

BERNWOOD ECOLOGY

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St. George's, West Grinstead Sussex

DEFRA and Bats in Churches Project

2nd October 2023

Site: St George's Church, West Grinstead,
West Sussex, RH18 8NF
Grid reference: TQ1709120682
BiC Class Licence: WML-CL32
Your Site Reference: B32RC028-22B
Licence Period: 1st August 2020 to 31st December 2023
Licence Monitoring: 2020-2023

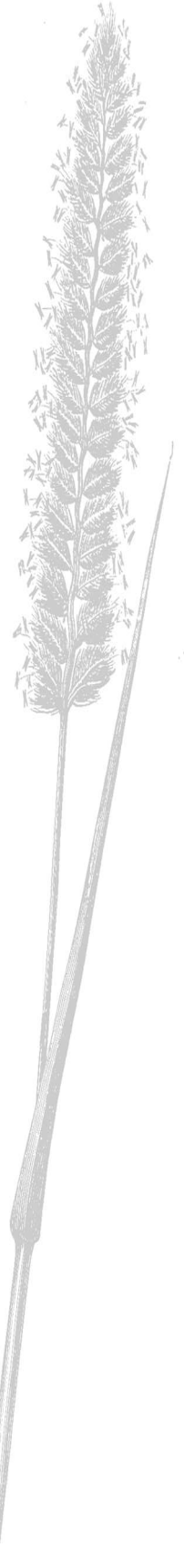
Background

Bernwood Ecology have undertaken post-development monitoring for bat activity at St George's Church, West Grinstead. The purpose of this monitoring is to evaluate the effects of works to the roof and porch of the church to the bat population (small maternity roost of Natterer's bat *Myotis nattereri*, and day roosts of common pipistrelle *Pipistrellus pipistrellus* and brown long-eared bat *Plecotus auritus*) previously occupying the church. This work was undertaken as the church community was concerned about the damage to monuments and the building fabric arising from bat faeces and urine staining, as well as finding the required cleaning and maintenance of the church costly and onerous.

Delays in the commencement of capital works were caused by environmental (internal humidity and temperature) monitoring and subsequently by the COVID-19 pandemic. The construction of the ceiling commenced September 2021, beginning with the levelling of the beams; however, the timber treatment did not dry by late November 2021. Further project delays were caused as working during the winter hibernation period was deemed to carry too high of a risk to bat welfare. The boarding works were therefore delayed until Spring 2022. The porch was also re-roofed at the same time.

Previous Ecological Survey

There was heavy rain for part of the dusk survey on 10th June 2019; however, both Natterer's and pipistrelle bats still emerged from the roosting locations in the roof structure (gables and timbers) and flew inside the church, which allowed for a reasonable estimate of numbers of bats to be determined using infrared and thermal imaging scopes. The weather conditions for the dawn re-entry survey (11th June 2019) significantly improved. The Natterer's and common pipistrelle bat numbers declined with the following two surveys in 2019 (23rd July and 27th August). The peak count of



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Natterer's and pipistrelle bats observed in 2019 aligned with the count undertaken by David King in 2011 as part of a Volunteer Bat Roost Visit (VBRV) survey.

One dusk emergence survey was carried out on 2nd July 2020, owing to delays in bringing forward proposals while environmental conditions at the church were being monitored and assessed by a historic building specialist (Tobit Curteis Associates), and due to national COVID-19 restrictions.

Two emergence surveys were carried out in 2021 (14th June and 17th August). Though surveys in 2021 contractually were intended to be post-development surveys, delays to the work programme prevented any works being undertaken prior to these surveys.

In 2022, two post-development monitoring bat emergence surveys were undertaken (14th June and 5th July). These found at least one brown long-eared bat using the bell tower on both surveys, common pipistrelles emerging from the tower (one) and the southern aspect of the church (two) on the second survey. No emergence of Natterer's bat from the church identified on either dusk survey.

Full details of the surveys prior to ceiling installation are in Appendix 1, and of all surveys to date are included in Appendix 2

Limitations

Ecological assessments can be used to draw conclusions as to the presence or likely absence of a species, population size, use of the site etc. Any ecological survey is a snapshot in time and should not be regarded as definitive nor complete.

Every professional effort and due diligence have been applied to provide an accurate ecological assessment of the site at the time of the preparation of this report, but no liability can be assumed for omissions, or subsequent changes to design and development.

No responsibility will be accepted for any use of or reliance on the contents of this report by any third party. No responsibility will be accepted for changes or alterations made to this report following submission to Bernwood Ecology client.

Bernwood Ecology, its employees and associates reserve the right to report on any incidents or actions (deliberate or reckless) that result in a breach of licence conditions or are in contravention of existing legislation.

Bats in Churches Class Licence Post-Development Monitoring

Bernwood Ecology have undertaken post-development monitoring for bat activity at St Georges Church. The purpose of this monitoring is to evaluate the effects of the ceiling installation and re-roofing of the porch on the bat populations associated with the church, in line with demonstrating the Favourable Conservation Status (FCS) and Continued Ecological Functionality (CEF) of the roosts.

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The further monitoring (two activity surveys) required by the Bats in Church Class Licence (BiCCL), expiring 31st March 2024, funded by the Bats in Churches Project, took place in the optimal survey period of 2023.

Additional monitoring in the form of evaluating the success of the interventions on the church community and the church (opinion-based questionnaire), also required, took place in August 2023.

Licence Monitoring Methodology

Favourable Conservation Status and Continued Ecological Functionality

Objective: the continued presence of a Natterer's bat roost either using the pre-existing roost features and/or the enhanced bell tower; and the continued presence of low numbers of common & soprano pipistrelle in church, and brown long-eared bat in porch using mitigation features and or naturally present features.

The FCS/ CEF has been monitored in 2023 through:

- yearly activity surveys (one pre-maternity and one post-maternity) using remote bat detectors, infrared and thermal image scopes.
- visual inspection and monitoring of the new ceiling void using temperature and humidity dataloggers (monitoring being implemented by TOBIT CURTEIS ASSOCIATES LLP).

Table 1. 2023 Survey requirements as set out in licence registration (section 41 project plan).

Item	Year	Details
3.	2023	Monitor impacts of interventions (both the ceiling voids and tower) in summer 2023 by means of visual inspections and an emergence/re-entry survey. The early season (May) survey is likely to be critical to getting a peak count of bats, given survey results in 2019. A later survey in the season (July) will enable an understanding as to whether the intervention has provided a more favourable roosting environment which could see the numbers increase. The data logger will be downloaded during the site surveys and retained for future comparison. Static bat detectors can be used inside the tower where evidence suggests uptake of this area as a roosting location.

The results will be used to assess the need for compensatory roost remedial works where roost emergence data suggests a $\geq 20\%$ decline in the number of Natterer's (accounting for typical annual variations between Natterer's bat population counts) bats present and using the church on an annual basis including environmental conditions (temperature & humidity).

Bat emergence/re-entry surveys are undertaken using Anabat Walkabout full spectrum handheld detectors and Pettersson 240X time expansion handheld detectors recording to Tascam digital audio recorders. Canon XA20, Canon XA30, and Sony HDR SR5 night-shot

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video cameras paired with infrared lights, were used, in addition to a Pulsar Helion thermal imaging scope and a FLIR Scion OTM266 thermal monocular camera.

Tobit Curteis of Tobit Curteis Associates LLP has undertaken the environmental monitoring surveys as required by the licence (Appendix 3). It is understood that further monitoring will take place over the winter of 2023/2024.

PCC Interviews

In addition, monitoring is required to determine how successful the mitigation measures are at meeting the objectives of the intervention (in this case the installation of the ceiling). For St. George's, this was first carried out in 2022. This monitoring is carried out through questionnaires completed by the Parochial Church Council (PCC) to identify if the mitigation has:

- resolved the issues related to damage to the church from bat droppings and urine.
- alleviated disruption of the churches mission including services, weddings, funerals and community use of the church.
- resulted in a reduced burden of cleaning.

This will be measured by observation of the presence of bat droppings within the open public space of the church on a scale of;

- 0 absent,
- 1 low levels of scattered droppings,
- 2a minor concentrations of dropping indicative of small roost presence inside public open space in church
- 2b minor concentration of bat droppings indicative bat access points inside open public space of church
- 3 moderate / high¹ concentrations of bat droppings indicating higher numbers of bats inside of the public open space of church indicative of maternity roost(s) or roosts of higher conservation significance.

In 2023, the PCC have given a score of '0' for their questionnaire, indicating the complete absence of bat droppings within St George's church following the installation of the ceiling. This score indicates that at this current time the issues of ongoing damage to the fabric and monuments of the church, due to the presence of bats within the open public spaces of the building, have been resolved.

The PCC state that there is no longer any disruption to the churches mission of hosting services, weddings, funerals and other community events. Furthermore, it is affirmed that the community of St. George's appreciate the reduction in bat mess within the church, and that the burden of cleaning up this mess has been lifted.

¹ Moderate: Where accumulations of droppings build up between services and require additional cleaning effort beyond normal/winter cleaning standards.

High: Where accumulations of droppings are unmanageable and prevent services, weddings, funerals, etc., taking place.

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Bat Surveys

2019

There was a total of four dusk/ dawn bat activity surveys undertaken.

2020

A single dusk bat emergence survey was undertaken.

2021

Two dusk bat emergence surveys were undertaken.

2022

Two dusk bat emergence surveys were undertaken.

2023

Two dusk emergence surveys took place.

These surveys identified that:

- Four Natterer's bats emerged from the access point on the southern aisle (20th June).
- A total of three common pipistrelles emerged from the southern aisle access point (one on 20th June and two on 21st August).
- Five common pipistrelles emerged from the rooftiles on the southern aspect of the tower each survey (two on 20th June and three on 21st August).
- Three common pipistrelles emerged from the southern eaves of the church, and one from the belltower eaves (21st August).
- One barbastelle was found perching on a roofbeam of the northern porch (20th June), and one Natterer's bat was found perching in the same spot (21st August).

A summary of peak counts of each bat species observed during the bat emergence/ re-entry surveys each year can be found in Table 2, and full details in Appendices 4 & 5.

Table 2. Summary of peak emergence counts by species (all surveys by year), including perching bats.

Species	2019	2020	2021	2022	2023
Natterer's bat	30	7	10	0	5
Common pipistrelle	3	2	2	3	12
Soprano pipistrelle	2	1	1	1	0
Brown long-eared bat	-	-	1	1	0
Barbastelle	-	-	-	-	1

Effectiveness of interventions

Following the third year's completed post-development monitoring, the small numbers of Natterer's bats roosting above the ceiling (emerging via the southern aisle access point) suggests the FCS and CEF have not currently been met. Given the short interval that has

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elapsed since the completion of works in 2022 with its disruption to bat roosting, the low numbers of Natterer's and other bats in 2023 is not surprising and may be indicative that the interventions will be used by increasing numbers of bats over the coming years.

Licence Obligations

The site registration period is from 1st September 2021.

A licence return form must be completed and sent this to Natural England (BatsinChurchesCL@naturalengland.org.uk) by 15th January in each year of site registration, to report on the previous calendar year.

A final licence return must be sent to Natural England within four weeks of the end of the site registration period. The site registration period is expected to be from 1st September 2021 until March 2024.

Recommendations

The following is recommended going forwards:

- The St Georges PCC approach the local, Sussex Bat Group, to continue the monitoring, twice a year, as part of the NBMP.

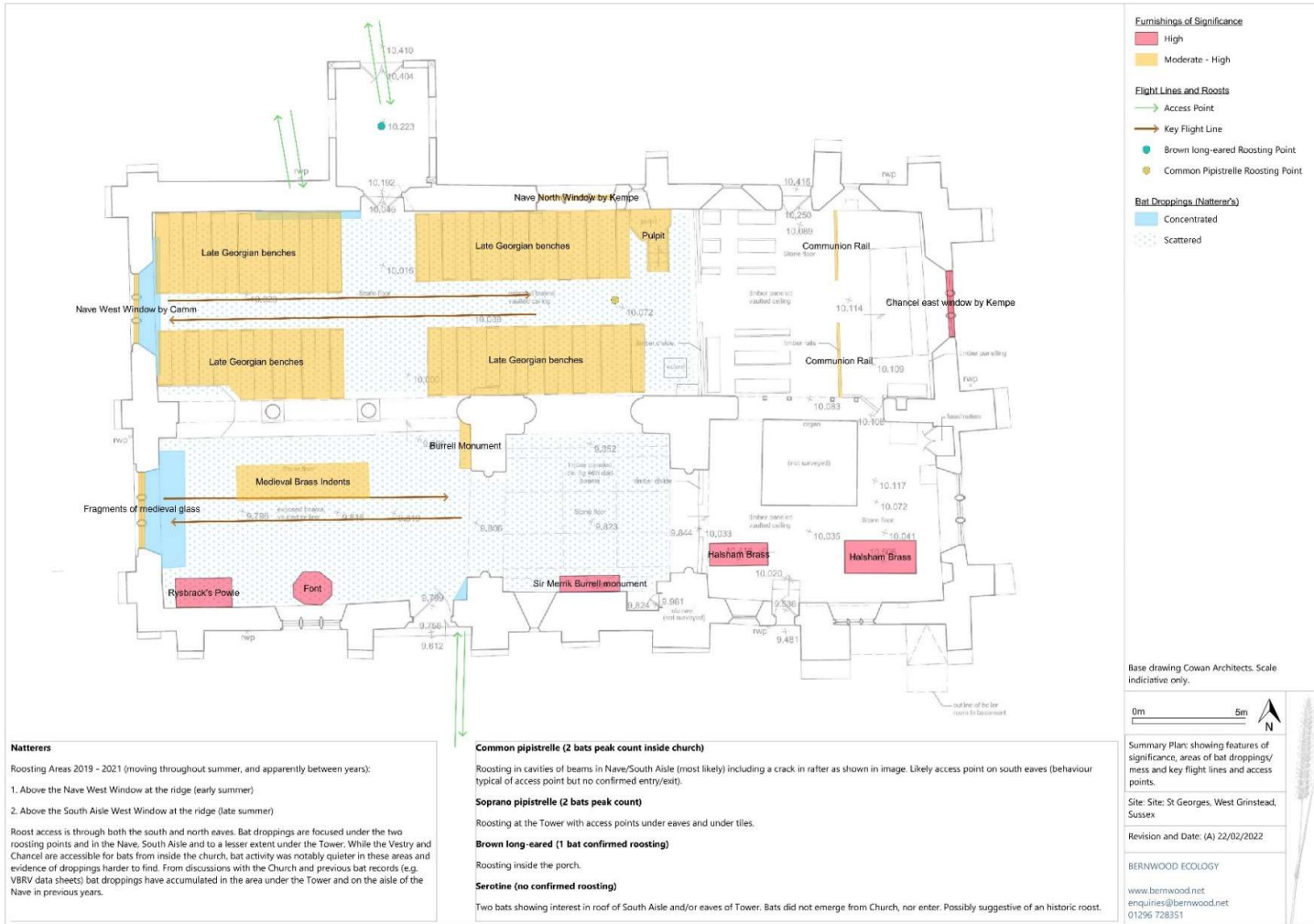
Report Information

Report Author: S. Sanchez, MSc. ACIEEM, Ecologist
Report Editor: C. Damant, MCIEEM, Company Director

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Appendix 1. Bat surveys summary plan 2019-2021 (prior to ceiling installation).



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Appendix 2. Bat emergence surveys undertaken at St. Georges for the Bats in Churches project.

Year	Date	Survey Type	Emergence/ Re-entry Survey Number	Surveyor Initials
2019	10/06	Dusk	1	CD/ED/JS/DK
	11/06	Dawn	2	CD/ED/JS/DK
	23/07	Dusk	3	ED/JS/DK/JF
	27/08	Dusk	4	ED/DK/JF
2020	02/07	Dusk	1	Four surveyors used
2021	14/06	Dusk	1	Four surveyors used
	17/08	Dusk	2	Four surveyors used
2022	14/06	Dusk	1	ED/SS/SF/AD

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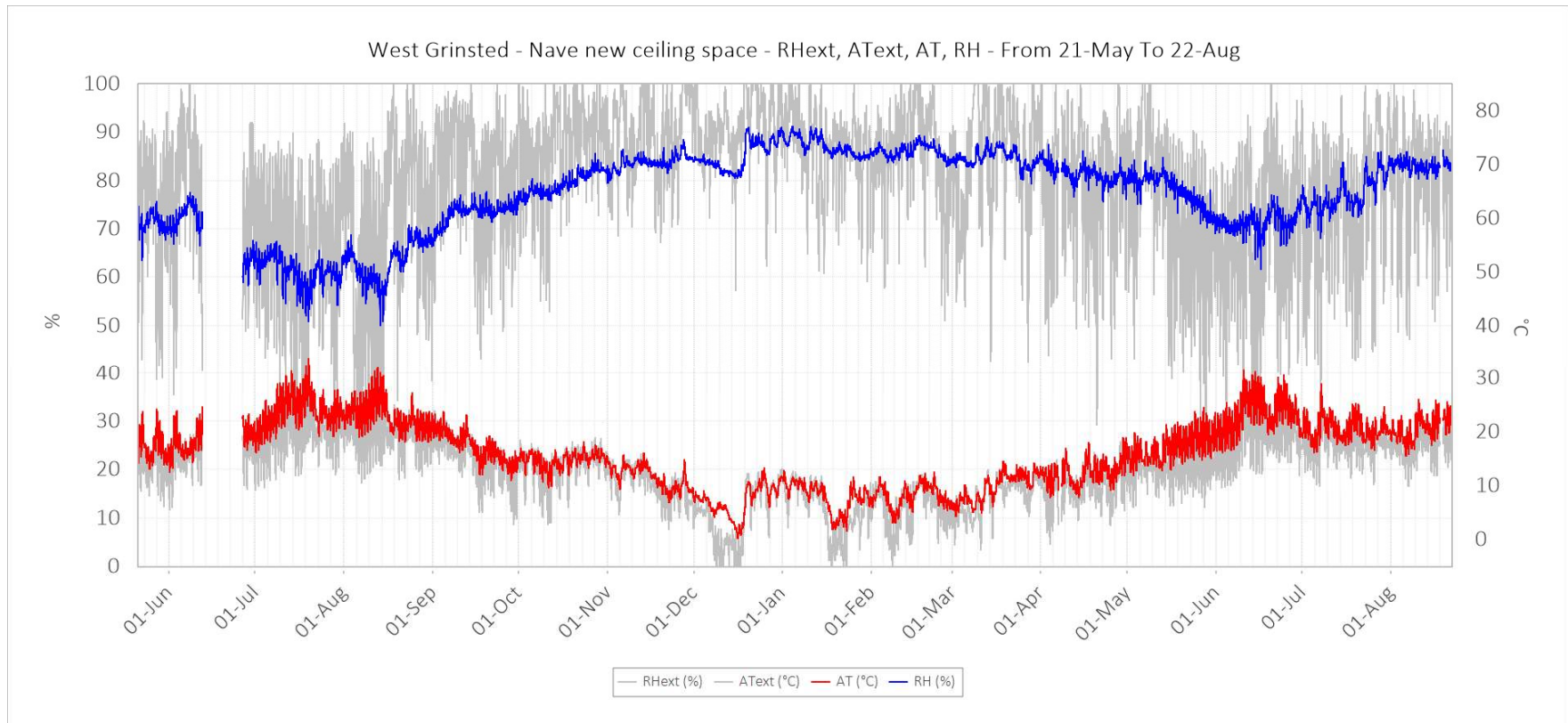
Appendix 2. Continued.

Year	Date	Survey Type	Emergence/ Re-entry Survey Number	Surveyor Initials
2022	05/07	Dusk	2	ED/SS/HH/SF
2023	20/06	Dusk	1	JS/SS/ZP/MD
	21/08	Dusk	2	CD/SS/MD/SF

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Appendix 3. Temperature and humidity data graph for the summer of 2023. Image courtesy of Tobit Curteis.



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Appendix 4. Summary of bat activity per year.

Year	Summary
2019	<p>Across all 2019 surveys</p> <ul style="list-style-type: none">• A Natterer's roost was found at the apex of the east wall of the nave.• Pipistrelles observed emerging from central roof timbers of nave.• Low numbers of further Myotis bats observed emerging from south aisle of the church.• Natterer's observed re-entering the church via northern access point near to the porch during the dawn survey.• Adult male pipistrelle and brown long-eared bat caught through the use of a mist net outside of the porch (north side of the church on the east end).• Three bat faecal samples confirmed Natterer's presence inside the church through laboratory analysis.• The Natterers' roost (peak count of 30 bats) was estimated to be a maternity roost.
2020	<p>2nd July 2020</p> <ul style="list-style-type: none">• A peak count of seven Natterer's bats were observed emerging from the west and northern sides of the church, and some re-entered during the survey.• Early common pipistrelle activity, roost site was undetermined.• Frequent common pipistrelle passes, as well as a serotine pass were noted through the survey.• Common pipistrelles were seen foraging in the woods to the west.• One brown long-eared bat observed from the porch.• Noctules were heard passing above the church.
2022	<p>14th June 2022</p> <ul style="list-style-type: none">• No bats or evidence of bats was found within the church.• No emergence or re-entry of bats observed.• Serotine, common pipistrelle, and soprano pipistrelle observed passing the building and foraging during the survey. <p>5th July 2022</p> <ul style="list-style-type: none">• One brown long-eared bat was observed inside the tower, as well as one brown long-eared observed emerging from the tower on the eastern aspect.

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Appendix 4. Continued.

Year	Summary
2022	<ul style="list-style-type: none">• One common pipistrelle emerged from the southern aspect of the tower.• Two common pipistrelle emergences were observed from the western side of the southern aspect of the church.• Multiple common pipistrelles foraged around the north-west corner of the church and a noctule was observed passing late into the survey.
2023	<p>20th June 2023</p> <ul style="list-style-type: none">• No bats nor evidence of bats were found within the church.• Four Natterer's emerged from the southern aisle's access point.• Two common pipistrelles emerged from the southern aisle access point.• Two common pipistrelles emerged from rooftiles on the southern aspect of the tower.• One barbastelle found perching on the ridge beam under the porch. <p>21st August 2023</p> <ul style="list-style-type: none">• No bats nor evidence of bats were found within the church.• Two common pipistrelles emerged from the southern aisle access point.• Three common pipistrelles emerged from the southern aisle's eaves.• Three common pipistrelles emerged from the rooftiles on the southern aspect of the tower, and one from its eaves.• One Natterer's bat found perching on the ridge beam under the porch.

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Appendix 5. Bat surveys summary plan 2023.

