

Maxcroft Trowbridge
Bat Trapping Surveys
Ethos Environmental Planning
31 October 2023

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	Project information
File reference	DWE 0902
Document title	Maxcroft Trowbridge Bat Trapping Surveys
Client	Ethos Environmental Planning
Date	31 October 2023
Status	Draft for Comment
Prepared by	Dr Matt Zeale MCIEEM MRSB
Reviewed by	Dr Ian Davidson-Watts MCIEEM
Approved by	Ethos Environmental Planning

1 Introduction

1.1 BACKGROUND

1.1.1 Davidson-Watts Ecology Ltd have been appointed by Ethos Environmental Planning (Ethos) to undertake advanced bat surveys to assess the potential impacts on bats of a proposed residential development of an area of land known as 'Maxcroft, Trowbridge' at Maxcroft Farm, Hilperton (central grid reference ST 86329 60317), hereafter referred to as the 'site' (Figures 1 & 2).

1.1.2 The development proposal for the 6.32 ha site includes plans for a new residential development with associated access, green space, SuDs and infrastructure (Figure 3).

1.1.3 The site is comprised predominantly of horse grazed fields bordered by mature hedgerows, treelines and scattered trees (Figure 2). A fragmented hedgerow/treeline bisects the site centrally from north to south. The north of the site is bordered by the Kennet and Avon Canal. Other habitats on site include sealed surface areas with agricultural outbuildings and barns.

1.1.4 The surrounding landscape comprises predominantly agricultural fields to the north, including arable and grazed fields with associated hedgerows, treelines and other field boundary features, and urbanised areas to the south. The River Avon flows within 1-2 km of the site to the north and west and there are significant areas of broadleaved woodland within 2 km.

1.1.5 As such, it is considered that the site is of high quality for foraging and commuting bats given the habitats on and immediately adjacent to the site.

1.1.6 The site is within the consultation zone for the Bath and Bradford-on-Avon Bat SAC, a designated area comprised of a network of significant underground sites in both the Wiltshire and Bath and North East Somerset administrative areas, including four nationally important Sites of Special Scientific Interest (SSSIs), namely Box Mine, Winsley Mines, Combe Down and Bathampton Down Mines, and Brown's Folly. These component sites comprise extensive networks of caves, mines and man-made tunnels which are used by bats for hibernation, breeding, mating and as a staging post prior to dispersal. The grassland, watercourses, scrub and woodland surrounding them are used by bats for feeding and commuting. Although these habitats are not included in the SAC designation, they are vital to support bats, which are features of the SAC.

1.1.7 Bat species using these sites include the rare Bechstein's bat *Myotis bechsteinii*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros*. All three species are highly mobile throughout the year and use a network of other important roost sites in the surrounding landscape.

1.1.8 The network of significant roosts includes sites that are not covered by any statutory designation, such as the breeding colonies of Bechstein's bats at Biss Wood and Green Lane Wood, a pair of ancient woodlands to the east of Trowbridge. This colony is known to hibernate at Box Mine SSSI and uses the intervening landscape to commute between these sites. Maxcroft, Trowbridge lies within this intervening landscape.

1.2 LEGISLATION

1.2.1 In England, Scotland and Wales all bat species are fully protected under the Wildlife and Countryside Act 1981 (WCA) (as amended) through inclusion in Schedule 5. In England and Wales, this Act has been further amended by the Countryside and Rights of Way Act 2000 (CRoW).

1.2.2 All bats are also included in Schedule 2 of The Conservation of Habitats and Species Regulations 2017, (the Habitats Regulations), which defines 'European protected species (EPS) of animals'. These various pieces of legislation largely parallel each other, with a few small differences in wording. The legal significance of these differences has not yet been fully established and so the

following account attempts to combine them to provide a simplified summary of the relevant provisions. Taken together, the Act and Regulations make it illegal to:

- intentionally or deliberately kill, injure or capture (or take) an EPS;
- deliberately disturb an EPS;
- recklessly disturb an EPS or obstruct access to breeding site or place of shelter (England & Wales only); and
- damage or destroy any structure or place which any EPS uses for shelter or protection.

1.3 OBJECTIVES

1.3.1 The objectives of this report are to present baseline trapping survey data for bats on the site.

1.3.2 The data presented herein complement other survey data for bats collected by Ethos such as acoustic monitoring of bat activity and the assessment of buildings and trees as potential bat roosts. Together these datasets will be used to evaluate the importance of the site for each species present, to assess the ecological impact from the proposed development, and to determine appropriate mitigation measures.

2 Methodology

2.1 OVERVIEW

2.1.1 As the site is located within the geographic ranges of barbastelle *Barbastella barbastellus* and Bechstein's bat *Myotis bechsteinii*, and given the constraints associated with detecting and identifying these species by acoustic survey methods alone, advanced survey methods (Collins, 2016) were undertaken to complement other standard survey methods undertaken by Ethos and to more clearly determine the value of the site for these and other bat species that cannot be readily identified by their echolocation calls, and to determine the sex, age and reproductive status of bats using the site.

2.1.2 Trapping surveys were undertaken by Dr Matt Zeale of Davidson-Watts Ecology on the nights of 24th May, 20th July and 9th September under Natural England Class 3 and 4 bat survey licences (2016-23219-CLS-CLS; 2016-23220-CLS-CLS).

2.1.3 The following methods were undertaken in accordance with guidance outlined in Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition (Collins, 2016).

2.2 TRAPPING METHODS

2.2.1 Bats were caught using two harp traps and one arrangement of mist nets of up to 15 m total net length. An acoustic lure (Sussex Autobat Mk II) was used on each trap/net to improve capture of bats (Hill and Greenaway 2005). Lures emitted synthesised echolocation and social calls mimicking UK bat species, including barbastelle and Bechstein's bat.

2.2.2 Traps and nets were placed on prominent habitat features where bat activity was expected to be highest in order to best evaluate bat assemblage on the site. These included hedgerows and treelines bisecting or bordering the site and vegetation bordering the Kennet and Avon Canal on the northern edge of the site. The positions of traps/nets are provided in Figure 4.

2.2.3 Surveys began at sunset and continued for up to six hours. Traps and nets were monitored continuously throughout the survey and caught bats were immediately extracted from traps/nets. Once the species, age, sex and reproductive state of bats had been recorded, bats were released immediately at the site of capture.

2.2.4 Surveys took place on warm dry nights. Survey times and conditions are provided in Appendix 1.

2.3 EVALUATION CRITERIA

2.3.1 Ecological features and resources have been evaluated based on the approach described in 'Guidelines for Ecological Impact Assessment in the United Kingdom' published by the Chartered Institute of Ecology and Environmental Management (2022) whereby the value of an ecological feature or resource is determined within a defined geographical context using the following criteria:

- International and European,
- National (England),
- Regional (South-West),
- County/District (Wiltshire),
- Local (or Parish) (Trowbridge); and
- At the site level only.

3 Results

3.1 BAT TRAPPING SURVEY

3.1.1 A total of 14 bats from six species were caught across the three trapping surveys (Table 1).

3.1.2 The majority of bats caught were adult males. Adult breeding female soprano pipistrelle *Pipistrellus pygmaeus*, Natterer's bat *Myotis nattereri*, whiskered bat *Myotis mystacinus*, and juvenile Daubenton's bat *Myotis daubentonii* were also caught. The only Annex II bat species caught were two adult male lesser horseshoe bats *Rhinolophus hipposideros*. The full trapping survey results are provided in Table 1.

Table 1: Bats caught during trapping surveys at Maxcroft Farm, Hilperton. Refer to Figure 3 for trap locations.

Time	Species	Sex	Age (class)	Breeding status	Trap ID
24th May 2023					
23:05	*M. nattereri*	Male	Adult		Harp trap 2
23:05	*M. nattereri*	Male	Adult		Harp trap 2
23:05	*M. brandtii*	Female	Adult	Pregnant	Harp trap 2
23:40	*M. nattereri*	Male	Adult		Mist net
20th July 2023					
22:05	*P. pygmaeus*	Female	Adult	Post lactating	Mist net
22:15	*P. pygmaeus*	Female	Adult	Post lactating	Mist net
22:35	*R. hipposideros*	Male	Adult		Harp trap 2
22:35	*R. hipposideros*	Male	Adult		Harp trap 2
23:50	*M. mystacinus*	Male	Adult		Mist net
00:10	*M. daubentonii*	Male	Juvenile		Harp trap 1
00:50	*M. daubentonii*	Male	Adult		Harp trap 1
9th September 2023					
22:40	*M. nattereri*	Male	Adult		Mist net
23:00	*M. daubentonii*	Male	Juvenile		Harp trap 1
23:30	*M. nattereri*	Female	Adult	Post lactating	Harp trap 1

3.2 SURVEY CONSTRAINTS

3.2.1 There were no constraints to undertaking surveys in accordance with guidance outlined in Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition (Collins, 2016).

3.2.2 All surveys were undertaken at suitable times and in suitable weather conditions (Appendix 1). Surveys spanned the whole bat maternity season to reflect different seasonal requirements of bats.

4 Policy

4.1 NATIONAL PLANNING POLICY

4.1.1 The National Planning Policy Framework (NPPF) (2023) Chapter 15 outlines how the planning system should contribute to and enhance the natural and local environment by protecting and enhancing sites of biodiversity value, recognising wider benefits from natural capital and ecosystem services, and minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures (Paragraph 174).

4.1.2 Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in the NPPF; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries (Paragraph 175).

4.1.3 To protect and enhance biodiversity and geodiversity, plans should identify, map and safeguard (i) components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, (ii) wildlife corridors and stepping stones that connect them, and (iii) areas identified by local partnerships for habitat management, enhancement, restoration or creation (Paragraph 179a). In addition, plans should promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species, and identify and pursue opportunities for securing measurable net gains for biodiversity (Paragraph 179b).

4.1.4 When determining planning applications, local planning authorities should refuse planning permission if a proposed development will result in significant harm to biodiversity that cannot be avoided, adequately mitigated, or, as a last resort, compensated for (Paragraph 180a), or where development will result in the loss or deterioration of irreplaceable habitats such as ancient woodland and ancient or veteran trees, unless there are wholly exceptional reasons and a suitable compensation strategy exists (Paragraphs 180c).

4.1.5 Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it, either individually or in combination with other developments, should not normally be permitted. (Paragraph 180b).

4.1.6 A development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity (Paragraph 180d).

4.1.7 Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects of pollution on the natural environment. In doing so, they should (i) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development, and (ii) limit the impact of light pollution from artificial light on intrinsically dark landscapes and nature conservation (Paragraph 185).

4.1.8 The government circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact Within the Planning System still remains the key reference material to support obligations under the NPPF and the application of the law relating to planning and nature conservation as it applies in England.

4.2 LOCAL PLANNING POLICIES

4.2.1 The relevant local planning policy for the site is the Wiltshire Core Strategy (Wiltshire Council, 2015a), which provides up-to-date strategic planning policy for Wiltshire and covers the period up to 2026.

4.2.2 Under Core Policy 50: Biodiversity and Geodiversity, it states that all development proposals shall incorporate appropriate measures to avoid and reduce disturbance of sensitive wildlife species and habitats throughout the lifetime of the development. Moreover, all development should seek opportunities to enhance biodiversity. Major development in particular must include measures to deliver biodiversity gains through opportunities to restore, enhance and create valuable habitats, ecological networks and ecosystem services. Such enhancement measures will contribute to the objectives and targets of the Biodiversity Action Plan (BAP) or River Basin/Catchment Management Plan, particularly through landscape scale projects, and be relevant to the local landscape character.

4.2.3 In Wiltshire, there are three designated bat Special Areas of Conservation (SAC): Bath and Bradford-on-Avon Bats SAC, Chilmark Quarries SAC, and Mottisfont SAC. The site lies within the Bath and Bradford-on-Avon Bats SAC. The Wiltshire Bats SAC Planning Guidance (Wiltshire Council, 2015b), which is applicable to all development types in the areas within and surrounding Bradford on Avon, Box, Colerne, Corsham, Trowbridge, Westbury, Fonthill and Chilmark, states that the populations of bats supported by these SACs are afforded very high levels of legal protection, placing significant duties on decision-makers to prevent damage to bat roosts, feeding areas and the routes used by bats to travel between these locations.

4.2.4 In addition, the Wiltshire Core Strategy states that all development will be required to maintain the integrity of the Bath and Bradford on Avon Bats Special Area of Conservation. With respect to the woodland sites to the south east of Trowbridge that support a breeding population of Bechstein bats (associated with the Bath and Bradford on Avon Bats SAC), all development will be required not to adversely affect this designation and to ensure that connectivity with the SAC is maintained.

5 Discussion and Evaluation

5.1 INTERPRETATION OF TRAPPING DATA

5.1.1 The results of the trapping surveys demonstrate that the site is used by a range of bat species. However, bats were caught in low numbers, indicating that the site may only be of limited value to bats for foraging and/or commuting is relatively low. Weather conditions were suitable throughout the surveys, and so the number of bats caught is considered to be reflective of local bat activity rather than constraining environmental factors.

5.1.2 Trapping confirmed the presence of four *Myotis* species, which are not readily identifiable by standard acoustic survey methods due to their similar echolocation call types, including Natterer's bat *M. nattereri*, Daubenton's bat *M. daubentonii*, whiskered bat *M. mystacinus*, and Brandt's bat *M. brandtii*.

5.1.3 The majority of bats caught were males. However the presence of breeding female Natterer's bats, Brandt's bats and soprano pipistrelles, and male juvenile Daubenton's bats, indicates that the site may provide a foraging resource that supports breeding populations of these species. The three Daubenton's bats caught on site were trapped on the bank of the Kennet and Avon Canal, and so the open water habitat associated with the canal itself, which sits outside the site red line boundary, is likely to be the primary supporting habitat for this species.

5.1.4 The capture of two adult male lesser horseshoe bats *Rhinolophus hipposideros* on the tree line on the eastern boundary of the site confirms this linear feature as a commuting route and/or foraging resource for this species.

5.1.5 Other Annex II bat species, including the greater horseshoe bat *Rhinolophus ferrumequinum*, barbastelle *Barbastella barbastellus*, and Bechstein's bat *Myotis bechsteinii* were not caught during trapping surveys, indicating that the site is of low importance to these species, albeit as trapping surveys provide only a snapshot of bat activity at specific times of the year it cannot be ruled out that individuals of these or other bat species forage within or commute through the site at other times.

5.2 SPECIES EVALUATION

5.2.1 The evaluation of the importance of the site as a foraging area or commuting route for bats is considered here in the context of the results of the trapping surveys alone and does not consider other survey data collected on the site by Ethos Environmental Planning (Ethos), such as those from acoustic surveys and building surveys, or survey information collected outside of the trapping survey dates. Moreover, the CIEEM UK Bat Mitigation Guidelines (Reason & Wray, 2023) state that the importance of commuting and foraging areas should not be interpreted in isolation and should always be based on the overall knowledge of bat activity in the area. As such, the evaluation presented here should be treated with caution. For a comprehensive species evaluation and impact assessment of important ecological features on the site, refer to the Ecological Assessment report by Ethos.

5.2.2 Of the six bat species caught on site, one (soprano pipistrelle) is considered widespread in the south-west, three (Natterer's bat, Daubenton's bat, whiskered bat and Brandt's bat) are considered widespread in many geographies but not abundant in all, and one (lesser horseshoe bat) is considered to be rarer or have a restricted distribution (see Table 3.1 in Reason & Wray (2023)).

5.2.3 Following Reason & Wray (2023) for assessing the importance of the bat assemblage on a site, trapping data alone provide an assemblage score of 12 (29%) of a maximum possible 41 for the south-west, and is below the County importance threshold (45%).

5.2.4 As such, due to the conservation value and diversity of bat species present the habitats on the site are considered to be of **local** importance for commuting and foraging bats.

6 References

CIEEM (2022) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Version 1.2 – Updated in April 2022). Chartered Institute for Ecology and Environmental Management, Winchester.

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London.

HMSO The Conservation of Habitats and Species Regulations 2017

HMSO The Countryside and Rights of Way Act 2000.

HMSO Wildlife and Countryside Act 1981.

Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Chartered Institute of Ecology and Environmental Management, Ampfield.

Wiltshire Council (2015a) Wiltshire Local Development Framework: Wiltshire Core Strategy (Adopted January 2015). Wiltshire Council.

Wiltshire Council (2015b) Bat Special Areas of Conservation (SAC): Planning Guidance for Wiltshire. Wiltshire Council.

Figure 1 Site Location Plan



Figure 2 Red Line Boundary



Figure 3 Development Proposal



Figure 4 Trapping Locations



Appendix A Survey Times and Conditions

Date	Sunset	Temperature (°C)	Wind Speed (BS)	Cloud Cover (%)	Precipitation
24/05/23	21:05	16	2	30	Dry
20/07/23	21:12	16	1	10	Dry
06/09/23	19:42	25	1	30	Dry