the year. Bats hibernate in torpor for weeks at a time throughout the cold months, mainly underground in caves and in deep rot holes at the centre of large mature trees. Bats are habitual and can live upwards of twenty years. During the summer months they will normally return annually to the same roost, usually in attics of buildings to form maternity colonies. Outside the maternity season, a scoping survey can be limited as the majority of any bats using the structure as a summer roost may not be present. External evidence such as droppings and staining which can identify bat use may have been removed by the rain. Therefore this survey will evaluate potential for bat use, in addition to searching for evidence of bats.

3.2 The report is solely concerned with bats in relation to this building. Trees and other buildings not mentioned directly have not been included in this report.

3.3 Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year; migration patterns and behaviour. The survey methods employed can provide evidence for the potential presence of bats at the times when the site was visited. Although the methods follow best practice guidance and were carried out in such a way as to maximise the chances of detection, failure to detect the target species cannot be considered as definitive proof of their absence.

3.4 Even though bats are habitual creatures they can still move to new roosts if more suitable. Therefore this report cannot predict the status of the structure in regard to bat occupancy in the future. This report should be acted upon as soon as practical and will be valid for eighteen months from date of issue. If planning or building works are delayed, it is the responsibility of the client to discuss and gain approval from the *author* before work commences. Natural Resources Wales will only consider reports up to eighteen months old.

4.0 Legal Constraints

4.1 Bats, and any place a bat uses for breeding or shelter, either currently occupied or unoccupied are protected by European and British law, predominantly by **The Conservation of Habitats and Species Regulations 2017**, which are the principal means by which the Habitats Directive is transposed from European directive into law in England and Wales.

4.2 In summary this law states that it is an offence to:

- **Deliberately capture or kill a bat**
- **Deliberately disturb a bat**
- **Damage or destroy a breeding site or resting place of a bat**
- **Keep; transport; sell; exchange or offer for sale or exchange a living or dead bat or any part of a bat**

4.3 'Deliberately' may also be interpreted, as not intending to injure or kill a bat but having done so due to being insufficiently informed and unaware of the consequences of the action.

4.4 For a more comprehensive description and exact wording of the legislation please refer to:
http://www.legislation.gov.uk/uksi/2010/490/contents/made

4.5 Where there is a risk that a bat roost may be present, it is incumbent upon the owner to commission a specialist bat survey to identify bat roosts before any work commences. Maximum penalties for offences relating to disturbance to bats or their roosts can amount to imprisonment for a term not exceeding six months or fines of up to Level 5 on the standard scale under the Criminal Justice Act 1982/1991 (i.e. £5000 in April 2001) per roost or bat disturbed or killed, or to both.

4.6 If a bat roost is discovered, no work that could affect the roost can be undertaken until Natural Resources Wales grants a licence endorsing the work. A thorough method statement and adequate mitigation proposal will need to be submitted to support any licence application.

4.7 The Environment (Wales) Act 2016 puts an onus onto responsible bodies such as Local Planning Authorities to not only preserve, but also to enhance biodiversity meaning that planning applications must offer an element of ecological gain as well as preserving any aspects of ecological importance.

5.0 General Information

5.1 Bats are unable to build roosts themselves but instead rely on both man made and naturally occurring features to provide suitable accommodation. Bats generally prefer older buildings built with traditional materials, as traditional building methods provide more opportunities for gaps and entrances to buildings. Traditional cut roofs are preferred to a roof with trusses. Bats also prefer to roost where the external roost area has access to sunlight during the day such as south facing roof elevations.

5.2 Bats can utilise the following features on a building; end tiles, barge boards, soffit, gable ends, porches, lead flashing, hanging tiles**,** ridge tiles**,** broken tiles**,** eaves**,** sash window frames**,** wood cladding**,** fascia boards**,** window sills and internal roof spaces and timbers. Although this list demonstrates the most popular roosting sites it is by no means definitive. Bats can use apertures as small as 10mm in diameter to gain access.

5.3 The U.K bat population is divided into two distinct families, Rhinolophidae and Vespertilionidae. In general, Rhinolophidae (Horseshoe) bats differ in their roosting requirements to Vespertilionidae (the remainder of UK bat species). Horseshoe bats prefer to roost in large areas such as internal attic spaces and hang in the open from the roof of the roost. They tend to roost in visible clusters to maintain the high temperatures that a maternity colony needs. Horseshoe bats also prefer free flight access and egress into the roosting area. Horseshoe bats tend to be more light averting to other UK bat species, and routinely fly around the internal roosting area to warm up before exiting. It is noted that Plecotus (Long Eared) bats share some of these preferences. Vesper bats are, on the whole, crevice dwelling bats who squeeze into small apertures to access the roost. These, like Horseshoe bats, will cluster in maternity colonies, but are normally hidden from view. Vesper bats, with the exception of Long Eared bats, do not require a large internal roost to fly around before exit. Long Eared bats, although part of the vesper family, are very light averting and will, on occasions share the roosting patterns of both Horseshoe and crevice dwelling species.

6.0 External Scoping Survey

6.1 The external scoping survey was undertaken on the 17th June, 2022 in conditions of good natural light. All external aspects of the building were comprehensively evaluated for roost potential. Evidence was also sought for any staining or droppings which could suggest bat occupation. Binoculars and an endoscope were used when required.

6.2 The building was inspected for overt evidence of bat presence and occupation such as:

- Staining around the entry of roosting point caused by oils secreted by the bat into its fur
- Scratching on surfaces caused by the bat in the acts of take off and landing
- Bat droppings on walls; floors; roof voids; window sills or panes and barge boards
- Urine stains below a possible entrance site, within the entrance to a cavity or on timbers used for roosting
- Bats can produce chatter on warm evenings prior to leaving the roost. A heterodyne bat detector is used to help determine this
- Flies around the entrance or on the floor of possible roosts, which may be attracted to bat guano

6.3 Due to the age and condition of the building, there were a number of opportunities present for bats to access and use the building and those that were available were deemed as having at least moderate to high potential for roosting bats. There were apertures in the stone walls; apertures between the walls and the roof; areas of overgrown vegetation and two open windows and doorways.

6.4 No droppings or evidence of bats were discovered on any external features although this would not be definitive of bats not using the building at other times of the year.

6.5 No evidence of nesting bird use of the building was observed during the scoping survey.

6.6 Examples of apertures allowing access to cavities in the building:

7.0 Internal Scoping Survey

7.1 The internal scoping survey was undertaken on the 17th June, 2022 by Aislinn Harris and on the 7th September By Dr Angus Scott.

7.2 During the internal scoping survey, Lesser Horseshoe Bats (*Rhinolophus hipposideros)* bats were observed roosting in the chimney of the barn. 16 Lesser Horseshoe bats on the first survey and 3 Lesser Horseshoe bats on the second survey. The bats were observed roosting in the chimney.

7.3 The barn is single storey with a vaulted ceiling internally. The two open windows and doorways do let daylight into the barn, however, the chimney is closed off and creates a dark environment for bats to roost.

8.0 Emergence and Dawn Surveys

8.1 The emergence surveys were carried out during the maternity season and adhered to current best practice guidelines. These surveys were conducted from half an hour before sunset until two hours post sunset. The surveyors used are all experienced bat counters who have undergone sufficient training in basic bat ecology and bat activity. The surveyors used were Hannah Evans; Tyrone Evans; Angus Scott and Archie Scott. All sound analysis was undertaken by Richard Watkins.

8.2 The emergence surveys gave extra consideration to the features identified during the external scoping survey which could be utilised by bats.

8.3 First Emergence Survey on 25th July, 2022.

- Sunset: 21:10
- Weather: Dry and calm with approximately 50% cloud cover
- Temperature: 16 degrees celsius
- Surveyors: Hannah Evans and Tyrone Evans

58 Lesser Horseshoe Bats (*Rhinolophus hipposideros)* were observed emerging from the chimney inside the barn and exiting through the open doorways of the barn.

8.4 Second Emergence Survey on 7th September, 2022.

- Sunset: 19:44
- Weather: Mostly dry with a slight breeze and approximately 80% cloud cover. There was a light shower during the survey, however, bat activity was still observed during this time.
- Temperature: 17 degrees celsius
- Surveyors: Angus Scott and Archie Scott

17 Lesser Horseshoe Bats were observed emerging from the chimney inside the barn and exiting through the open window and doorways of the barn. Approximately 3 Lesser Horseshoe Bats were still roosting in the chimney when the survey ended.

8.5 The weather conditions were dry and calm with little wind and no rain and therefore conducive for bat activity. The temperature was above 10 degrees celsius during the emergence surveys.

8.6 The best viewing conditions were obtained.

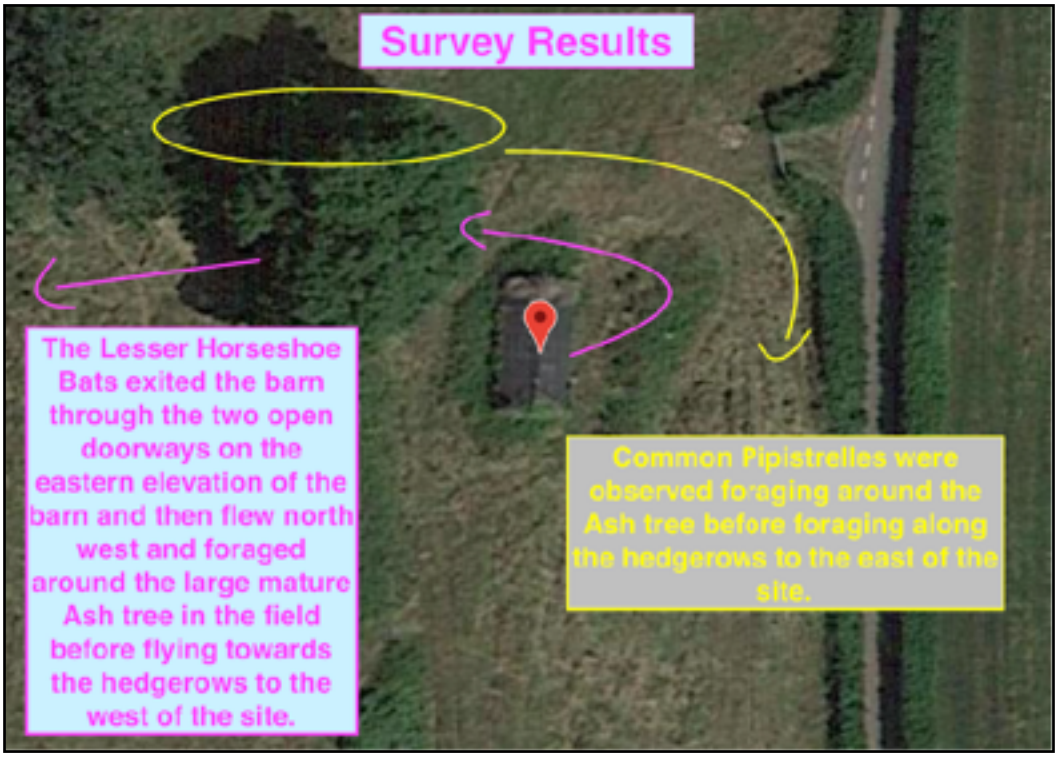
8.7 Echo-meter Touch 2 Pro bat detectors were present to acoustically record any bat calls.

8.8 Analysis of sound recording on bat detectors:

Species of Bats Recorded Emerging from the Building:	
Lesser Horseshoe Bats	*Rhinolophus hipposideros*

Species of Bats Recorded in the Area:	
Common Pipistrelle	*Pipistrellus pipistrellus*
Serotine	*Eptesicus serotinus*

8.9 During the emergence surveys, a high number of Lesser Horseshoe Bats were recorded and the bats were observed emerging from the barn. The bats exited the barn through the two open doorways on the eastern elevation and the open window on the southern elevation and then flew north west and foraged around the large mature Ash tree in the field before flying towards the hedgerows to the west of the site. Two Common Pipistrelles were observed foraging around the Ash tree before foraging along the hedgerows to the east of the site but did not emerge from the barn. A single Serotine was observed foraging to the south east of the barn during the second emergence survey.



9.0 Concluding Remarks and Recommendations

9.1 During the emergence surveys, Lesser Horseshoe bats were observed using the barn as a maternity roost.

9.2 Lesser Horseshoe Bats (*Rhinolophus hipposideros)* were observed emerging from the barn during both emergence surveys. Lesser Horseshoe Bats are nationally a rare species of bat, but are routinely found in this part of Monmouthshire, which is a known stronghold for the species. These bats are often found roosting in agricultural buildings, where they can light sample around the interior of buildings prior to exit. These type of bats do not tolerate light disturbance.

9.3 Throughout the surveys, a high number of bat calls were recorded and a maximum of 58 Lesser Horseshoe bats were observed using the barn as a roost during any emergence survey.

9.4 The emergence surveys did identify a significant Lesser Horseshoe Bat maternity roost.

9.5 The barn did offer minimal hibernation potential for bats due to the relatively poor condition of the stonework.

9.6 Evidence of nesting bird use of the barn was observed during the emergence surveys. Any building works should, if possible, be completed outside of the bird nesting season of March to August inclusive. If works are to proceed in the nesting bird season then a suitably qualified ecologist must first inspect the building for active birds nests. No works can commence until any active birds nests become vacant.

9.7 The barn was assessed as having at least moderate to high potential for bat use and the barn and its condition offered a number of opportunities for bat occupation and roosting potential.

9.8 The barn is located in an area with optimal ecological connectivity for bats to the wider environment and the surrounding environment does offer potential for bat use.

9.9 There was no ambient lighting within the vicinity of the barn.

9.10 If careful consideration is made to incorporate improved roosting conditions into the new build scheme, then this project could offer ecological gain for the resident bats. New roost creation in the new building scheme is required to accommodate crevice dwelling species of bats. There is potential to offer ecological gain for bats and nesting birds if the project proceeds. This would help satisfy the local planning authorities legal responsibility to preserve and enhance biodiversity under the Environment (Wales) Act 2016. The creation of new roosting features will be incorporated into the schedule of works. This can be achieved at very little expense and with no impact to the owners of the property.

9.11 The barn is now a confirmed bat roost. No work that could affect the bat roost is permitted by law, without the permission from Natural Resources Wales, including any works to the roof. Direct illumination of the building is also not permitted, as this could constitute disturbance. (Please see Section 5 of this report for further information).

9.12 If planning is approved, the legal owner must apply and be in possession of a licence to destroy the roost. This will take approximately 30 working days to be issued. This licence would have to offer a methodology to ensure that any loss of roosting sites be replaced and preferably enhanced in the new build and the project be undertaken in a way which minimises any risk to bats. An ecological clerk of works will be appointed and retained for the duration of the project.

9.13 A detailed external lighting plan will be required to minimise any external light disturbance to the bats using the building and surrounding area. Any new external lighting must not directly illuminate any roosting locations. Any external lighting must be downward angled and activated by passive infrared. The lights will be baffled to avoid any unnecessary lateral or vertical light spill. The lux levels of any external lights will be as low as required for health and safety purposes.

9.14 Proposed detailed architectural drawings are not currently available. During the architectural drafting process, the architect and client must seek further advice from a suitably qualified ecologist in regard to the size, type and location of any proposed new roosting mitigation and how agree between parties how best to incorporate this mitigation into the design. Given the small size of the barn proposed for conversion, retaining the maternity roost within the building is not an option. A stand alone bat house created within the grounds of the site will be required.

9.15 The exact location, design and material for the bat house must be agreed. It is also likely that evidence of bat use of the new stand along bat house will be required before the conversion of the current stone building can progress, therefore careful timing of the project will be required. Once the new mitigation has been agreed between relevant parties, this must be added to the architectural drawings prior to submission of the Planning Application or Listed Building Consent.

9.16 The design will need to incorporate a bat loft measuring at least 4m long by the width of the building and be as close to 2.8m in height as possible. The roof under-felt will be traditional 1F bitumen felt. The bat loft will be for the sole purpose of housing bats and will not be used for storage. Access and egress will be into a protected dark area. The roof will have direct access to sunlight in order to gain solar warmth. Lesser Horseshoe bats will require direct flight access into any roost.

9.17 A suitable current or new build external building can also be used providing that key ecological parameters listed in 9.16 above are met within that design.

Signed: R Watkins *Date: October, 2022*

10.0 Appendix

Aerial Site Photo

Surveyor Positions

OS Map

Aerial Site Photo

The site in its wider environment offering optimal ecological connectivity to the surrounding habitat.

Surveyor Positions

OS Map National Grid Reference ST 4131 9227