

Report : Internal inspections for bat:
Erddig roof-spaces,
Wrexham LL13 0YT

Reference : NT/2748/22.1

Date : 21 August 2023

Client : Ms. V. Warland
Project Manager (Wales)
National Trust
Email: Victoria.Warland@nationaltrust.org.uk

Purpose : To inform the installation of (a) new fire alarm system(s) and fire stopping and compartmentation remedial works.

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Dr R. M. Jones.

Client:
Ms. V. Warland
Project Manager (Wales)
National Trust
Email: Victoria.Warland@nationaltrust.org.uk

Dr. R. M. Jones MCIEEM
Star Farm
Colebatch
Bishop's Castle
Shropshire
SY9 5JY

Mobile: 078 66 44 0915
Email: info@starecology.co.uk

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**Internal inspections for bat:
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1. Proposed work within roof-spaces

Installation of a new fire alarm system; requiring access to roof-voids, the eaves and roof structures in general.

Fire stopping and compartmentation remedial works (dependent on the results of inspections).

Full details of proposed work within and affecting roof-spaces may be obtained from the National Trust.

This report details the results of internal inspections of certain roof-spaces.

Recommendations are provided as to how the installation of the new fire alarm system and fire stopping and compartmentation remedial works may be carried out without triggering legal offences against bats.

2. Legislation and Policy

2.1 Bat Legal protection

All bat species (*Rhinolophidae* and *Vespertilionidae*) are protected under the Wildlife and Countryside Act 1981, the Countryside and Rights of Way Act 2000 and the Conservation of Habitats and Species Regulations 2017 (as amended).

Under the Conservation of Habitats and Species Regulations 2017 (as amended) legislation it is illegal to:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats. This includes in particular, disturbance in a way any such which is likely to (i) impair their ability to survive, breed or reproduce, or to rear or nurture their young; (ii) impair their ability to hibernate or migrate; or (iii) to affect significantly the local distribution or abundance of the species to which they belong;
- damage or destroy a breeding site or resting place of a bat;
- to be in possession or control, to keep, transport, to sell or exchange, or to offer for sale or exchange, any live or dead bat, or any part of, or anything derived from such a wild animal.

Under the Wildlife and Countryside Act 1981, it is illegal to:

- intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection.
- intentionally or recklessly obstruct access to any structure or place which a bat uses for shelter or protection.

A bat resting place may be a structure a bat uses for breeding, resting, shelter or protection. Resting place sites are protected whether or not bats are in occupation, as they may be re-used by bats.

A European Protected Species (EPS) (derogation) Licence from Natural Resources Wales may be required for development works triggering Conservation of Habitats and Species Regulations 2017 (as amended) offences against bats.

2.2 European Protected Species Licensing

European Protected Species (EPS) Licences derogating from the protection afforded to bats can be issued for a number of specified reasons or purposes as set out in Regulation 55(1)(e-g) and 55(9)(a-b) of the Conservation of Habitats and Species Regulations 2017 (as amended).

There are three purposes that EPS Licences may be issued.

The first purpose ('test') must be one of either:

- Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social and economic nature and beneficial consequences of primary importance for the environment;
- Preventing the spread of disease;
- Preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber or any other forms of property or to fisheries; to allow people to carry out activities which would otherwise be illegal.

The following two criteria ('tests') must also be met:

- there is no satisfactory alternative; and
- the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

EPS Licence applications need to provide sufficient evidence to demonstrate that the 'three tests' are met before a Licence can be issued.

Each application is assessed by Natural Resources Wales on its own merits.

3. Survey Method

Survey dates:	28 April 2023, 15 August 2023, 16 August 2023
Surveyor:	Dr. R. M. Jones MCIEEM Natural Resources Wales Bat Licensed surveyor S088947/1
Assistant surveyor:	28 April 2023: Mrs. M. Williams (recorder)
Access:	28 April 2023, 15 August 2023, 16 August 2023; access to high level roof-spaces provided by: Inner World Design & Build Limited 3 High Street Llanllechid LL57 3EL
Equipment:	• torches (including a Fenix RC40 3800 lumen torch and a DeWalt DCL043 1000 lumen torch) • mirrors • borescope (Visual Optics VO18 5.8mm Fibre Optic) • fibrescope (Provision PV2636-21 5.8mm) • video-scope (Draper 05163 Recording Flexi Inspection Camera) • 3.8m Telescopic ladder • thermal imaging monocular (Zeiss DTI 3/25 Thermal Monocular) • AGM Glory Pro 5G Rugged Smartphone with 20MP IRay Technology Co. Limited infrared and night vision cameras • Magenta Bat5 heterodyne bat detector • Elekon Batscanner automatic tuning heterodyne bat detector • 'crawl/kneel boards'
Approach:	Roof-spaces searched for the presence of bats and their roosts. Searches also made for notable signs of past and/or present bat roost activity, including bat urine stains, fur oil stains, scratch marks and faeces.
Bat droppings:	If possible: • identified to species level, on the basis that they are consistent in size and appearance with those deposited by that species; i.e. they are of that 'type'. It is never possible to unequivocally state the species origin of bat droppings based on their presence alone. • samples collected for (deoxyribonucleic acid) DNA Analysis to determine species of origin.

4. Survey Results

Twenty-three roof-spaces were surveyed. For ease of reference; the roof-spaces have been labelled 1 – 23 in the order that they were surveyed.

Roof-spaces 1 – 10 are within the House.

Roof-spaces 11, 12 and 22 are within the Kitchen and Laundry Yard complex.

Roof-spaces 13 – 21 are within the Stable Yard complex.

Plans showing the approximate locations of the Roof-spaces 1 – 22 are contained in Appendix 1. Roof-space 23 is within a standalone building known as the 'Saw Mill' and 'The Hub', and a plan showing the location of this roof-space is not provided.

Regarding the structural outlay of roof-spaces:

- Roof-space 1 and Roof-space 2 are internally linked via a permanently open electro-magnet operated fire-stopping door situated within the wall dividing the two roof-spaces.
- Roof-space 3 and Roof-space 4 are internally linked via a permanently open electro-magnet operated fire-stopping door situated within the wall dividing the two roof-spaces.
- Roof-spaces 5, 6, 7, 8, 9 and 10 adjoin or are in the vicinity of each other. However, they do not appear to be internally linked.
- Roof-space 13 and Roof-space 14 are internally linked via gaps between the top of an internal dividing wall and the undersides of the roof structure.
- Roof-space 14 and Roof-space 15 are internally linked via a ($\approx 200\text{mm} \times 200\text{mm}$) hole within the brick dividing wall.
- Roof-space 16 and Roof-space 20 are internally linked gaps between the top of an internal dividing wall and the undersides of the roof structure.
- Roof-spaces 11, 12, 17, 18, 19, 21 and 22 do not appear to be internally linked to adjoining roof-spaces or structural features.
- Roof-space 23 is within a separate building and is not internally linked to any other feature.

The results of the surveys are summarised in the table below.

Please note:

- the term 'fresh' is used to describe evidence that has been recently created, earlier in the same bat active season (i.e. in year 2023).
- the term 'old' is used to describe evidence that has been created before the current bat-active season (i.e. in year 2022 and/or previous).
- recommendations are provided for how work relating to the proposed fire alarm system may be carried out without triggering legal offences against bats. See Recommendation/s column 'Alarm'.
- recommendations are provided for how work relating to fire stopping and compartmentation remedial works may be carried out without triggering legal offences against bats. See Recommendation/s column 'Stopping'.

Roof-space	Room	Main room/s below	Survey date	Findings	Assessment	Recommendation/s	
						Alarm	Stopping
1	RV02	-	28/04/23	- internally linked to Roof-space 2 via a permanently open electro-magnet operated fire-stopping door. ≈ 10 scattered fresh Brown long-eared droppings on floor/insulation throughout.	Brown long-eared: - probable occasional day roosting associated with maternity roosting in Roof-spaces 7, 9 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	B	-
2	RV03	-	28/04/23	- internally linked to Roof-space 1 via a permanently open electro-magnet operated fire-stopping door. ≈ 20 scattered fresh Brown long-eared droppings on floor/insulation throughout. ≈ 20 scattered old and intact Brown long-eared droppings on floor/insulation throughout. 1no. cluster ≈40 old and intact Brown long-eared droppings on floor/insulation beneath roof apex.	Brown long-eared: - probable occasional day roosting associated with maternity roosting in Roof-spaces 7, 9 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	B	-
3	RV01	-	28/04/23	- internally linked to Roof-space 4 via a permanently open electro-magnet operated fire-stopping door. ≈ 10 scattered old Brown long-eared droppings on floor/insulation throughout. 2no. clusters ≈30-40 old and intact Brown long-eared droppings on floor/insulation beneath roof apex.	Brown long-eared: - probable occasional day roosting associated with maternity roosting in Roof-spaces 7, 9 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	B	-
4	RV01	-	28/04/23	- internally linked to Roof-space 3 via a permanently open electro-magnet operated fire-stopping door. ≈ 6 scattered fresh Brown long-eared droppings on floor/insulation throughout. 1no. cluster ≈30 fresh Brown long-eared droppings on floor/insulation beneath roof apex. 1no. cluster ≈30 old and intact Brown long-eared droppings on floor/insulation beneath roof apex.	Brown long-eared: - probable occasional day roosting associated with maternity roosting in Roof-spaces 7, 9 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	B	-
5	RV04	-	28/04/23	none	-	A	-
6	RV06	-	28/04/23	≈10 scattered old Brown long-eared droppings on floor/insulation throughout.	Brown long-eared: - probable occasional day roosting associated with maternity roosting in Roof-spaces 7, 9 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	B	-
7	RV09, RV10	-	28/04/23	1no. (old) dead adult Brown long-eared found on floor surface. ≈100 old Brown long-eared droppings scattered on floor/insulation. 2no. clusters of ≈200 old Brown long-eared droppings on floor/insulation.	Brown long-eared: - maternity roost site associated with Roof-spaces 9, 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	C	-
8	RV08	-	28/04/23	≈10 scattered old Brown long-eared droppings on floor/insulation throughout.	Brown long-eared: - probable occasional day roosting associated with maternity roosting in Roof-spaces 7, 9 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	B	-
9	RV05, RV07	-	28/04/23	≈100 old Brown long-eared droppings scattered on floor/insulation. ≈15 fresh Brown long-eared droppings scattered on floor/insulation. 2no. clusters of ≈200 old Brown long-eared droppings on floor/insulation.	Brown long-eared: - maternity roost site associated with Roof-spaces 7, 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	C	-
10	T06	-	28/04/23	≈10 scattered old Brown long-eared droppings on floor/insulation throughout.	Brown long-eared: - probable occasional day roosting associated with maternity roosting in Roof-spaces 7, 9 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	B	-

Roof-space	Room	Main room/s below	Survey date	Findings	Assessment	Recommendation/s	
						Alarm	Stopping
11	-	KG05	28/04/23	≈5 scattered old Brown long-eared droppings on floor/insulation throughout.	Brown long-eared: - probable occasional day roosting associated with maternity roosting in Roof-spaces 7, 9 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	B	-
12	-	KG11, KG12	15/08/23	none	-	A	-
13	-	STG05, STG06	15/08/23	- numerous old Brown long-eared droppings on floor beneath roof apex. ≈4 fresh Brown long-eared droppings beneath roof apex.	Brown long-eared: - maternity roost site associated with Roof-spaces 7, 9 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	C	D
14	-	STG02, STG03, STG04	15/08/23	North-to-south section (above STG02, STG03): ≈200 old and ≈40 fresh Brown long-eared droppings scattered beneath the roof apex. 1no. (adult) Brown long-eared bat seen flying within the roof-space. East-to-west section (above STG04): - numerous old and fresh Brown long-eared droppings beneath the roof apex. 1no. cluster of ≈10 pup/juvenile Brown long-eared roosting on ridge board. 1no pup/juvenile and ≈6 adult Brown long-eared roosting within roofing felt-to-felt pocket (≈150mm down south roof-slope). ≈4 adult Brown long-eared roosting on ridge board.	Brown long-eared: - maternity roost site associated with Roof-spaces 7, 9 & 13. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	C	D, E
15	-	STG01	15/08/23	2no. groups of ≈8 old Brown long-eared droppings on floor (beneath roof-slopes). ≈10 old Brown long-eared droppings scattered on floor. ≈6 fresh Brown long-eared droppings scattered on floor. 1no. fresh Brown long-eared dropping found within the hole in the dividing wall between Roof-space 15 and Roof-space 14. (Cobwebs are also present within the hole). ≈6 old scattered Pipistrelle droppings on floor.	Brown long-eared: - probable night roosting & nocturnal exercise flying associated with maternity roosting in Roof-space 14. Pipistrelle: - probable occasional foraging - possible occasional day and/or night roosting	B	E
16	-	STG18	15/08/23	1no. cluster of ≈50 old Brown long-eared droppings on floor beneath roof apex.	Brown long-eared: - probable occasional day roosting associated with maternity roosting in Roof-spaces 7, 9 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	B	D
17	Stairwell	-	16/08/23	1no. cluster of ≈20 Lesser horseshoe droppings on bottom steps. 1no. cluster of ≈60 Lesser horseshoe droppings on top step.	Lesser horseshoe: probable occasional night roost of a lone bat.	A	-
18	-	STF01	16/08/23	none	-	A	-
19	-	STG16	16/08/23	≈10 old scattered Brown long-eared droppings on floor.	Brown long-eared: - probable occasional day roosting associated with maternity roosting in Roof-spaces 7, 9 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	B	-
20	-	STG19	16/08/23	≈80 old Brown long-eared droppings scattered on floor throughout. 1no. cluster of ≈200 old Brown long-eared droppings on floor beneath roof apex.	Brown long-eared: - probable occasional day roosting associated with maternity roosting in Roof-spaces 7, 9 13 & 14. - roosting within roof structure (beneath lead ridge capping & roof-slope batten-voids) & roof-space.	B	D
21	-	STG10, STG11, STG12	16/08/23	none	-	A	-

Roof-space	Room	Main room/s below	Survey date	Findings	Assessment	Recommendation/s	
						Alarm	Stopping
22	-	KF04. KF05, KF06, KF07	16/08/23	• none	-	A	-
23	-	The Hub	3	• ≈40 old Brown long-eared droppings scattered on floor/insulation throughout. • 1no. cluster ≈40 old Brown long-eared droppings on floor/insulation beneath roof apex. • ≈4 old Pipistrelle droppings on floor/insulation throughout.	Brown long-eared: • probable occasional day roosting associated with maternity roosting in Roof-spaces 7, 9 13 & 14. • roosting within roof structure (beneath ridge/hip cappings & roof-slope batten-voids) & roof-space.	B	-

5. Recommendations

5.1 Recommendation A

Roof-spaces 5, 12, 17, 18, 21 and 22 do not appear to be used by bats for roosting.
Bats do not impose timing or work method constraints.
Work may be carried out at any time of year.

5.2 Recommendation B

Roof-spaces 1, 2, 3, 4, 6, 8, 10, 11, 16, 19, 20, 23 appear to be used by bats for non-maternity summer roosting.
It is reasonably unlikely that these roof-spaces are used by bats for hibernation.

With the adoption of timing and work method constraints (i.e. mitigation); it is unlikely that work within the Roof-spaces 1, 2, 3, 4, 6, 8, 10, 11, 16, 19, 20, 23 will trigger Conservation of Habitats and Species Regulations 2017 (as amended) or Wildlife and Countryside Act (1981) offences against bats.

Work must adhere to the following timing and work method constraints:

Timing Constraints

- A. Ideally: no work between:
 - 1 May & 1 October
- B. Should work be necessary between 1 May & 1 October:
 - only one visit permitted per four-week period
 - work should be carried out as efficiently as possible and no visit should be longer than 30 minutes
 - use of power tools (or similar) is not permitted

Work Method Constraints

- C. The roof-space hatch/door may be opened for the minimal amount of time
- D. The door(s) of room(s) adjoining / below the roof-space(s) to be accessed must remain closed (to try and decrease air movement/draughts)
- E. The roof-space hatch/door must be closed after (the) worker(s) have entered the roof-space
- F. Low intensity artificial lighting to be used, only:
 - any permanent/hardwired lighting installed is not to be used
 - personnel may only use low-level (no more than 150 lumens) LED white light
 - personnel may use red-filtered LED light (of no more than 1000 lumen)
- G. No use of power tools between 1 May & 1 October
- H. No use of radios or other electrical/noise generating equipment between 1 May & 1 October
- I. Should (a) bat(s) be encountered within a roof-space / work area(s):
 - the bat(s) must remain untouched as found
 - personnel should exit the roof-space as quietly and quickly as possible
 - the work activity may be delayed and need to be rescheduled

5.3 Recommendation C

Roof-spaces 7, 9 13 and 14 are used (to varying levels) by Brown long-eared bat for maternity purposes.

It is reasonably unlikely that these roof-spaces are used by bats for hibernation.

Work within and near to these roof-spaces will need to be carried out when Brown long-eared bat are unlikely to be present within Roof-spaces 7, 9 13 and 14.

Roof-spaces 6 and 8 do not appear to be used by Brown long-eared bat to the same extent as Roof-spaces 7 and 9.

However, access to Roof-spaces 7 and 9 requires travel through Roof-spaces 6 and 8.

In addition, Roof-spaces 6, 7, 8 and 9 are structurally linked.

Therefore, timing and work method constraints that apply directly to Roof-spaces 7 and 9 also indirectly apply to Roof-spaces 6 and 8.

To avoid triggering Conservation of Habitats and Species Regulations 2017 (as amended) and Wildlife and Countryside Act (1981) offences against bats; work within Roof-spaces 6, 7, 8, 9, 13 and 14 must adhere to the following timing and work method constraints:

Timing Constraints

- A. No work between:
- 1 May & 1 October

Unexpected discovery of (a) bat(s)

- B. Should (a) bat(s) be encountered within a roof-space / work area(s):
- the bat(s) must remain untouched as found
 - personnel should exit the roof-space as quietly and quickly as possible
 - the work activity may be delayed and need to be rescheduled

5.4 Recommendation D

Roof-space 13 and Roof-space 14 are internally linked via gaps between the top of an internal dividing wall and the undersides of the roof structure.

Roof-space 16 and Roof-space 20 are internally linked gaps between the top of an internal dividing wall and the undersides of the roof structure.

Bats may use these gaps to travel between the adjoining roof-spaces.

However, it is likely that bats will primarily gain access to each roof-space from the exterior.

All matters considered; the existence of the gaps between the roof-spaces are unlikely to be of critical importance to bats roosting within Roof-spaces 13, 14, 16 and 20.

This being said, should fire stopping and compartmentation remedial work require the infilling of the gaps between the top of an internal dividing wall and the undersides of the roof structures, the following should be carried out:

- within 24 hours of the proposed infilling of the gaps; the gaps and their immediate environs should be inspected (ideally by a suitably qualified ecologist) for physical evidence of bat.
- should no evidence of bat be found:
 - the gaps may be infilled as planned.

- should evidence of bat be found within or in the vicinity of the gaps;
 - the proposed infilling of the gaps will need to be postponed and rescheduled.
 - surveys should be carried out to try and establish the importance of the gaps to bats.
 - should it be determined that gaps are of importance to bats roosting within Roof-spaces 13, 14, 16 and/or 20; it may be necessary for a Licence to be issued by Natural Resources Wales to allow the gaps to be lawfully infilled.

5.5 Recommendation E

Roof-space 14 and Roof-space 15 are internally linked via a ($\approx$ 200mm x 200mm) hole within the brick dividing wall.

The hole appears to be used by Brown long-eared bat, and possibly other bat species, as a route to move between the two roof-spaces.

The presence of cobwebs within the hole indicate that the hole is not frequently used by bats. In addition, bats may gain access to Roof-space 14 and Roof-space 15 from the exterior of the building. Roof-space 14 and Roof-space 15 provide large (indoor) flight areas for bats.

All matters considered; the existence of the hole between the two roof-spaces is, therefore, unlikely to be of critical importance to bats roosting within Roof-space 14 and/or Roof-space 15.

This being said, should the proposed fire alarm installation work and/or fire stopping and compartmentation remedial work require the infilling of the hole between Roof-space 14 and Roof-space 15, the following should be carried out:

- within 24 hours of the proposed infilling of the hole; the hole and its immediate environs should be inspected (ideally by a suitably qualified ecologist) for physical evidence of bat.
- should no additional (to that recorded in this report) evidence of bat be found:
 - the hole may be infilled as planned.
- should additional (to that recorded within this report) evidence of bat be found;
 - the proposed infilling of the hole will need to be postponed and rescheduled.
 - surveys should be carried out to try and establish the importance of the hole to bats roosting within Roof-space 14 and/or Roof-space 15.
 - should it be determined that the hole is of importance to bats roosting within Roof-space 14 and/or Roof-space 15; it may be necessary for a Licence to be issued by Natural Resources Wales to allow the hole to be lawfully infilled.

Should survey work reveal that the hole between Roof-space 14 and Roof-space 15 is of importance to bats and/or the National Trust wishes to provide enhancement for roosting bats; a (small) electro-magnet operated fire-stopping door may be installed within the wall between Roof-space 14 and Roof-space 15.

Appendix 1. Roof-space plans.

