Preliminary Roost Assessment for Bats & Birds

Location: Thorney Edge, Thorney Edge Road, Bagnall, Stoke-on-Trent, ST9 9LD

Author: Helen Staton

Date: October 2018

Notice to Readers

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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.

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Executive Summary

Absolute Ecology LLP was commissioned to undertake a Preliminary Roost Assessment for the bat roost potential at a site known as Thorney Edge, Thorney Edge Road, Bagnall, Staffordshire, ST9 9LD. Ordnance Survey grid reference: SJ94124993.

Proposals will see the onsite residential property demolished to facilitate a new build.

The preliminary bat roost assessment was carried out on 22nd October 2018 by Helen Staton Bsc (Hons), ACIEEM, Natural England bat survey licence registration: 2015-14490-CLS-CLS, assisted by Sarah Higginson.

Thorney Edge Croft is located within a rural location, immediately bounded by farmland and woodland. A desk study was carried out by Staffordshire Ecological Records (SER) which returned records of bat roosts within 2km of the site and a number of field observations.

The surveyed building is an occupied residential property with attached barn. The building is brick in construction with a pitched tiled roof. The barn adjoins the eastern elevation and is solid stone in construction with a pitched tiled roof. Externally, potential roosting features across the roof areas were identified with key features recorded including; raised ridge tiles, damaged soffit boxes and missing mortar along roof verges. The immediate surrounding habitats of woodland and farmland are considered to be of optimal value for bats.

Overall the building was assessed to be of moderate bat roosting potential based on the number of potential bat roosting features identified externally. Therefore, in accordance with current bat guidelines (Bat Conservation Trust Best Practice 3rd Edition 2016) two activity surveys comprising one dusk emergence and one dawn re-entry should be conducted during the optimum bat survey season (which runs May to September inclusive) in order to establish the presence/absence of roosting bats.

If following the completion of the activity surveys, no bats are recorded emerging or re-entering the building the proposed demolition can commence without the need of any further survey effort or mitigation. If during the survey's bats are recorded using the building, a third bat activity survey will be required and a Natural England bat mitigation licence will need to be applied for and granted in order for the works to commence. The licence application will need to include a mitigation strategy which will be drawn up detailing how the bat roost onsite will be protected/replaced.

With regards for nesting birds, no evidence of past nesting was recorded externally or internally within the barn. If during the works a bird's nest is discovered, and it is active, works will need to cease within that area until the young have fledged the nest.

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1. Introduction

1.1. Site Description

Absolute Ecology was commissioned to undertake a Preliminary Roost Assessment for the bat roost potential at a site known as Thorney Edge, Thorney Edge Road, Bagnall, Staffordshire, ST9 9LD. Ordnance Survey grid reference: SJ94124993.

Figure 1: Location Plan



1.2. Proposed Works

The detached occupied residential property, and adjoining stone barn will be demolished to facilitate the construction of a new residential property, garage and gardens.

1.3. Best Practice Guidance

The scope of this appraisal has been determined in line with the proportional approach to ecological survey, assessment and subsequent recommendations for avoidance and mitigation of impacts, which is encouraged in the emerging 'BS 42020: Biodiversity – Code of practice for planning and development'. This report has been prepared with du consideration for various best-practice guidance and methodologies including those of the Chartered Institute of Ecology and Environmental Management (CIEEM (2012), the emerging BS 42020 and the Bat Conservation Trust Best Practice 2016.

1.4. Aims of the Survey

The aims of the Preliminary Roost Assessment is to provide an ecological evaluation of the following species within the proposed application area:

Bats
• Probability of bats and their roost sites being present at the proposed re/development site.
• To assess the roost status.
• To assess suitable food resources and habitat requirements.
• If a roost site is found, to provide an impact assessment.

Table 1. Aims of survey in relation to bats.

A bat roost is interpreted as 'any structure or place, which any wild bat uses for shelter or protection'. Bats tend to show a high fidelity to roosts. Subsequently, legal opinion regards a roost to be protected whether or not the bats are present at the time. There are many types of roost used by temperate bats during their annual cycle: Any structures found having evidence of bats will be further evaluated to assess which of the following roost categories may be present onsite (if any):

Status	Description
Maternity / Nursery Roost	*used by breeding bats, where pups are born and raised to independence (Anecdotal evidence may support this prospect despite sub-optimal survey period).*
Hibernation Site	*where bats may be found during the winter. (This is assessed within the context of this report).*
Daytime Summer Roost	*used by males and/or non-breeding females (Seasonal limitations prevent robust analysis of this).*
Night Roost	*where bats rest between feeding bouts during the night but are rarely present during the day.*
Feeding Roost	*where bats temporarily utilize feeding perches and stations to eat an item of prey.*
Transitional (or Swarming) Site	*where bats may be present during the spring or autumn (This can not be assessed within the context of this report).*

Table 2. Bat roost status definitions

Birds
• Establish if birds are using the site.
• Locate nest sites, if present.
• Assess what types of activities were shown within the redevelopment site.
• Assess suitable food resources and habitat requirements.

• Provide an impact assessment, if nests are found.

Table 3. Aims of survey in relation to birds.

Barn Owl (*Tyto alba)*
• Establish presence onsite.
• Establish potential nest sites (PNS).
• Locate any active roost sites (ARS).
• Locate any temporary roost sites (TRS)
• Assess potential feeding and dispersal habitats (PFH)
• Provide an impact assessment, should barn owl(s) be present

Table 4. Aims of survey in relation to Barn Owl.

Assessment also considers potential effects on valued ecological receptors (VERs) and zones of influence (ZoI) during pre and post development, both onsite and off- site. The term Zone of Influence is used to describe the geographic extent of potential impacts of a proposed development. Should a likely significance of negative impacts be identified, further surveys, mitigation and enhancement measures will then be determined accordingly; to prevent, offset or reduce the degree of impact that may occur should development commence.

Should bats be present or evidence of bats identified onsite or that constraints are identified during the Preliminary Roost Assessment, then further survey would be required, if bat are identified then a European Protected Species (EPS) development license issued by Natural England (NE) may be required prior to any works taking place. If required, further presence/absence survey should be undertaken and a mitigation strategy be implemented with Natural England and the Local Planning Authority. Should no further surveying effort be considered, then the PEA report will include full justification and evaluation.

2. Methods

2.1. Summary of Survey Methods

All bat species resident in the UK have been recorded using trees, buildings and built structures, e.g. bridges, at some time during the year (Bat Conservation Trust, 2016 3rd Edition). The buildings were inspected externally and internally, where access was available, for signs of bat activity. These typically include bat presence, droppings, feeding remains, urine stains and grease marks. Notes were made on the following in accordance with the guidelines published by the BCT (Bat Conservation Trust, 2016 3rd Edition) for the surveying of buildings and built structures:

- Type and age of building
- Type of construction
- Presence of potential roost features, e.g. hanging tiles, raised tiles, roof voids
- Information or evidence of work having been undertaken that could affect use of the structure by bats
- Amount and location of evidence of bats such as presence of live or dead bats, droppings, grease marks, urine stains, characteristic smell of bats.

In the absence of any evidence, trees and structures have been assigned a rating of suitability from negligible to high potential for supporting bats. The rating is based on the location of the structure in the surrounding landscape, the number and type of features suitable for use by bats and the surveyor's experience. For example, a structure with a high level of regular disturbance and few opportunities for access by bats that is in a highly urbanised area with few or no mature trees, parkland, woodland or wetland would have negligible potential. Conversely, a pre-20th-century or early 20th-century building with many features suitable for use by bats close to good foraging habitat would have high potential.

Survey methodology also utilized a number of passive monitoring techniques including an infra-red night-vision camera (XLT Bushnell Trophy CamTM: USA) to qualitatively record any evidence of bat activity inside the building during surveying periods. Further equipment included a NVMT-12x24 night vision scope (Yukon: USA), a SeeSnake 2 video endoscope, a GPS eTrex Venture HC, a hand net and a CB2 Clubman Deluxe high-power lamp with filter.

2.2. Pre-Survey Data Search

Ecological data searches supplied by Staffordshire Ecological Records (SER) were acquired to establish whether any notable protected bat species have been recorded within a 2-km radius of the proposed re/development area. Furthermore, a desktop study of the area using online resources was undertaken independently to corroborate the current overview of the site and its importance in the landscape. A number of electronic sources were consulted, including www.magic.gov.uk, www.naturalengland.org.uk and Google Earth.

2.3. Surveyor Information

Helen Staton – BSc (Hons) ACIEEM, Natural England Bat Survey Class Licence CL18, Registration Number: 2015-14490-CLS-CLS. Helen has been working for ecological consultancies for over seven years and has held a Level 1 bat licence for 5 years. Helen is an experienced bat surveyor with competency in activity surveys, dawn and dusk bat roost assessments, daytime surveys for bat field signs, assessments of trees as potential bat roosts and the production of reports providing advice on best practice, mitigation and compensation works relating to bats as may be required.

2.4 Field Surveys

Equipment used to aid the survey included low and high-powered torches, ladders, binoculars and an endoscope.

A scoping survey was undertaken on 22/10/2018 such scoping exercises can be undertaken throughout the year. Other than when assessing trees, environmental factors such as the weather do not have an impact upon the overall assessment survey results (see Table 5).

Table 5. Annual survey optimality for bats.

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Inspection of hibernation roosts – semi-optimal survey period			Limited activity – sub-optimal for surveys	Summer roost emergence & re-entry surveys – optimal survey period					Limited activity – sub-optimal survey period	Inspection of hibernation roosts – semi-optimal survey period	
Internal roost surveys are possible/trees are best surveyed during winter											

The external inspection incorporated visual assessment with the use of binoculars, torch, endoscope and ladders in full daylight to ascertain the following:

- Potential ingression points cracks, raised roof tiles
- Any anecdotal evidence of bats, i.e. droppings, grease marks, feeding remains.

- Any evidence of birds, i.e. nest material, droppings.

- To locate potential bat roost/ bird nest sites.
- To listen for any bats and birds.
- To examine floors, walls and structural elements for anecdotal evidence, i.e. droppings, urine stains, corpses and feeding remains.

3. Results

3.1. Pre-Survey Data Search

Protected Species.

SER returned fifty bat records within 2km of the site. Of the records, twenty-nine are considered to be historic (recorded over 10 years ago). Of the remaining twenty-one, eight are records of bat roosts/possible bat roosts. The closest of the roosts to the site (recorded 2014) are located 1.5km away from the application site and is that of common pipistrelle (*Pipistrellus pipistrellus*) and brown long-eared (*Plecotus auritus*).

The following species have also been recorded within the search area (field observations, grounded bats): daubenton's (*Myotis daubentonii*) and Whiskered/Brandt's (*Myotis mystacinus/brandtii*).

A search using the Nature on The Map European Protected Species Licensing (EPSL) tool, showed the following license applications within 2km of the site (in addition to the aforementioned roosts returned by SER);

- EPSM2011-2977– (2013) brown long-eared, common pipistrelle located approx. 1.4km north east.

- 2014-3034-EPS-MIT – (2016) brown long-eared, common pipistrelle and whiskered roost located approx. 1.6km north west.

3.2. Field Surveys

Habitat Description

Thorny Edge Croft is located within a predominantly rural location, immediately surrounded by agricultural farmland and woodland. Within the wider area are habitats of high value for bats

including waterbodies, water courses, woodland, hedgerows and tree lines. Using aerial imagery, the site is well connected to areas of high value habitat. The site and surrounding area are considered to be of high value for foraging/roosting/commuting bats, offering a variety of habitats type which would attract a range of bat species to the area.

Roost Survey

External Inspection

The surveyed building comprises a residential property with adjoining stone barn. The residential dwelling is brick in construction with a pitched tiled roof. Located on the western elevation is a large conservatory. The majority of the building is single storey with a small two-storey extension on the northern elevation. All doors and windows are intact.

The walls are externally rendered and is in a general good condition with no cracks/crevices noted. The facia and soffit areas are wooden and original to the building. In several places damage has occurred creating access points into these areas, with particular reference to the soffits on the northern elevation (photographic plates 1 and 2). These areas of damage are considered to be Potential Roosting Feature's (PRF's).

The roof is in a varying condition with the majority of the tiles intact. However along the ridge a number of tiles are lifted/damaged creating PRF's (photographic plate 3) including along the northern and southern elevation. On the eastern elevation, hip tiles are present on the south eastern corner which are lifted in several places, creating PRF's (photographic plate 4).

The adjoining barn is solid stone in construction with the majority of the stone work intact and well pointed. The roof is original to the barn. The ridge is warped which has lifted several tiles creating access points (photographic plate 5). There are no weather boards and access into the building by bats and birds can be gained along the eaves areas.

The external walls and windowsills were inspected for evidence of roosting bats (i.e. droppings, staining, feeding remnants) and no such evidence was recorded.

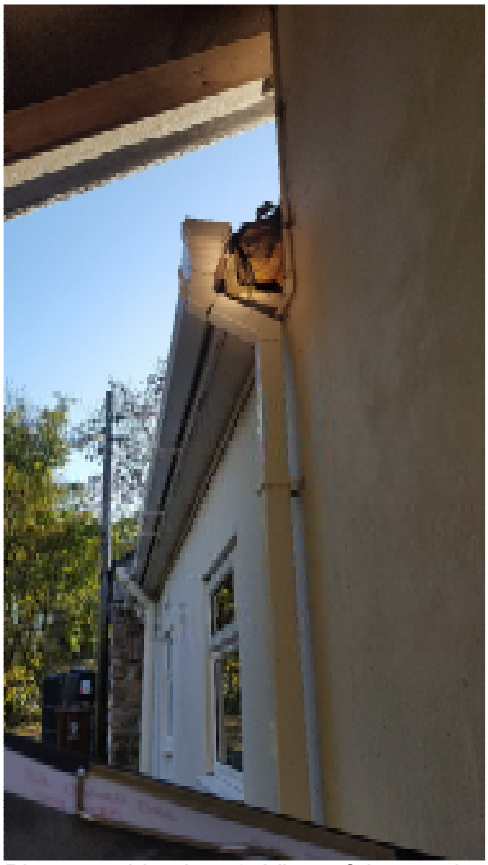
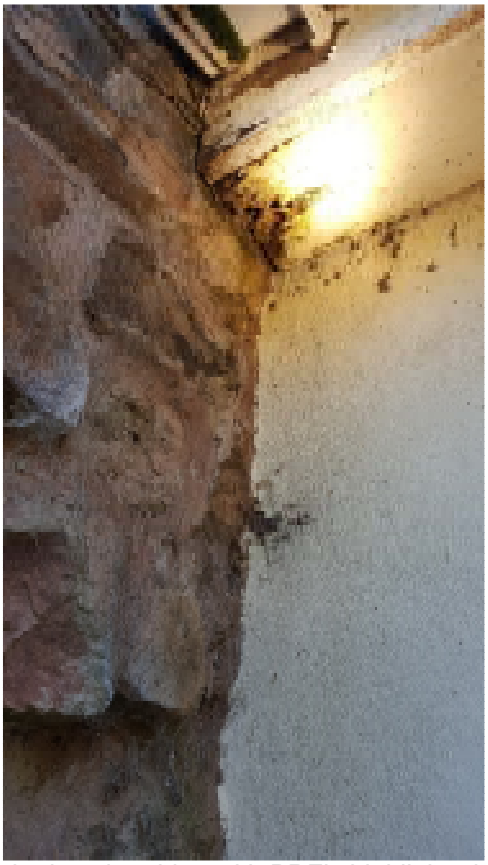
Internal Inspection

Internally the main residential dwelling is predominantly single storey with a small two storey extension although no loft space is present. There are two loft spaces within the main section, both accessed via loft hatches. Both lofts are lined with fibre glass insulation. The roofs are lined

with black bitumen felt which should bats be roosting beneath the external tiles, would potentially obstruct bat evidence. Both loft spaces are open plan, free from major obstructions (with the exception of pipes and support beams). This type of open space would be attractive to bat species known to carry out pre-emergent flight (i.e. brown long-eared and natterer's) although given the lack of droppings internally, it is considered unlikely these species would be present. Daylight enters the loft spaces in several places predominantly along the eaves. No evidence of bat utilisation was recorded internally within the residential loft spaces.

The barn was internally accessed via the house. The barn is open plan with no first floor present. A small mezzanine level is located towards the eastern end of the barn. This level and the ground floor was searched for evidence of roosting bats and no such evidence was recorded. The roof is part lined with bitumen felt and part exposed tiles. There is a window on the gable end which allows daylight to protrude into the barn which may deter some species of roosting bat. The internal stonework and felt presents suitable roosting features with crevices noted and gaps behind felt.

Photographic plates 1 and 2: soffit damage on the northern elevation

Photographic plate 3: View of the south north elevation ridge with PRF's highlighted





Photographic plate 4: Hipped roof on the eastern elevation



Photographic plate 5: Adjoining barn with warped ridge



Photographic plate 6: Internal view of one of the residential house loft spaces



Photographic plate 7: Barn roof internal view



4. Assessment

4.1. Constraints on Survey Information

No constraints identified

4.2. Constraints on Equipment Used

No constraints identified

4.3. Potential Impacts of Development

Roosts

The building was assessed to be of moderate value for supporting roosting bats based on the number of external features present which bats may utilise. Should bats be roosting within the property and it is demolished, the roost would be destroyed, and potentially individual bats killed/harmed.

Foraging and Commuting Habitat

The proposed works will not impact any potential bat foraging/commuting habitat therefore no impacts anticipated.

4.4. Legislation and Policy Guidance

Unlike many smaller mammals, bats have low fecundity with a long and complex life cycle, which is played out over a large spatial landscape. Bats show a strong fidelity to different types of roosts throughout their annual cycle i.e. hibernacula, maternity, bachelor, satellite roosts and feeding perches. Linear features within the landscape such as hedgerows and tree lines are often used by bats for commuting, predator avoidance and foraging. Bats are highly social animals and loss of a single habitat alone can have a serious impact on populations. The status of many bat populations is tentative, being based on relatively few records and are highly susceptible to habitat loss and fragmentation. As such bats are given protected consideration within the following legislation and policy guidelines:

Policy guidelines

PAS 2010	The published 'PAS 2010' 'Planning to halt the loss of biodiversity' which is the government's new policy aimed at all authorities and developers involved in the

	planning process in the UK to halt biodiversity decline by 2010 and deliver net biodiversity gains as part of the green infrastructure provisions.
National Planning Policy Framework, Section 11:	The recently published framework in 2012, replaces the previous Planning Policy Statement 9. Section 11: Conserving and enhancing the natural environment, reaffirms the Governments commitment to maintaining green belt protections and preventing urban sprawl, retains the protection of designated sites and preserves wildlife, aims to improve the quality of the natural environment, and halt declines in species and habitats, protects and enhances biodiversity and promotes wildlife corridors.
Article 10 of the EC Habitats Directive:	The published Article requires government to develop features such as 'stepping stones' on the landscape, such as clusters of ponds, tracts of rough grassland or scrubland and vegetated railway line embankments.
Wildlife and Countryside Act 1981:	All species of bat are fully protected under the Wildlife and Countryside Act 1981, the European Conservation (Natural Habitats etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000. This legislation makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.
Conservation of Habitats and Species Regulations (2010)	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) licences in respect of development to permit activities that would otherwise be unlawful.
Natural Environment and Rural Communities Act (2006)	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. Regional Planning Bodies and Local Planning Authorities will use it to identify the species that should be afforded priority to maintain, restore and enhance species and habitats.
Bird legislation	Most resident nesting birds are protected under the Wildlife and Countryside Act 1981, which protects birds, nests, eggs and nestling's. Some rarer species, such as barn owls, are afforded extra protection.

Please note: If bat species are present at the site, the purpose of this report will only summarize the potential requirements for a bat mitigation package or project. A separate mitigation report or project will include the necessary compensation measures to maintain the conservation status of a European Protected Species.

5. Recommendations and Mitigation

5.1. Further Surveys

The building has been assessed to be of moderate value for supporting roosting bats. This assessment has been based on the number of potential external roosting features present which are located across the roof areas.

As the building was assessed to be of moderate value for supporting roosting bats, further surveys are required to confirm the presence/absence.
Buildings of moderate potential should be subject to two activity surveys, one dusk and one pre-dawn. Activity surveys should be undertaken during the optimum survey period which runs from May-September and during suitable weather conditions. The surveys should be spaced at least two weeks apart.

With regards for birds, as no current or recent bird nesting evidence was recorded, no constraints relating to nesting birds are envisaged and therefore no further measures are required.

5.2. Mitigation Measures

Should no bats be recorded during the activity surveys, their current absence can be assumed and the proposed demolition can proceed without any mitigation requirements.

If during the activity surveys, bats are recorded to be roosting within the building, and once the roost has been characterised (e.g occasional, summer, maternity roost) with an additional activity survey (to total three), a European Protected Species Licence (EPSL) will need to be applied for and granted to allow for the destruction of the roost(s). As part of this licence a mitigation strategy will need to be devised detailing the preservation of the roost or construction of a replacement roost. This is to maintain the onsite bat population(s). Likely mitigation would involve creation of new bat roosting features within the new property e.g. bat boxes, raised ridge tiles, bat loft. The level and type of mitigation requirements are dependent on the species and the number of bats roosting.

7. References

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