



Bat Emergence Surveys
Margery Lane, Clearwell, Gloucestershire

Report reference: R-2424-03.2
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Report Title:	Bat Emergence Surveys: Margery Lane, Clearwell, Gloucestershire
Report Reference:	R-2424-03.2
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Update in respect of further LPA comments on roost dimensions	08.09.16



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Summary Statement

Building A is used as an occasional roost by a single lesser horseshoe bat.

The site lies in proximity of the Wye Valley and Forest of Dean Bat Sites Special Area of Conservation (SAC) and an Appropriate Assessment will be required by the Local Planning Authority.

An application for a license from Natural England is likely to be required and a suitable mitigation plan including replacement roost provision is presented.

Introduction

1. Subsequent to the recommendations made in Brooks Ecological Preliminary Ecological Appraisal (R-2424-01) detailed bat survey was commissioned at Margery Lane, Clearwell.
2. Information relating to local and legal status is provided in report R-2542-01 and is not repeated here. These two reports should be read in conjunction for full context.

Buildings

3. There are 3 buildings present on the site.
4. Building A is a two storey former stable with a hayloft, constructed of stone, both limestone and sandstone, with many vertical fissures in the external walls. The roof is pitched and constructed of corrugated asbestos. It is partially covered in dense ivy growth. On the southern wall is a single storey former cattle stall conjoined to building A. It is constructed of brick and stone, with a pitched corrugated metal. During internal inspection of this building in October 2015 a single lesser horseshoe bat was found roosting on the underside of the asbestos roof close to the south eastern gable of the building. This roost was associated with a scattering of droppings on the hayloft floor.
5. Building B is single storey partially open sided building constructed of sandstone, limestone and breezeblock, with glass windows, and a pitched roof of corrugated asbestos.
6. Building C is a relatively modern, double storey, former milking parlour with a pitched roof of corrugated asbestos. The building is constructed of breezeblock and brick, with a small brick built, single storey shed attached to the southern aspect of the building. Old bat droppings have been found in this building.



Figure 1

Buildings

Method

7. Brooks Ecological specialise in bat surveys ranging from individual buildings through to complex sites requiring numerous visits with large teams. In terms of the survey effort, number of personnel required and number of visits required to be able to properly evaluate the building(s) use by bats we refer to the Bat Conservation Trust, Survey Good Practice Guidelines (2016). However, these guidelines are not prescriptive and we approach each site individually as required using our professional judgement and significant experience base.
8. In this case, 3 visits (two dusk and one dawn re-entry) with a team of up to 2 surveyors, was deemed necessary to evaluate the use of the site for roosting. The surveys were carried out on the evenings of 6th June and the 24th June 2016 and the morning of 10th June 2016 with surveyors positioned around the building to cover all aspects where bats could potentially emerge, and to establish activity levels around the site.
9. The surveyors, using heterodyne detectors, were in place at least half an hour before dusk and left once all species of bat would be expected to have left a roost and patterns of activity within the site had been appraised. The dawn survey commenced one and a half hours before sunrise. Conditions and dates are summarised in table 1 below:

Table 1: Survey summary

Date of Survey	Temperature Start/End	Weather	Invertebrate activity
04.06.16	15°C	Light Cloud, humid and still	Moderate
10.06.16 (dawn)	13 °C	Cloudy with occasional very light precipitation	Moderate
24.06.16	16 °C	80% cloud cover, damp with gusts	Low
17.08.16	21°C	Light cloud, dry and still.	Moderate

10. Figure 2 shows the locations of the surveyors and the static location.

Figure 2 Locations of surveyors and static monitor



11. Survey and assessment was directed by Dr Stefan Bodnar. Stefan has a Natural England survey licence (level 2) and many years' experience of carrying out bat surveys in a professional capacity throughout this region.
12. Dr Bodnar was assisted by Louise Sutherland BSc (Hons) MSc, a member of Warwickshire bat group since 2005. Louise is an experienced bat surveyor having undertaken surveys with Warwickshire Bat Group, Dr Bodnar and for Middlemarch Environmental and on projects in Poland including mist netting and harp trapping bats.

Results

Survey 1 – 4th June 2016

13. The table below outlines the activity recorded during the survey. Minimum count comprised 2 Common Pipistrelle, 1 *Myotis* sp., 2 Lesser horseshoe.

Table 1 Activity recorded on 4th June 2016

Species	Time	Activity	Detection frequency on heterodyne
Myotis sp.	21:48	Forage	28-70 kHz
Common pipistrelle	21:53-22:02	Foraging passes	45 kHz
Common pipistrelle x2	22:07-22:15	Repeated Foraging passes	45 kHz
Lesser horseshoe	22:10	Emergence and commute	110 kHz
Lesser horseshoe	22:15	Commute	110 kHz
Common pipistrelle	22:15-32	Forage (last bat)	45kHz

14. Emergence of lesser horseshoe was from the open ground floor stable door of building A. Figure 2 shows this in relation to the roosting bat and droppings found during internal inspection in 2015.

Survey 2 - 10th June 2016 (Dawn)

15. The table below outlines the activity recorded during the survey. There was a minimum count of 3 Common Pipistrelle and 1 *Myotis* sp. No bats were observed re-entering buildings.

Table 2 Activity during survey on 10th June 2016.

Species	Time	Activity	Detection frequency on heterodyne
Common pipistrelle x2	03:05-03:45	Repeated Foraging passes	45 kHz
Common pipistrelle	03:20-03:52	Foraging passes	45 kHz
Myotis sp.	03:20-04:04	Foraging passes	28-70 kHz
Myotis sp.	04:04	Commute	28-70 kHz

Survey 3 – 24th June 2016

16. The Minimum count comprised 3 Common Pipistrelle, 2 Lesser horseshoe, 1 Noctule. No bats were observed to emerge from any buildings.
17. The table below outlines the activity recorded during the survey. Minimum count comprised 2 Common Pipistrelle, 1 Myotis.

Table 3 Activity recorded during survey 24th June 2016

Species	Time	Activity	Detection frequency on heterodyne
Common pipistrelle	21:59	Commute	45 kHz
Common pipistrelle	22:02-22:55	Foraging passes	45 kHz
Common pipistrelle x2	22:07-22:15	Repeated Foraging passes	45 kHz
Lesser horseshoe (x2)	22:10	Commute	110 kHz
Noctule	22:35	Forage	25kHz

Survey 4

Minimum count: 2 Common Pipistrelle, 1 Soprano pipistrelle, 2 Noctule. Activity consisted of foraging passes by pipistrelle bats and a single noctule, as well as a commuting pass high over the Site by a single noctule bat.

As well as looking for use of the known roost in Building A, this survey was also careful to consider further the potential use of Building C.

No bats emerged from any building during this survey.

Species	Time	Detection frequency on heterodyne	Detection frequency on heterodyne
Common pipistrelle x 2	20:32-22:30	Foraging passes	45 kHz
Noctule	21:10	Commute	20-25kHz
Soprano pipistrelle	21:03- 22:15	Repeated Foraging passes	55 kHz
Noctule	21:32-21:45	Foraging	20-25kHz

SM3+ remote data

18. The following bat traces were recorded over the 3 during the first 3 surveys.
19. It confirms that 4 species are present in the area: Common pipistrelle, Lesser horseshoe bat, Whiskered bat, and Noctule bat.

Table 4 Results from static monitoring

Survey	Survey Date	Species
Survey 1	04th June 2016	Common pipistrelle Myotis sp., identified as Whiskered bat Lesser horseshoe bat
Survey 2	10th June 2016	Myotis sp. (Whiskered bat) Common pipistrelle
Survey 3	24th June 2016	Noctule Lesser horseshoe bat Common pipistrelle

20. The evening activity of 4th and 24th June 2016 and 17th August revealed similar levels of activity by at least 4 species of bat, including foraging and commuting behaviour. There was emergence observed of a single Lesser Horseshoe bat on a single occasion (4th June) from building A.
21. The dawn re-entry survey revealed similar levels of activity and no re-entry to the building. The Remote SM3+ data confirms the finding of the manual surveys, with no additional species identified.
22. During the original appraisal visit to the Site during October 2015, occasional bat droppings were noted in building C. Survey of this building during summer 2016 were not able to find any further droppings - supporting the findings of emergence survey of this building.

Evaluation and Recommendations

23. Building A is used as an occasional roost for a single lesser horseshoe bat – a picture supported by internal inspection and four surveys during peak season. The presence of a single bat here in both June and October suggests its occasional use as a day roost by a non-breeding bat, with this use extending through the summer and into the autumn whilst suitable conditions prevail. The evidence found does not suggest the Site's use in the autumn as a gathering or mating location.
24. Other buildings on Site have not been found to support roosting by bats. Although the occasional presence of droppings in building C suggest that bats occasionally forage here, they have not been found to use the building for roosting.
25. The bat roosts on the underside of the asbestos roof and accesses the loft space flying through the stable door and then back over the hayloft floor. The location of droppings within the barn suggests that this bat uses a single roost location and does not move between areas with different conditions within the barn.

Figure 3 Lesser horseshoe emergence point and roost location



26. Clearly proposals to re-develop the Site could impact on this roost and precautions will need to be put in place to avoid potential offences which could arise from the

loss or significant alteration of the roost, or from direct impacts on the bat(s) present here.

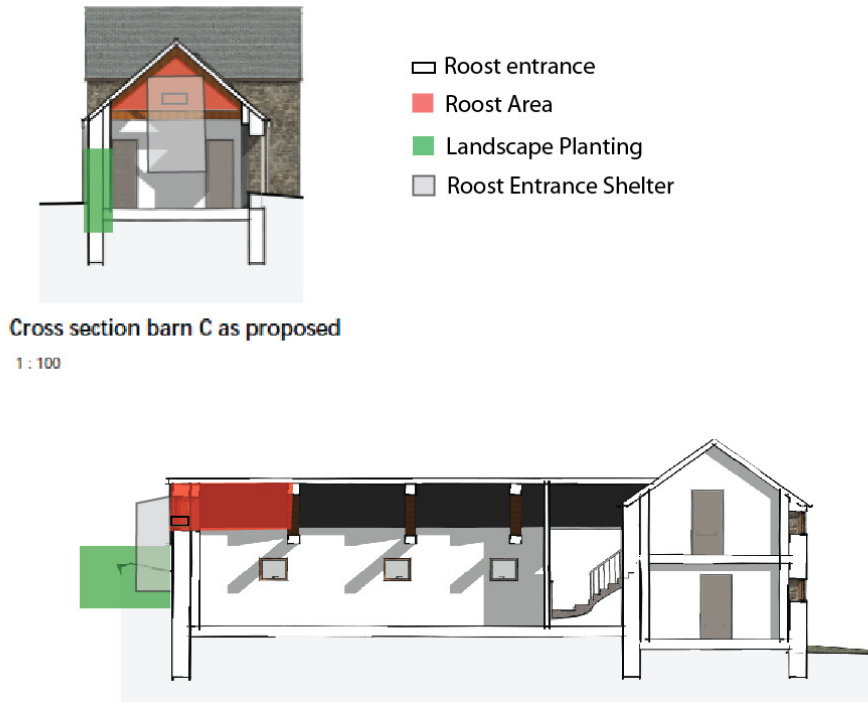
27. Additionally, the site lies within proximity of the Forest of Dean and Wye Valley Bat Sites Special Area of Conservation (SAC) of which Lesser Horseshoe bats are a qualifying feature. An Appropriate Assessment (at least a test of "likely significant effects) will be required in relation to the significance of this roost in relation to the SAC designation. This assessment is carried out by the Local Authority based on the information provided to them, and their knowledge of the area, its roosts, and the SAC. The assessment depends on the roost status and the impact of the proposals and is assessed on a case by case basis.
28. In the local context this roost is of low conservation status, being an occasionally used alternative to other local roosts, and impacts to it (such as loss or damage) would be licensable. Given that the proposals will significantly alter this roost it will be necessary to secure a European Protected Species Mitigation (EPSM) license ahead of any works associated with the proposals being carried out.
29. The following method is presented as the basis on which this licence could be secured. It is predicated on the retention of an accessible and useable space within the same building.

Method Statement

- 1) Works to building A will be carried out under the supervision of an Ecological Clerk of Works (ECoW) who will be able to provide ongoing advice and supervision in relation to bats and the specification and construction of the bat loft section. The ECoW will be a suitably licensed bat worker.
- 2) Works to seal up / make good the fabric and roof of Building A (The Works) will be carried out during (and will be completed within) the winter period (likely to be November - March inclusive) and only after the ECoW has confirmed the absence of bats.
- 3) The Works will include the provision of a defined 'bat loft' in the southern end of Building A (this is referred to as barn C on proposals plans). This will:
 - Comprise of a boxed off section of loft space spanning the width of the loft (c.3m), a height of no less than 1.5m floor to ridge, and a minimum of 2.5m of the loft length from the south eastern gable wall.
 - Be accessible internally through a signed hatch to allow for cleaning and maintenance.

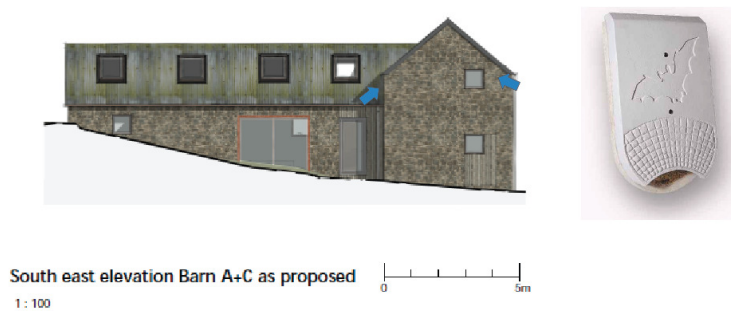
- Be un-trussed with exposed rafters and lined to the roof with a bituminous liner. The northern end wall will be lined with rough finished OSB sheet.
 - Be accessible to bats through an access of no less than 300 mm (w) x 200 mm (h) set at 400mm above the floor of the loft. The access will be shielded externally by a porch feature to allow light sampling.
 - Have a floor and northern end wall insulated with rock-wool or similar to a minimum density of 12kg / m³, placed between the ceiling / stud wall joists with 22mm tongue and groove floor grade chipboard fitted above. The ceiling below should be constructed from 19mm Gyproc Plank and covered with one layer of 12.5mm plasterboard fixed to the underside then skimmed to seal all air gaps.
 - Be accessible to bats through a hole in the SE gable wall. The hole should be c.600mm wide and c.300mm deep and situated c.400mm above the floor of the loft.
 - A small shelter structure should be fitted above the hole to reduce the potential effects of rain / wind on the loft and provide a light sampling area. This will be of wooden panel or lap board construction with a sloped roof in keeping with the rest of the building, it will be a minimum of 600mm depth, 1000mm width and will extend down the wall for a minimum of 1500mm. A minimum of 50% of the front of the structure will be open to allow access into the roost.
 - Contain droppings from the current roost - collected and spread.
- 4) Landscaping will be used externally to provide links to the corridor of habitat running south along Margery Lane.
- 5) The ECoW will provide a written statement to the Local Planning Authority at the point when (i) the absence of bats has been determined and The Works are commencing and (ii) when The Works are completed and the bat loft habitable.
30. Specific mitigation would need to be agreed with Natural England at the time of licensing and the details of the above method should not be conditioned. This is provided as assurance to the LPA that the issue can be suitably addressed within the proposals and as an informative for those taking the proposals forward.

Figure 4 Outline Mitigation



31. The LPA has requested that provision for other bat species be made at the Site, this could be provided effectively through the installation of quality crevice boxes. The erection of two Schwegler FQ1 boxes beneath the eaves in the positions indicated below is recommended.

Figure 5 Bat Box Locations



References

Bat Conservation Trust (2016) Bat Surveys for Professional Ecologists – Good Practice Guidelines

English Nature (2004) Bat Mitigation Guidelines. English Nature, Peterborough.

JNCC (2004) The Bat Workers Manual. 3rd Edition.

ODPM circular 06/05 (2005) Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within the Planning System
<http://www.communities.gov.uk/publications/planningandbuilding/circularbiodiversity>

Conservation of Habitats and Species Regulations 2010
<http://www.legislation.gov.uk/ukxi/2010/490/contents/made>

Stone, E.L. (2013) Bats and Lighting. Overview of current evidence and mitigation

Schofield HW (2008) Lesser Horseshoe Bat Mitigation Handbook. Vincent Wildlife Trust.