

**HIGH STREET, COEDPOETH,
WREXHAM, WALES**

**NOCTURNAL EMERGENCE AND
DAWN RE-ENTRY BAT SURVEYS**

A Report to: Williams Southern Ltd

Report No: RT-MME128134

Date: June 2018



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REPORT VERIFICATION AND DECLARATION OF COMPLIANCE

This study has been undertaken in accordance with British Standard 42020:2013 “Biodiversity, Code of practice for planning and development”.

Report Version	Date	Completed by:	Checked by:	Approved by:
Final	18.06.2018	Archie Bird (Ecological Project Officer)	Ellie Rickman MSc MCIEEM (Senior Ecological Consultant)	Dr Philip Fermor CEnv MCIEEM (Managing Director)

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

The contents of this report are the responsibility of Middlemarch Environmental Ltd. It should be noted that, whilst every effort is made to meet the client’s brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Middlemarch Environmental Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

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, an updated site visit should be carried out by a suitably qualified ecologist to assess any changes in the habitats present on site, and to inform a review of the conclusions and recommendations made.

NON-TECHNICAL SUMMARY

In April 2018, Williams Southern Ltd commissioned Middlemarch Environmental Ltd to undertake nocturnal emergence and dawn re-entry bat surveys at Co-op Petrol Station, High Street, Coedpoeth, Wrexham. These surveys are required to inform a planning application associated with the demolition of the buildings present on site to facilitate construction of a new foodstore.

Nocturnal emergence and dawn re-entry surveys were undertaken between the 8th May 2018 and the 4th June 2018.

Desk study data was provided by Cofnod (North Wales Environmental Information Services), Natural Resources Wales – Protected Sites and Landscapes Map and Natural England – *MAGIC* website for statutory conservation sites. These revealed records of common pipistrelle bats 390 m from the site, the latest in 2003, as well as records for lesser horseshoe bats 250 m from the site, the latest in 2012.

Activity surveys were made up of two nocturnal emergence surveys and one dawn re-entry survey. All three surveys resulted in very similar levels and areas of activity. Two species of bat were recorded during these surveys; common pipistrelle and soprano pipistrelle. Most activity occurred around the rear of building B2, where common pipistrelle bats were observed foraging over the rear garden on all three surveys. Some brief activity was also recorded to the east of building B2. No bats were observed to have emerged or re-entered building B2 during these surveys.

Following the results of the nocturnal emergence and dawn re-entry surveys, the following recommendations have been made:

R1 Building B2: Afallon

Building B2: Afallon has been subject to a full suite of activity surveys in line with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), and no bat roost was 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 building in the interim.

R2 Lighting

Bats are likely to use trees/hedgerows for foraging and commuting. Therefore, the development should aim to limit the impact of light pollution on bats through the careful use of lighting in critical areas only and at a low level with minimum spillage. Any lighting, either temporary or permanent, along the site's southern boundary should be kept to a minimum and directed away from the boundary features to maintain dark areas and corridors which were observed to be frequently used by common pipistrelles.

CONTENTS

1. INTRODUCTION	4
1.1 PROJECT BACKGROUND	4
1.2 SITE DESCRIPTION AND CONTEXT	4
1.3 DOCUMENTATION PROVIDED	4
2. METHODOLOGY	5
2.1 DESK STUDY	5
2.2 FIELD SURVEYS.....	5
2.2.1 Overview of Nocturnal Emergence and Dawn Re-entry Surveys	5
2.2.2 Nocturnal Emergence Bat Surveys.....	5
2.2.3 Dawn Re-Entry Bat Survey	5
3. DESK STUDY	6
3.1 STATUTORY NATURE CONSERVATION SITES	6
3.2 SPECIES RECORDS.....	6
4. SURVEY RESULTS	7
4.1 FIRST NOCTURNAL EMERGENCE SURVEY	7
4.2 DAWN RE-ENTRY SURVEY.....	7
4.3 SECOND NOCTURNAL EMERGENCE SURVEY	8
5. DISCUSSION AND CONCLUSIONS.....	10
5.1 DISCUSSION	10
5.1.1 Summary of Proposals.....	10
5.1.2 Summary of Nocturnal Emergence and Dawn Re-entry Surveys	10
5.2 CONCLUSIONS.....	10
6. RECOMMENDATIONS.....	11
7. DRAWINGS.....	12
REFERENCES AND BIBLIOGRAPHY.....	14
APPENDIX 1	15

1. INTRODUCTION

1.1 PROJECT BACKGROUND

Middlemarch Environmental Ltd was commissioned by Williams Southern Ltd to undertake nocturnal emergence and dawn re-entry bat surveys at Co-op Petrol Station, High Street, Coedpoeth, Wrexham. These surveys are required to inform a planning application associated with the demolition of the buildings present on site to facilitate construction of a new foodstore.

Middlemarch Environmental Ltd has previously carried out a Preliminary Ecological Appraisal, Preliminary Roost Assessment and a Pre-Development Arboricultural Survey for Williams Southern Ltd at this site. The findings of these surveys are detailed in Reports RT-MME-127752-02, RT-MME-127752-03 and RT-MME-127752-01 respectively.

Very few features were recorded on building B1 (the Co-op foodstore and petrol station) which could be utilised by bats to gain entry into the building and potential roost locations. A number of features were recorded on building B2 (Afallon) which could provide access into the building and potential roost features. In addition, three pipistrelle-type bat droppings were recorded on the roof of the rear kitchen extension and its adjacent coal store. Due to the presence of potential roost features which could not be fully inspected externally or internally and the presence of a small number of bat droppings, building B2 was concluded to hold high bat roost potential. Building B1 was fully inspected and no evidence of bat roosts were identified, therefore no further surveys were required on this building.

Nocturnal emergence and dawn re-entry bat surveys were recommended for building B2. This report details the results of the surveys undertaken between 8th May 2018 and 4th June 2018.

All UK bat species are European 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. This section also provides some brief information on the ecology of British bat species.

1.2 SITE DESCRIPTION AND CONTEXT

The proposed development site was a flat, "L" shaped parcel of land of approximately 0.16 ha in size, located within a predominantly residential area on High Street in Coedpoeth, to the west of Wrexham in Wales, at Ordnance Survey Grid Reference SJ 28089 51445. At the time survey, the site was dominated by the Co-op foodstore and hardstanding petrol station forecourt, with associated car parking, whilst an adjacent residential property was included at the north-western corner of the site. Small areas of introduced shrubs and scattered trees were also present around the boundaries of the site, along with lengths of fencing and wall.

The north-eastern boundary of the study area was delineated by High Street, beyond which was a residential area. To the south-east there was a row of residential properties, to the south-west it bordered the residential properties of Bryn-y-Wern, whilst to the north-west lay a residential area along Smelt Road. The surrounding area consisted of mainly residential housing and gardens; whilst the wider landscape was dominated by agricultural fields, with the River Clywedog in a wooded valley present just under 250 metres to the south-west.

The focus of the nocturnal emergence and dawn re-entry surveys to which this report refers was a 2 storey residential house to the north west of the proposed development site. The building was of brick construction with a slate tiled roof.

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 1.1.

Document Name / Drawing Number	Author
Existing Site Plan (Drawing 6036(P)502)	Archer Architects
Proposed Site Plan (Drawing 6036(P)503)	Archer Architects

Table 1.1: Documentation Provided by Client

2. METHODOLOGY

2.1 DESK STUDY

As part of the Preliminary Ecological Appraisal (Report RT-MME-127752-02) an ecological desk study (which included a search for records of bats) was undertaken within a 1 km radius of the site. The consultees for the desk study were:

- Natural Resources Wales (NRW) – Protected Sites and Landscapes Map;
- Natural England – *MAGIC* website for statutory conservation sites;
- Cofnod – North Wales Environmental Information Service.

Middlemarch Environmental Ltd 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 SURVEYS

2.2.1 Overview of Nocturnal Emergence and Dawn Re-entry Surveys

Following a Preliminary Roost Assessment, Building B2 (Afallon) was classed as having high potential to support roosting bats due to several features of potential interest to roosting bats identified during the daytime survey. In line with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), three bat surveys were carried out consisting of two nocturnal emergence bat surveys and one dawn re-entry bat survey. The aim of these surveys was to detect whether bats are roosting within the buildings, and to enable a profile of site utilisation by bats to be compiled.

2.2.2 Nocturnal Emergence Bat Surveys

In line with the specifications detailed in Bat Surveys: Good Practice Guidelines (Collins, 2016), the nocturnal surveys commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. The nocturnal emergence surveys were conducted using electronic bat detectors (Echo Meter 3+, Echo Meter Touch and Bat Box Duet with associated recording devices) to facilitate the detection of bats and to aid in the determination of species of bat using the site. Subsequent computer analysis of recordings allowed all species of bat using the site to be identified.

2.2.3 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). 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) the dawn survey commenced 120 minutes prior to sunrise and continued until 15 minutes after sunrise. To facilitate the detection of bats and to aid in the determination of species of bat using the site, the dawn survey was conducted using electronic bat detectors (Echo Meter 3+, Echo Meter Touch and Bat Box Duet with associated recording devices). Computer analysis of bat detector information collected was utilised to identify all species recorded on the site.

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 March 2018 by Cofnod (North Wales Environmental Information Services). Records of bat species within a 1 km radius of the survey area provided by the consultees 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 Study Area	Species of Principal Importance?	Legislation / Conservation Status
Mammals (bats)					
Common pipistrelle <i>Pipistrellus pipistrellus</i>	2	2003	390 m east	-	ECH 4, WCA 5, WCA 6
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>	18	2012	250 m south-east	✓	ECH 2, ECH 4, WCA 5, WCA 6, LBAP
Key: ECH 2: Annex II of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation. 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. Species of Principal Importance: Species of Principal Importance for Nature Conservation in Wales. LBAP: Species listed on the Wrexham Biodiversity Action Plan. Note. This table does not include reference to the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats), the Bonn Convention on the Conservation of Migratory Species of Wild Animals or the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).					

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

4. SURVEY RESULTS

4.1 FIRST NOCTURNAL EMERGENCE SURVEY

The first nocturnal emergence survey was undertaken on 8th May 2018 by;

- Ellie Rickman BSc (Hons), MSc, MCIEEM (Senior Ecological Consultant) Natural England Bat Licence Number: 2016-22513-CLS-CLS;
- Sam Spickett BSc (Project Officer), and;
- Geoff Nickolds (Project Officer).

Weather conditions recorded at the time of the survey are detailed in Table 4.1.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	15	14
Cloud Cover (%)	0	30
Precipitation	None	None
Wind Speed (Beaufort)	F0	F0

Table 4.1: Weather Conditions During First Nocturnal Emergence Survey

The nocturnal emergence survey commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. Sunset was at 20:52 hrs (BBC Weather Centre Data for Wrexham). One species of bat; common pipistrelle *Pipistrellus pipistrellus* was recorded during the survey. Survey results are plotted on Drawing C128134-01 in Chapter 7.

Common pipistrelle

The first common pipistrelle bat was detected at 21:15 (23 minutes after sunset). This bat was detected foraging to the rear of the building for a couple of minutes before exiting the site.

The last common pipistrelle bat was detected at 21:24 (32 minutes after sunset). This bat was witnessed entering the site from the south west and foraged over the rear garden of the building for approximately 15 minutes before exiting the site.

No common pipistrelle bats were witnessed to have emerged from the building.

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

4.2 DAWN RE-ENTRY SURVEY

The dawn re-entry bat survey was undertaken on 22nd May 2018 by;

- Ellie Rickman BSc (Hons), MSc, MCIEEM (Senior Ecological Consultant) Natural England Bat Licence Number: 2016-22513-CLS-CLS;
- Archie Bird (Ecological Project Officer) Natural England Bat Licence Number: 2017-27467-CLS-CLS, and;
- Sam Spickett BSc (Project Officer)

The weather conditions recorded at the time of the survey are detailed in Table 4.2.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	10	11
Cloud Cover (%)	100	100
Precipitation	None	None
Wind Speed (Beaufort)	F3	F2

Table 4.2: Weather Conditions During 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 05:03 hrs (BBC Weather Centre Data for Wrexham). Two species of bat, common pipistrelle and soprano pipistrelle *Pipistrellus pygmaeus* were recorded during the survey. Survey results are plotted on Drawing C128134-01 in Chapter 7.

Common pipistrelle

The common pipistrelle bat was recorded at 03:39 (84 minutes before sunrise). This bat was detected foraging in the rear garden of a house to the south of the site and occasionally looping over the garden of Building 2.

The second common pipistrelle bat was witnessed and detected at 04:28 (35 minutes before sunrise) foraging around the rear garden of the building and the garden of the house to the south-west. This bat foraged in these area for approximately 2 minutes before exiting the site to the north.

The final common pipistrelle bat was witnessed at 04:36 (27 minutes before sunrise) foraging briefly around the building to the south-west of the site, this bat was only briefly recorded and exited from view towards the south-west.

Soprano pipistrelle

The only soprano pipistrelle bat to be recorded during the survey was detected at 04:27 (36 minutes before sunrise) on the eastern side of the building (no visual contact made).

No bats were recorded re-entering the building during this 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.

4.3 SECOND NOCTURNAL EMERGENCE SURVEY

The second nocturnal emergence survey was undertaken on 4th June 2018 by;

- Ellie Rickman BSc (Hons), MSc, MCIEEM (Senior Ecological Consultant) Natural England Bat Licence Number: 2016-22513-CLS-CLS;
- Archie Bird (Ecological Project Officer)
- Geoff Nickolds (Project Officer)

The weather conditions recorded at the time of the survey are detailed in Table 4.3.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	17	15
Cloud Cover (%)	100	100
Precipitation	F1	F0
Wind Speed (Beaufort)	None	None

Table 4.3: Weather Conditions During Second Nocturnal Emergence Survey

The nocturnal emergence survey commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. Sunset was at 21:31 hrs (BBC Weather Centre Data for Wrexham). One species of bat, common pipistrelle was recorded during the survey. Survey results are plotted on Drawing C128134-01 in Chapter 7.

The first common pipistrelle bat was witnessed and detected at 21:54 (23 minutes after sunset). This bat entered the site from the south east and foraged over the rear garden for approximately 20 minutes before exiting the site.

Another two common pipistrelle bats were detected within the area at 22:07 (36 minutes after sunset) and 22:21 (50 minutes after sunset) but were not seen.

No bats were recorded emerging from the building. 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. DISCUSSION AND CONCLUSIONS

5.1 DISCUSSION

5.1.1 Summary of Proposals

The proposed works involve the demolition of the buildings currently present on site and the construction of a new supermarket building in the north of the site, with the petrol forecourt located in the east of the site and car parking to the south-west and north-west of the forecourt. A small amount of landscaping will also take place to the rear of the new foodstore and along the boundary where the current scattered trees are present. The proposed works will lead to the loss of all of the buildings and most of the habitats currently present on site.

5.1.2 Summary of Nocturnal Emergence and Dawn Re-entry Surveys

Nocturnal Emergence Surveys

One bat species was recorded during the nocturnal emergence surveys; common pipistrelle. Low numbers of common pipistrelle bats were recorded utilising the site for foraging, with the majority of activity taking place around the rear garden of the property. No bats were recorded to have emerged from the building during these surveys.

Dawn Re-entry Survey

Two species of bat were recorded during the dawn re-entry survey; common pipistrelle and soprano pipistrelle. The common pipistrelle bats were all recorded towards the rear of the building foraging and commuting off site while the soprano pipistrelle bat was recorded to the east of the building and briefly commuted close to the site. No bats were recorded to have emerged from the building during this survey.

5.2 CONCLUSIONS

Given that no bats emerged or re-entered any of the buildings and lack of bat activity on site during the surveys, it is concluded that there are no bat roosts present in the building.

A small number of common pipistrelle and soprano pipistrelle bats were witnessed on and nearby to the site foraging and commuting during all surveys. However, none of the bats detected and witnessed emerged from or re-entered the building and therefore Building 2 was concluded not to contain any bat roosts.

6. RECOMMENDATIONS

All recommendations provided in this section are based on Middlemarch Environmental Ltd'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 Building B2: Afallon

Building B2: Afallon has been subject to a full suite of activity surveys in line with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), and no bat roost was 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 building 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) 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 Lighting

Bats are likely to use trees/hedgerows for foraging and commuting. Therefore, the development should aim to limit the impact of light pollution on bats through the careful use of lighting in critical areas only and at a low level with minimum spillage. Any lighting, either temporary or permanent, along the site's southern boundary should be kept to a minimum and directed away from the boundary features to maintain dark areas and corridors which were observed to be frequently used by common pipistrelles.

7. DRAWINGS

Drawing C128134-01 – Summary of Nocturnal Emergence and Dawn Re-entry Surveys



C128134-01

Legend

- ✕ Surveyor location
- Common pipistrelle activity
- PH1 habitat survey:**
 - Scattered tree
 - Fence
 - Wall
 - Building
 - Hardstanding
 - Introduced shrub
 - Site boundary



Project		High Street, Coedpoeth	
Drawing		Bat Activity Survey Results	
Client		Williams Southern Limited	
Drawing Number	C128134-01	Revision	00
Scale @ A4	1:400	Date	June 2018
Approved By	AB	Drawn By	CD
			
Triumph House, Birmingham Road, Allesley, Coventry CV5 9AZ T:01676 525880 F:01676 521400 E:admin@middlemarch-environmental.com			

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The Conservation of Habitats and Species Regulations 2017.

APPENDIX 1

LEGISLATION

Bats and the places they use for shelter or protection (i.e. roosts) receive European protection under The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017). 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.

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.

For Wales:

The following bat species are listed Species of Principal Importance for Nature Conservation in Wales: barbastelle bat *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, noctule *Nyctalus noctula*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros*.

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

ECOLOGY

At present, 18 species of bats are known to live within the United Kingdom, of which 17 species are confirmed as breeding. All UK bat species are classed as insectivorous, feeding on a variety of invertebrates including midges, mosquitoes, lacewings, moths, beetles and small spiders.

Bats will roost within a variety of different roosting locations, included houses, farm buildings, churches, bridges, walls, trees, culverts, caves and tunnels. At different times of the year the bats roosting requirements alter and they can have different roosting locations for maternity roosts, mating roosts and hibernation roosts. Certain bat species will also change roosts throughout the bat activity season with the bat colony using the site to roost for a few days, abandoning the roost and then returning a few days or weeks later. This change can be for a variety of reasons including climatic conditions and prey availability. Bats are known live for several years and if the climatic conditions are unfavourable at a particular roost, they may abandon it for a number of years, before returning when conditions change. Due to the matriarchal nature of bat colonies, the locations of these roosts can be passed down through the generations.

Bats usually start to come out of hibernation in March and early April (weather dependent), when they start to forage and replenish the body weight lost during the hibernation period. The female bats then start to congregate together in maternity roosts prior to giving birth and a single baby is born in June or July. The female then works hard to feed her young so that they can become independent and of a sufficient weight to survive the winter before the weather gets too cold and invertebrate activity reduces. Males generally live solitary lives, or in small groups with other males, although in some species the males can be found living with the females all year. The mating season begins in the autumn. During the winter bats hibernate in safe locations which provide relatively constant conditions, although they may venture outside to forage on warmer winter nights.