

Dusk Emergence & Dawn Re-entry Bat Surveys

Former Ambulance and Fire Station, Huyton Lane, Huyton, Liverpool, Merseyside

A Report To: McCarthy Stone
Report Number: RT-MME-159079-02
Date: May 2023



Quality Assurance

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Declaration of Compliance

This study has been undertaken in accordance with British Standard 42020:2013 "Biodiversity, Code of Practice for Planning and Development". The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Disclaimer

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Validity of Data

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, it may be necessary to undertake an updated survey to allow any changes in the status of bats on site to be assessed, and to inform a review of the conclusions and recommendations made.

Non-Technical Summary

Project Background

In February 2023, McCarthy Stone commissioned Middlemarch to undertake dusk emergence and dawn re-entry bat surveys at the Former Ambulance and Fire Station, Huyton, Liverpool. These surveys are required to inform a planning application associated with the proposed development of a residential retirement complex with associated landscaping, parking and access.

Scope of Survey

One dusk emergence and one dawn re-entry bat survey was undertaken on the buildings the site. In line with the specifications detailed in Bat Surveys: Good Practice Guidelines, the dusk survey commenced 20 minutes prior to sunset and continued until 90-120 minutes after sunset. The dawn survey commenced 90-120 minutes prior to sunrise and continued until 15 minutes after sunrise. The dusk emergence and dawn re-entry surveys were conducted using electronic bat detectors (Echometer Touch 2) to facilitate the detection of bats and to aid in the determination of species of bat using the site.

Summary of Key Bat Features

No roosting bats were recorded within Buildings B1 or B2 during the dusk emergence/dawn re-entry surveys.

Only two common pipistrelle bat calls were identified during the dusk emergence survey, but neither of these bats emerged from Buildings B1 or B2. During the dawn re-entry survey, a small number of passes by foraging common pipistrelle bats were noted within the former fire station site. In addition, a single noctule passed over the site, but no visual contact was made with this bat. No bats re-entered Building B2 during the dawn survey.

Potential Impacts on Bats

No bat species were found to be roosting within the buildings surveyed (i.e. B1 and B2) during the dusk emergence/dawn re-entry bat surveys. As such, no adverse impacts to roosting bats are anticipated as a result of the proposed building demolition works.

The site was found to be in occasional use for foraging/commuting purposes by small numbers of common pipistrelle and noctule bats. Although the majority of the existing habitats on site will be lost to facilitate the proposed works, a number of new habitats will be created (including species-rich flowering lawns, hedgerows and scattered trees). As such, no long-term loss of foraging/commuting habitat is anticipated as a result of the proposed works.

Recommendations

- R1 Buildings B1 and B2:** Buildings B1 and B2 have been subject to a full suite of activity surveys in line with Bat Surveys for Professional Ecologists: Good Practice Guidelines, and no bat roosts were identified. The survey data obtained for the site is valid for 12 months from the survey date.
- R2 Scheme Design:** The proposed development should be designed to minimise effects on bats in accordance with the ecological mitigation hierarchy as set out in the National Planning Policy Framework (NPPF) and the National Planning Practice Guidance (NPPG).
- R3 Lighting:** In accordance with best practice guidance relating to lighting and biodiversity (Miles *et al*, 2018¹; Gunnell *et al*, 2012²), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species. Examples of good practice are provided in Chapter 6.

¹ Miles, J., Ferguson, J., Smith, N. and Fox, H. (2018) *Bats and artificial lighting in the UK. Bats and the Built Environment Series*. Bat Conservation Trust and Institution of Lighting Professionals

² Gunnell, K., Grant, G. and Williams, C. (2012) *Landscape and urban design for bats and biodiversity*. Bat Conservation Trust.

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1. Introduction

1.1 Project Background

In February 2023, McCarthy Stone commissioned Middlemarch to undertake dusk emergence and dawn re-entry bat surveys at the Former Ambulance and Fire Station, Huyton, Liverpool. These surveys are required to inform a planning application associated with the proposed development of a residential retirement complex with associated landscaping, parking and access.

Middlemarch has previously carried out a number of ecology surveys at this site, the findings of which are provided in the following reports:

- Preliminary Ecological Appraisal completed in October 2022 (Report: RT-MME-158942-01);
- Preliminary Bat Roost Assessment completed in January 2023 (Report: RT-MME-158942-02); and,
- Biodiversity Metric Assessment (Report: RT-MME-159079-01).

A Preliminary Bat Roost Assessment was undertaken at this site on 15th September 2022 (Report: RT-MME-158942-02). Two buildings were recorded on site. These were an active Ambulance Station (Building B1) and a small single-storey structure (B2) located approximately 10 m south-west of B1. During this assessment, Buildings B1 and B2 were identified as having moderate and low bat roost potential, respectively. The potential bat roost features identified around Building B1 comprised brickwork gaps where mortar was missing and weep holes on the south-west elevation. The potential bat roost features identified around Building B2 comprised a gap around a uPVC fire extinguisher unit and a gap behind a fascia board to the north-west. As both of these buildings will be lost to facilitate the proposed works, dusk emergence and dawn re-entry bat surveys were recommended. This report details the results of the surveys undertaken between 2nd May 2023 and 17th May 2023.

All UK bat species are legally protected species and they are capable of being material considerations in the planning process. A summary of the legislation protecting bats is included within Appendix 1.

1.2 Site Description and Context

Table 1.1 provides a brief summary of the site and its surroundings.

Attribute	Description
Location	The site was located within the town of Huyton, situated within the Metropolitan Borough of Knowsley, Merseyside.
National Grid Reference	SJ 44401 91122
Site Area (ha)	Approx. 0.4 ha
Topography	The site topography was largely flat, with a slight slope to south-east where poor, semi-improved grassland was present.
Land Cover (on site)	The land cover on site comprised predominantly of hardstanding with buildings to the north-east (i.e. an active Ambulance Station) and scrub/trees to the south-west. Scattered buddleia was also noted throughout the site.

Land Cover (site surrounds)	The wider landscape is dominated by commercial units to the south, and residential properties with associated gardens to the remaining sides. Pockets of greenspace are dispersed throughout the wider landscape, including areas of grassland, wetland (Huyton Lane Wetland) and woodland/scattered trees. The River Alt is located approximately 230 m north-east.
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Table 1.1: Summary of Site and Surroundings

1.3 Documentation Provided

The conclusions and recommendations made in this report are based on information provided by the client regarding the scope of the project. Documentation made available by the client is listed in Table 1.2.

Document / Drawing Number	Author
Huyton Lane, Huyton – Proposed Site Plan (Drawing No: 22053-1002)	Brightspace Architects
Huyton, Liverpool - Project Evolve RL Scheme Green File Information (Drawing No: SK100 Rev A).	Brightspace Architects
Proposed Residential Development Huyton Lane, Huyton – Landscape Masterplan (Drawing No: R/2671/1)	FDA Landscape

Table 1.2: Documentation Provided by Client

2. Methods

2.1 Desk study

As part of the Preliminary Ecological Appraisal (Report RT-MME-158942-01) an ecological desk study was undertaken. The consultee for the desk study was BioBank Merseyside.

Middlemarch then assimilated and reviewed the desk study data provided by these organisations. Relevant bat data are discussed in Chapter 3. In compliance with the terms and conditions relating to its commercial use, the full desk study data are not provided within this report.

The desk study included a search for statutory nature conservation sites designated for bats within a 10 km radius of the site.

2.2 Field Survey

Overview

Building B1 was classed as having moderate potential to support roosting bats. In line with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016)³, two separate bat surveys were carried out consisting of one dusk emergence bat survey and one dawn re-entry bat survey. The aim of these surveys was to detect whether bats are roosting within the building, and to enable a profile of site utilisation by bats to be compiled.

Building B2 was classed as having low potential to support roosting bats. In line with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016)³, a single dusk emergence survey was carried out.

The surveys were undertaken by the following personnel:

- Charlotte Richardson MSc, ACIEEM (Senior Ecological Consultant and Class 17 Licenced Bat Surveyor);
- Shona Sutherland BSc (Hons) (Ecological Consultant);
- Amy Carter MSc (Ecological Project Officer); and,
- Andrew Farmer (Ecological Project Officer).

The weather conditions were recorded on each survey and are presented in Table 2.1.

Type of Survey	Date	Time	Parameter			
			Temperature °C	Cloud %	Precipitation	Wind (Beaufort Scale)
Dusk	02-05-23	Start	14	70	Nil	F1-2
		End	13	60	Nil	F2
Dawn	17-05-23	Start	10	30	Nil	F0
		End	10	10	Nil	F0

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

Table 2.1: Weather Conditions During Field Surveys

Dusk Emergence Bat Survey

In line with the specifications detailed in Bat Surveys: Good Practice Guidelines (Collins, 2016)³, the dusk survey commenced 20 minutes prior to sunset and continued until 90-120 minutes after sunset.

Dawn Re-Entry Bat Survey

Bats swarm at their roost site 10-90 minutes prior to entering the roost at dawn (Mitchell-Jones & McLeish, 2004)⁴. Surveying for dawn swarming by bats is an efficient way of detecting bat roosts. In line with the specifications detailed by Bat Surveys: Good Practice Guidelines (Collins, 2016)³ the dawn survey commenced 90-120 minutes prior to sunrise and continued until 15 minutes after sunrise.

Equipment and Analysis

The dusk emergence and dawn re-entry surveys were conducted using electronic bat detectors (Echometer Touch 2) to facilitate the detection of bats and to aid in the determination of species of bat using the site. Subsequent computer analysis of sound recordings was used to facilitate the identification of bat species/families present during the surveys. Some species of bats echolocate at similar frequencies and the characteristics of their calls can overlap, i.e. *Myotis* species, and calls can vary dependant on the environment that the bats are in. It is widely accepted that if there is any doubt identifying a bat to species level then identification to family level is satisfactory (Russ, 1999)⁵. If echolocation calls more closely resemble one species than another, then they will be assigned to species level based on the parameters set out in Russ (2012)⁶ for guidance. Identification of overlapping species should, however, be interpreted with caution.

2.3 Constraints

No significant constraints were encountered during the dusk emergence / dawn re-entry bat surveys.

⁴ Mitchell-Jones, A.J. & McLeish, A.P. (2004). *The Bat Workers' Manual* (3rd Ed.). JNCC, Peterborough.

⁵ Russ, J. (1999). *The Bats of Britain and Ireland. Echolocation calls, sound analysis, and species identification* (1st Ed.). Alana Ecology Ltd, London.

⁶ Russ, J. (2012) *British Bat Calls: A Guide to Species Identification*. Pelagic Publishing, Exeter.

3. Desk Study

3.1 Statutory Nature Conservation Sites

The site is not located within 10 km of any statutory nature conservation sites designated for the presence of bats.

3.2 Species Records

The data search was carried out in September 2022 by BioBank Merseyside. Records of bat species within a 1 km radius of the survey area provided by the consultee/s are summarised in Table 3.1. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Survey Area	Species of Principal Importance?	Legislation / Conservation Status
Common pipistrelle <i>Pipistrellus pipistrellus</i>	18	2021	290 m south	-	ECH 4, WCA 5, WCA 6
Unidentified bat <i>Chiroptera</i> sp.	3	2014	290 m south	#	#
Noctule <i>Nyctalus noctula</i>	3	2019	310 m south-west	✓	ECH 4, WCA 5, WCA 6
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	18	2016	730 m north-west	✓	ECH 4, WCA 5, WCA 6
Brown long-eared bat <i>Plecotus auritus</i>	2	2016	*	✓	ECH 4, WCA 5, WCA 6
Daubenton's bat <i>Myotis daubentonii</i>	2	2014	**	-	ECH 4, WCA 5, WCA 6
Whiskered bat <i>Myotis mystacinus</i>	2	2014	**	-	ECH 4, WCA 5, WCA 6
Pipistrelle <i>Pipistrellus</i> sp.	4	2014	**	#	ECH 4, WCA 5, WCA 6
Nathusius's Pipistrelle <i>Pipistrellus nathusii</i>	2	2014	**	-	ECH 4, WCA 5, WCA 6
Unidentified myotis <i>Myotis</i> sp.	2	2014	**	-	ECH 4, WCA 5, WCA 6
Unidentified nyctalus <i>Nyctalus</i> sp.	1	2014	**	#	#

Table 3.1: Bat Species Records Within 1 km of Survey Area (Continues)

Key:

#: Dependent on species.

*: Potentially within a 1 km radius (grid reference provided was four figures only)

**: Potentially within a 1 km radius (grid reference provided was two figures only)

ECH 4: Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest in need of strict protection.

WCA 5: Schedule 5 of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds).

WCA 6: Schedule 6 of Wildlife and Countryside Act 1981 (as amended). Animals which may not be killed or taken by certain methods.

Table 3.1: Bat Species Records Within 1 km of Survey Area (Continued)

3.3 Granted European Protected Species Licence Applications

Two granted European Protected Species Licence Applications were identified within a 2 km radius of the study site. These comprised the following:

- A licence for the damage/destruction of resting places in use by brown long-eared and common pipistrelle bats. This licence was granted in August 2017 (Licence Ref: 2017-28690-EPS-MIT-1) and was located 1.6 km north-east of the study site.
- A licence for the destruction of a resting place in use by common pipistrelle bats. This licence was granted in January 2019 (Licence Ref: 2018-38343-EPS-MIT) and was located 1.6 km north of the study site.

4. Survey Results

4.1 First Dusk Emergence Survey

The first dusk emergence survey commenced 15 minutes prior to sunset and continued until 120 minutes after sunset. Sunset was at 20:42 hrs (BBC Weather Centre Data for Huyton). Two common pipistrelle bat calls were detected throughout the survey, but no visual contact was made with either of these bats. Nevertheless, the direction of the echolocation calls indicated that these bats were present to the south-west of the ambulance station, within the former fire station site. No bats emerged from either of the buildings surveyed (i.e. B1 and B2).

No additional bat species were recorded on or adjacent to the site during the first dusk emergence survey. Analysis of the sound recordings did not detect any further species of bat.

It was clear during this survey that both of the main potential bat roost features on Building B1 (i.e. the weep holes above the concrete porch and the small section of missing mortar) were both well-lit by flood-lighting.

4.2 Dawn Re-entry Survey

The dawn re-entry survey commenced 120 minutes prior to sunrise and continued until 15 minutes after sunrise. Sunrise was at 05:05 hrs (BBC Weather Centre Data for Huyton). Two bat species, common pipistrelle and noctule, were recorded during the survey. Figure 4.1 below details the findings from the dawn re-entry bat survey.

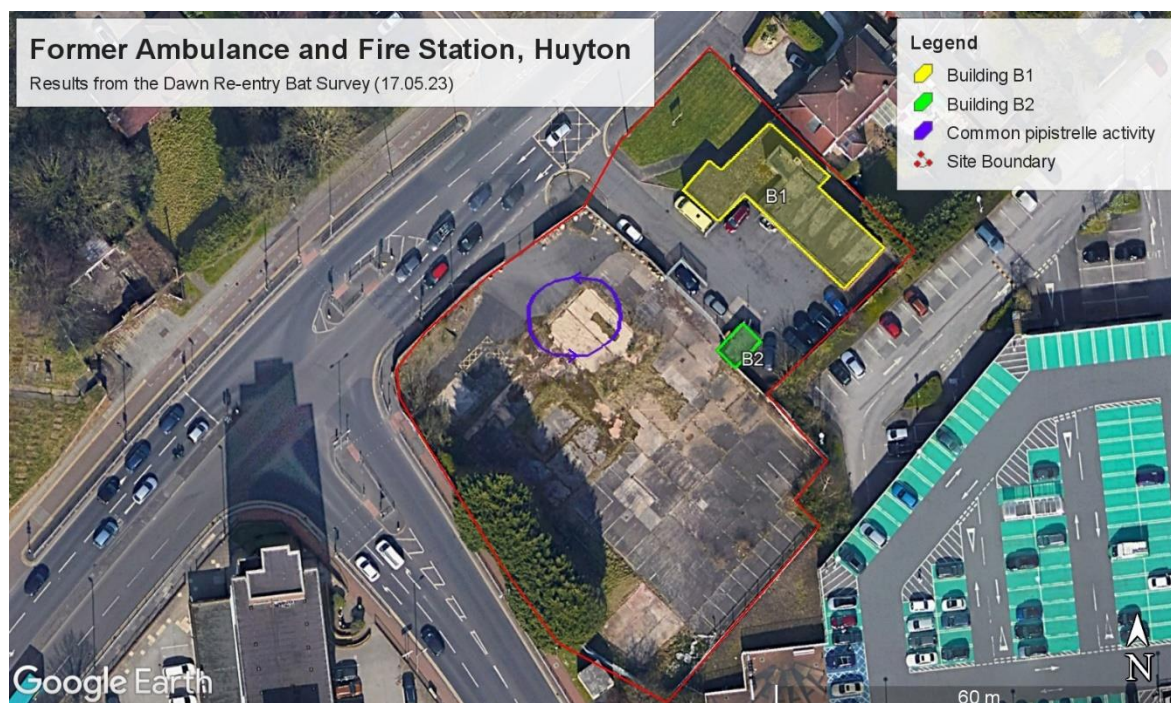


Figure 4.1: Results from the Dawn Re-entry Survey (17.05.23)

Common pipistrelle

A small number of common pipistrelle bat calls were detected at 03:24 hrs, 03:25 hrs, 03:28 hrs and 03:45 hrs. These calls were of foraging bats which were utilizing the former fire station site. No common pipistrelle bats re-entered building B1 during the dawn survey.

Noctule

A single noctule was detected at 03:39 hrs, but no visual contact was made with this bat. No noctules re-entered Building B1 during the dawn survey.

No other species of bat were detected or observed during this survey. Analysis of the sound recordings did not detect any further species of bat.

5. Impact Assessment

5.1 Summary of Proposals

It is understood that the proposed works will involve the construction of a new residential care home with associated hard and soft landscaping. The hard landscaping will comprise an access road, parking spaces and paved walkways and the soft landscaping will include the creation of a communal resident's garden with hedgerows, scattered trees, flowering lawns and turf planting.

5.2 Summary of Key Bat Features

Roosting Bats

No roosting bats were recorded within Buildings B1 or B2 during the dusk emergence/dawn re-entry surveys.

Commuting/Foraging Bats

Only two common pipistrelle bat calls were identified during the dusk emergence survey, but neither of these bats emerged from Buildings B1 or B2.

During the dawn re-entry survey, a small number of passes by foraging common pipistrelle bats were noted within the former fire station site. In addition, a single noctule passed over the site, but no visual contact was made with this bat. No bats re-entered Building B2 during the dawn survey.

5.3 Potential Impacts on Bats

No bat species were found to be roosting within the buildings surveyed (i.e. B1 and B2) during the dusk emergence/dawn re-entry bat surveys. As such, no adverse impacts to roosting bats are anticipated as a result of the proposed building demolition works.

The site was found to be in occasional use for foraging/commuting purposes by small numbers of common pipistrelle and noctule bats. The habitats on site are currently of relatively low value for foraging purposes, as it is dominated by hardstanding with scatterings of self-set scrub and introduced shrub. Small pockets of poor, semi-improved grassland and a line of leylandii conifers to the south-west, also provide some foraging and commuting opportunities. Although these habitats will be lost to facilitate the proposed works, a number of new habitats will be created (including species-rich flowering lawns, hedgerows and scattered trees). As such, no long-term loss of foraging/commuting habitat is anticipated as a result of the proposed works, and providing that artificial lighting be kept to a minimum (particularly at the site boundaries), the site should remain suitable for bat usage post-development. Recommendations with regards to scheme design and lighting are made in Chapter 6.

6. Recommendations

All recommendations provided in this section are based on Middlemarch's current understanding of the site proposals, correct at the time the report was compiled. Should the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate.

- R1 Buildings B1 and B2:** Buildings B1 and B2 have been subject to a full suite of activity surveys in line with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016)³, and no bat roosts were identified. The survey data obtained for the site is valid for 12 months from the survey date. If development works to the surveyed building have not commenced within this timeframe it will be essential to update the survey effort to establish if bats have colonised the buildings in the interim. Updated Preliminary Bat Roost Assessments can be undertaken at any time of year. Updated surveys requiring nocturnal or dawn assessment will need to adhere to the Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016)³ with the surveys undertaken between April and September inclusive. In the unlikely event that a bat is found during site works all works in that area must immediately cease and a suitably qualified ecologist should be contacted.
- R2 Scheme Design:** The proposed development should be designed to minimise effects on bats in accordance with the ecological mitigation hierarchy as set out in the National Planning Policy Framework (NPPF) and the National Planning Practice Guidance (NPPG). The mitigation hierarchy requires all development schemes to apply the following principles:
- *Avoidance and Mitigation* – the proposed development should seek to avoid/minimise losses of features with bat potential, in the first instance and incorporate these features in the landscaping layout of the scheme accordingly. Similarly, protection measures for retained features and surrounding habitats should be considered to prevent incidental damage or disturbance during the construction phases. These measures will help to reduce the likelihood of impacting bats and minimise losses of suitable bat roosts and habitat. Where significant harm cannot be wholly or partially avoided, adverse impacts should be minimised by design or through the use of effective mitigation measures such as minimising light spill (see below).
 - *Compensation* – where unavoidable losses occur and mitigation cannot be provided, compensation for significant residual harm will be required as a last resort or planning permission could be refused.
- R3 Lighting:** In accordance with best practice guidance relating to lighting and biodiversity (Miles *et al*, 2018¹; Gunnell *et al*, 2012²), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species. Examples of good practice include:
- Avoiding the installation of new lighting in proximity to key ecological features, such as adjacent residential gardens.
 - Using modern LED fittings rather than metal halide or sodium fittings, as modern LEDs emit negligible UV radiation.

- The use of directional lighting to reduce light spill, e.g. by installing bespoke fittings or using hoods or shields. For example, downlighting can be used to illuminate features such as footpaths whilst reducing the horizontal and vertical spill of light.
- Where the use of bollard lighting is proposed, columns should be designed to reduce horizontal light spill.
- Implementing controls to ensure lighting is only active when needed, e.g. the use of timers or motion sensors.
- Use of floor surface materials with low reflective quality. This will ensure that bats using the site and surrounding area are not affected by reflected illumination.
- For internal lights, recessed light fittings cause significantly less glare than pendant type fittings. The use of low-glare glass may also be appropriate where internal lighting has the potential to influence sensitive ecological receptors.

Appendix 1

Relevant Legislation

Bats and the places they use for shelter or protection (i.e. roosts) receive legal protection under the Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017) and the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 (Habitats Regulations 2019). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that bats, and the places they use for shelter or protection, are capable of being a material consideration in the planning process.

Regulation 41 of the Habitats Regulations 2017, states that a person commits an offence if they:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats; or
- damage or destroy a bat roost (breeding site or resting place).

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

It is an offence under the Habitats Regulations 2017 for any person to have in his possession or control, to transport, to sell or exchange or to offer for sale, any live or dead bats, part of a bat or anything derived from bats, which has been unlawfully taken from the wild.

Changes have been made to parts of the Habitats Regulations 2017 so that they operate effectively from 1st January 2021. The changes are made by the Habitats Regulations 2019, which transfer functions from the European Commission to the appropriate authorities in England and Wales.

All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant.

The obligations of a competent authority in the 2017 Regulations for the protection of species do not change. A competent authority is a public body, statutory undertaker, minister or department of government, or anyone holding public office.

Whilst broadly similar to the above legislation, the WCA 1981 (as amended) differs in the following ways:

- Section 9(1) of the WCA makes it an offence to *intentionally* kill, injure or take any protected species.
- Section 9(4)(a) of the WCA makes it an offence to *intentionally or recklessly** damage or destroy, or *obstruct access to*, any structure or place which a protected species uses for shelter or protection.
- Section 9(4)(b) of the WCA makes it an offence to *intentionally or recklessly** disturb any protected species *while it is occupying a structure or place which it uses for shelter or protection*.

*Reckless offences were added by the Countryside and Rights of Way (CROW) Act 2000.

As bats re-use the same roosts (breeding site or resting place) after periods of vacancy, legal opinion is that roosts are protected whether or not bats are present.

The reader should refer to the original legislation for the definitive interpretation.

The following bat species are Species of Principal Importance for Nature Conservation in England: barbastelle bat *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros*. Species of Principal Importance for Nature Conservation in England are material considerations in the planning process. The list of species is derived from Section 41 list of the Natural Environmental and Rural Communities (NERC) Act 2006.