

BERNWOOD ECOLOGY

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St Mary the Virgin, Wetherden Suffolk

DEFRA and Bats in Churches Project

31st December 2022

Site:	St Mary the Virgin, Wetherden, Suffolk, IP14 3LB
Grid reference:	TM0085462780
BiC Class Licence:	WML-CL32
Your Site Reference:	B32RC006-5A
Licence Period:	01 March 2020 to 31 December 2023
Licence Monitoring:	2020 - 2023

Background

St Mary's, Wetherden has been recorded as struggling with problems caused by the presence of a medium roost of Natterer's *Myotis nattereri* bats since 2007 when the issue was described as 'horrendous'. A marriage services at the church was interrupted due to bats. This resulted in all weddings at the being stopped.

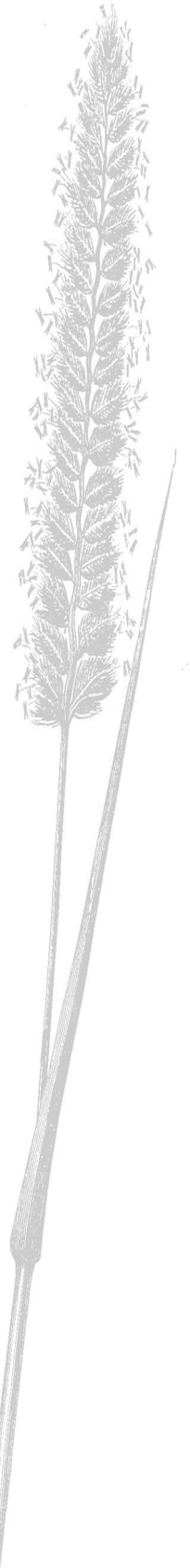
The church hosted a bat symposium in 2009 which included presentations by the Diocesan Advisory Committee for the Care of Churches, Church Building Council, Movement Against Bats in Churches, English Heritage, Suffolk Wildlife Trust and Natural England.

Following surveys carried out in 2019 it was concluded that St Mary's the Virgin Church in Wetherden supported a medium population (30-50) of Natterer's bats together with a small roost of Serotine, Common pipistrelle and occasional Soprano pipistrelle.

Through the Bats in Churches Project the church community aimed to see the church return to a place of a worship after the difficulties of hosting community events and services as a result of the mess created by bats (faeces and urine).

Bats in Churches mitigation (2020) included creation of;

- boxed in eaves along south wall of the chancel
- two bespoke bat boxes on the eaves of the south aisle
- sealing parvis chamber to provide secure roost space and controlling bat access to the main body of the church.



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The intervention included one year's habituation (2021).

One way exclusion was implemented over 5 days prior to the eaves boxes being sealed under contract on the 5th September 2021. The method used in 2021 was the insertion of Constantine exclusion devices in 1 chancel eaves box and 1 south aisle eaves box, located in the position of the primary emergence and re-entry points for bats into and out of the church.

Up to 50 *Myotis nattereri* and two *Pipistrellus pipistrellus* bats emerged inside the church on the evening of the 2nd September 2021. The *Myotis nattereri* appeared to be roosting in the roof timbers at in the upper south west corner of the chancel.

After an initial period of hesitancy bats were seen to leave both access points and not return. By the 23:00hrs on the first night all but 7 *Myotis nattereri* appeared to have left the building. The chancel bat access exclusion device was removed following a period of inactivity. The access point was sealed by a piece of ply (cut to fit on the night). At the same time a mist net was placed at the west end of the chancel where an archway gave access to the south aisle in order to facilitate exclusion given the small number of bats remaining. The archway appeared to be a significant flight corridor between the chancel and south aisle. Three *Myotis nattereri* (Females 1x juvenile, 2 x parous adult) were caught, fur clipped and released outside the church.

By 00:00hr bat activity appeared to have declined to a maximum count of three, however when finishing the survey a further 4 *Myotis nattereri* bats appeared, leaving a total of 7 bats still present. This raised the question of whether bats were returning inside the building. An external inspection of the south aisle confirmed the presence of two access points to the middle eaves box however a third access point was also potentially present where lime mortar appeared to have fallen away.

Additional external inspections revealed a hole in the north aisle boxed eaves (extreme west end) together with areas of rotting boarding. Gaps around the door frame were noted and a small number of droppings found on the surface (possibly *Pipistrellus* species).

The attempted exclusion did not succeed. It appeared likely that bats were continuing to access the main body of the church due to missing mortar around south aisle eaves or failed sealing of the eaves bat boxes (see file note dated 6th September 2021).

Bat droppings including possible *Eptesicus serotinus* were noted in the parvis (north west corner) near the main bat access (crack in wall).

Reports from the church community (winter/spring 2021/22) of bat droppings being present post exclusion indicated that the exclusion had not worked and that bats continued to access the inside of the main body of the church.

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Two post intervention monitoring surveys were carried in 2022 with the objective of identifying how bats were accessing the inside of the church. It was intended that the first survey would be used to re-install one way Constantine exclusion measures prior to the maternity period should sufficient evidence of bat access points be observed, however, insufficient numbers of bats emerging from the building were observed to allow this action to take place. The second survey was used to target the peak post maternity period and maximise the opportunity to identify bat access points.

A further exclusion period was attempted in early September 2022. The external elevation of the south aisle roof, where the lead roof overlays eaves boards that sit in front of the brick and flint wall were inspected with torches and endoscope. Examination revealed that areas of lime and hair mortar had locally fallen to create numerous gaps between the eaves board and stonework. Some eaves board beading was unattached.

Following inspection of the cavities and behind the external south aisle eaves boarding, where not associated with the two bat boxes, were temporary filled using Rockwool. In one location untreated seasoned oak was affixed with screws.

An exclusion devise (one way plastic bags) was re fitted to the bat access points on the south aisle to allow bats to safely leave the building over a two night period. Following this period the one way closure, previously glued in place, was affixed with oak baton and screws.

Constant but low numbers of Natterer's bats together with an individual Serotine, common pipistrelle and brown long-eared *Plecotus auritus* bats appeared to be present inside the church. The Natterer's bats were roosting in the roof timbers in the upper south west corner of the chancel. Observation indicated a possible Brown long eared at the apex of the nave at the east end.

Mist nets were placed at the west end of the chancel where an archway gave access to the south aisle in order to facilitate exclusion given the low number of bats present.

Following the Post Mitigation Monitoring (PMM) surveys of the 5th and 6th September 2022 it is clear that Natterer's bats continue to use the inside of the church. Small numbers of both Common pipistrelle *Pipistrellus pipistrellus* and Serotines *Eptesicus serotinus* bat are also present.

It appears, despite reclosing the bat box and infilling cavities with Rockwall, that bats continue to gain access via and/or around the middle eaves bat box.

Table 1: Summary of bat use of intervention measures

Chancel South	Only occasional bats seen emerging over 2021 and 2022 survey period. Birds are nesting in bat access point.
Eaves Box	

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South Aisle Internal endoscopic investigation saw no bat droppings evident
Bat Box 1 however access was very limited

South Aisle Internal endoscopic investigation saw abundant bat droppings
Bat Box 2 however gaps in closed up bat access point and along internal
 eaves level would indicate bats are getting both through and
 around this bat box

Parvis Roof Serotines droppings abundant with other mixed droppings
 including Natterer's

Lead Flashing No sign of use by bats

Limitations

Ecological assessments can be used to draw conclusions as to the likely presence or absence of species (animals and plants), population size, use of the site by animals

Any ecological survey is a snapshot in time and should not be regarded as definitive nor complete.

The preparation of mitigation strategies, consultation exercise and submission of any licence applications cannot be relied upon until approved (licensed) in writing by the Statutory Nature Conservation Organisation. Allowance must be made for both programme and financial change to projects as a result of application failure, amendment, or refusal.

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. Additional works should be anticipated as surveys and proposals for the site progress.

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.

BiC Class Licence Monitoring

Bernwood Ecology have undertaken post-development monitoring for bat activity at St Mary's Church, Wetherden.

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The purpose of this monitoring is to evaluate the effects of the insertion of Constantine exclusion devices in the chancel eaves box and the south aisle eaves box to the bat population (Natterer's maternity roost, common pipistrelle, soprano pipistrelle *Pipistrellus pygmaeus*, and Brown long-eared bats) previously occupying the church.

The Bats in Church Class Licence (Chris Damant B32RC006. Site Reference B32RC006-5A) requires further monitoring (2 x activity surveys) funded by the Bats in Churches Project to take place in 2023.

Additional monitoring in the form of evaluating the success of the interventions on the church community and the church is also required.

Licence Monitoring Methodology

Favourable Conservation Status and Continued Ecological Functionality

Table 1. 2022 Survey requirements as set out in licence registration (section 41 project plan)

Item	Year	Details
5.	2022	Monitor impacts of newly created bat boxes (2 way use) June/July 2020 Monitor impacts of exclusion (closure of two way access to main body of church) August / September 2022. Methods Dusk emergence survey x2 (1 pre, 1 post maternity) Remote bat detectors Temperature and humidity loggers IR cameras

PCC Interview

A questionnaire was emailed to the PCC of St Mary's Church in January 2022, concerning the views of the community in regards to the use of bats within St Mary's over the course of 2021. The PCC were asked to indicate the views of the community regarding ongoing damage to fabric and monuments of the church, using a scale of 0-3. The PCC gave a score of '3', indicating 'Moderate / high concentrations of bat droppings indicating continued access of bats to the inside of the public open space of church and the continued presence of bat maternity roost(s) being present inside the church'. The PCC stated that the attempted interventions had not reduced any disruption to the church's mission of delivering services, weddings, funerals and community usage, and that the community felt frustrated and distressed.

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A second questionnaire was emailed to the PCC of St Mary's Church in October 2022. The PCC again gave a score of '3'. Unfortunately at this time the interventions have not resulted in a reduction or resolution of the issues relating to ongoing damage to the monuments and fabrics of the church. It was stated that the interventions have now reduced the disruption to weddings and community events held at the church, but have not reduced any disruption to services and funerals being held.

The PCC indicated that the burden of cleaning up mess as a result of bat activity within the church has not been reduced or resolved, and that the community of St Mary's church feel frustrated and disappointed by the continued significant presence of bats within the building.

Bat Surveys

2019

Three dusk emergence and one dawn re-entry surveys were undertaken in 2019 (Appendix 1).

2020

Two dusk emergence surveys were undertaken in 2019 (Appendix 1).

2021

Four dusk emergence surveys were undertaken in 2021 of which three were combined with attempted exclusion of bats from the church (Appendix 1).

2022

Four dusk emergence surveys, as well as mist netting within the chancel of the church was undertaken in 2022.

Effectiveness of interventions

The implemented interventions does not appear to have worked and following investigation gaps in eaves mortar on the south aisle and failure in the eaves bat box sealing up are thought to be the cause.

Licence Obligations

The site registration period is from 1st March 2020 until December 2023.

Annual monitoring is required in 2023 as set out in the licence registration.

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

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A final licence return must be sent to Natural England within 4 weeks of the end of the site registration period. The site registration period is expected to be from 1st March 2020 until December 2023.

Recommendations

Table 2. Monitoring survey requirements as set out in licence registration (section 41 project plan).

Item	Year	Details
6.	2023	2023 Review of need for ongoing monitoring Dusk emergence survey x2 (1 pre, 1 post maternity)

A meeting between the PCC, project architect, licensed ecologist and the Bats in Churches Project reviewed the findings and it is proposed to tender a more detailed investigation and corrections of faults in early 2023 although full funding is to be determined based on tender return costs.

Subject to these works being completed a final attempt to exclude bats from the inside of the church will be carried out in spring 2023. Given the limited time remaining for the project works to be completed it is proposed, but not agreed, to utilise money set aside for radio tracking to fund the works and that no radio tracking will be carried out (subject to Natural England approval).

Two dusk emergence surveys will be carried out in 2023. One survey will be carried out in spring on the night all works are completed as part of any exclusion process, should funding for this work be made available.

There is no provision for monitoring under the Bats in Churches Project in 2024.

Report Information

Report Author: M. Davis BSc., CIEEM Qualifying Member, Assistant Ecologist
Report Editor: Chris Damant MCIEEM

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Appendix 1. Bat emergence surveys undertaken.

Year	Date	Survey Type	Emergence/ Re-entry Survey Number	Surveyor Initials
2019	21/05	Dusk	1	CD/GR/CW/MG/JC
2019	22/05	Dusk	2	CD/LW/DS
2019	01/07	Dusk	3	CD/JC/MG/CW/SL
2019	20/08	Dusk	4	CD/CW/JC/LW
2020	29/6	Dusk	1	MHE
2020	10/8	Dusk	2	MHE
2021	8/6	Dusk	1	CD/CW/GR/MG
2021	2/9	Dusk/Exclusion	2	CD/CW/+1
2021	3/9	Dusk/Exclusion	3	CD/CW

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2021	8/9	Dusk/Exclusion	4	CD/CW
2022	16/05	Dusk	1	CD/CW/JW/LW
2022	12/07	Dusk	2	CD/CW
2022	05/09	Dusk/ Mist netting	3	CD/CW/JB
2022	06/09	Dusk/ Mist netting	4	CD/CW/JB

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Appendix 2. Summary of bat activity surveys.

Year	Date	Summary
2019	21/05 Dusk	<p>Common pipistrelle (3/4) noted early in survey.</p> <p>Natterer's roost (three separate points) of hammerbeam timbers above the alter with evidence of roost switching during emergence (thermal imaging). An additional hot spot (thermal imaging) noted on a hammer beam in front of the organ (west end of the nave), possibly pipistrelle roost.</p> <p>Both common pipistrelle and Natterer's bats emerged from multiple points of the eaves on the south side of the south aisle.</p> <p>A single serotine was recorded inside the church during the middle of the night through to early dawn, however no dusk emergence or dawn re-entry was recorded.</p> <p>No emergence noted from the north side of the church.</p>
2019	22/05 Dawn	<p>21 Natterer's bats entering the church where the south aisle abuts the chancel.</p> <p>A single common pipistrelle entered the church on the south side of the south aisle. Natterer's dawn swarming and entering (no count) on the south side.</p> <p>Single common and possible soprano pipistrelle entered the eaves on the north side of the nave.</p>
2019	01/07 Dusk	<p>Natterer's emergence from three roost points of hammer beams of the chancel above the alter.</p> <p>46+ Natterer's emerged from the south side of the south aisle (multiple access points).</p> <p>Common pipistrelle emergence from where the south aisle abuts the chancel.</p> <p>Single common pipistrelle emerged from the eaves, north side.</p> <p>Serotine heard.</p>
2019	20/08 Dusk	<p>Natterer's roost in hammerbeam timbers above the alter.</p> <p>13+ Natterer's emerged from south side of south aisle with Natterer's re-entering from 21:20, some 1 hr and 20 minutes after sunset.</p> <p>17+ Natterer's emerged from where south aisle abuts chancel. Possible single common pipistrelle emergence from porch (south side).</p>

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2020	29/6 Dusk	Note: Scaffold restricted both external and internal visual observations and reliable emergence counts. Natterer's bat continued to use both bat access points previously noted with bat droppings records by church warden recording use consistent with previous years. Peak count is therefore estimated only.
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Based on droppings records (CW 29/6/2020) indicated roost points in hammer beams broadly consistent with previous years.

2020	10/8 Dusk	Single serotine recorded inside church Common pipistrelle emergence (2) from north side of nave. New roost point (emergence 5-7) identified (external, south west corner of nave)
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2021	8/6 Dusk	Natterer's roost was present during 2021 peak maternity period to allow for a period of bat habituation to the mitigation measures. The bats continued to use internal area of church using previous bat access points. Peak count 50.
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2021	2/9 Dusk	Exclusion
	3/9 Dusk	On the 2 nd September the 2 way bat access points were closed (one way excluder) following emergence survey. After the main emergence a small number of bats remained inside the church and mist nets were used to catch the final 3 bats (Natterers) flying around internally. Following the capture effort it became obvious that a small number of bats returned to the internal area of the church.
	8/9 Dusk	

The exercise was repeated on the evenings of 3rd September (A total of five female Natterer's (3 in mist nets and two in hand net) were caught (3 adults and 2 juveniles) and released externally) and 8th September (four Natterer's and three brown long-eared). Small numbers of bats were observed to remain inside the church despite capture effort. It was therefore concluded that bats found an alternative means of access the church.

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2022	16/05 Dusk	Generally low numbers of bats with no emergence observed. Bat droppings evident inside church.
2022	12/07 Dusk	<p>Bat droppings (probably Natterer's) were concentrated at the north west end of the nave, together with localised areas on choir pews. Bat droppings were also observed on the external corner of the chancel wall/south aisle below eaves level (access point to the chancel eaves box).</p> <p>Endoscopic examination of middle eaves box found bat droppings present inside but not at significant levels that would indicate maternity use by Natterer's.</p> <p>An inspection of the Parvis void showed concentration of mixed bat dropping consistent with both Serotine and Natterer's bat.</p> <p>Two+ common pipistrelle at the apex of the nave roof at the west end against the west wall.</p> <p>Approximately 20+ Natterer's utilising two roost points within the church, one at east end of chancel in central mortice joint, the other on the north side of the nave at the west end using mortice joint in hammerbeam.</p> <p>Natterer's bats seen flying outside the south chancel at eaves level however a review of video footage showed no sign of emergence.</p> <p>One serotine was observed emerging from the corner of Parvis west wall where it meets the nave. One serotine was seen flying inside the church.</p>
2022	05/09-06/09	<p>Site surveys for bats as well as mist netting within the chancel of the church.</p> <p>Constant but low numbers of Natterer's bats together with an individual Serotine, common pipistrelle and brown long-eared bats observed inside the church. Natterer's bats were found roosting in the roof timbers at in the upper south west corner of the chancel. Observation indicated a possible Brown long eared at the apex of the nave at the east end.</p>

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Bat droppings including possible *Eptesicus serotinus*, *Myotis sp.* and *Pipistrellus* species were noted in the parvis (north west corner) near the main bat access (crack in wall).

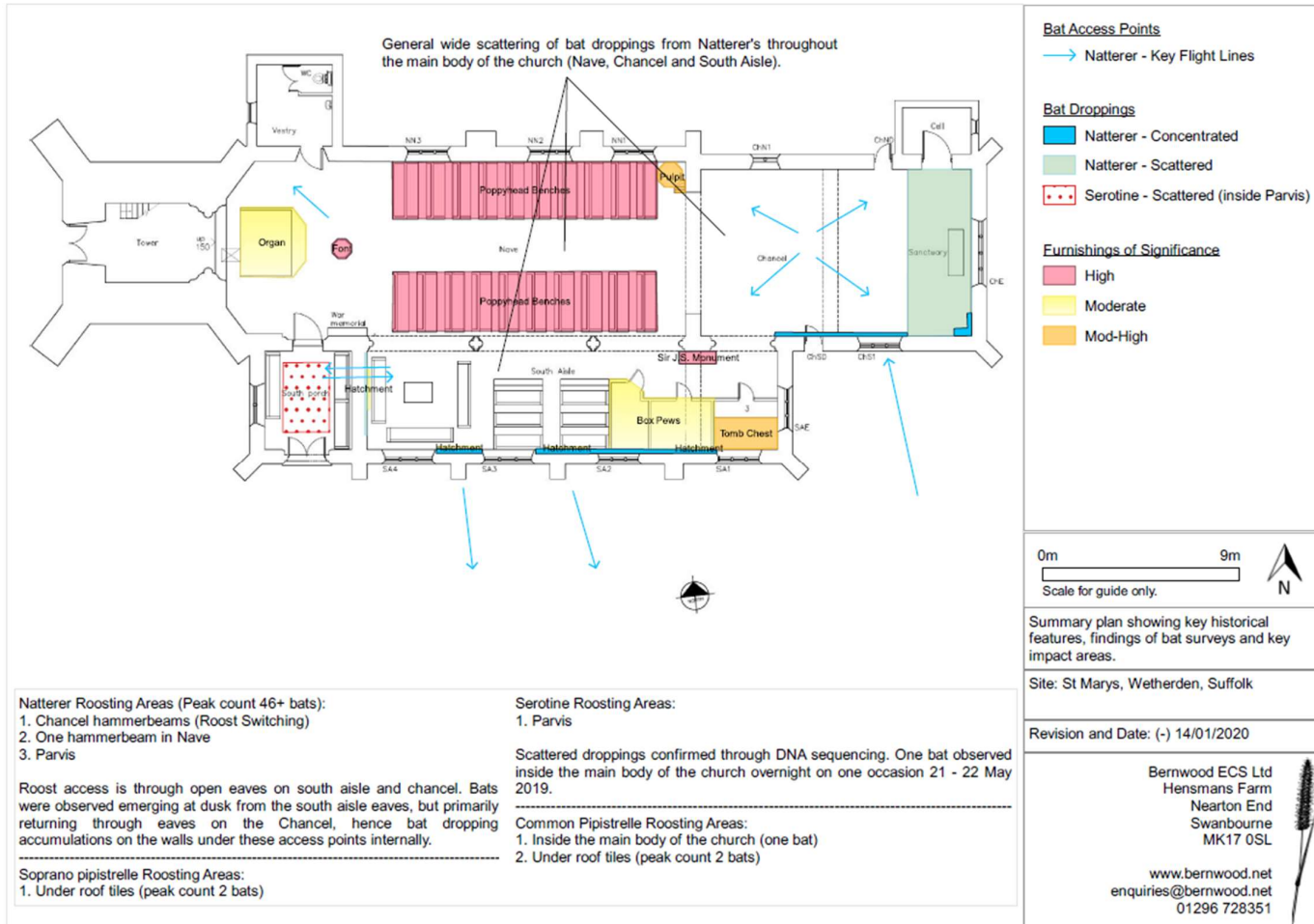
It was determined that Natterer's bats, as well as low numbers of Serotine and Pipistrelle species still use and had access to the churches interior. Bats were determined to be gaining access through cracks around the middle eaves bat box.

2022	05/09 Mist netting	1 Adult Male Natterer's
2022	06/09 Mist netting	3 Adult Female (Parous) Natterer's 2 Adult Male Natterer's 3 Adult Male Brown long-eared

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Appendix 3. 2019 bat surveys summary plan.

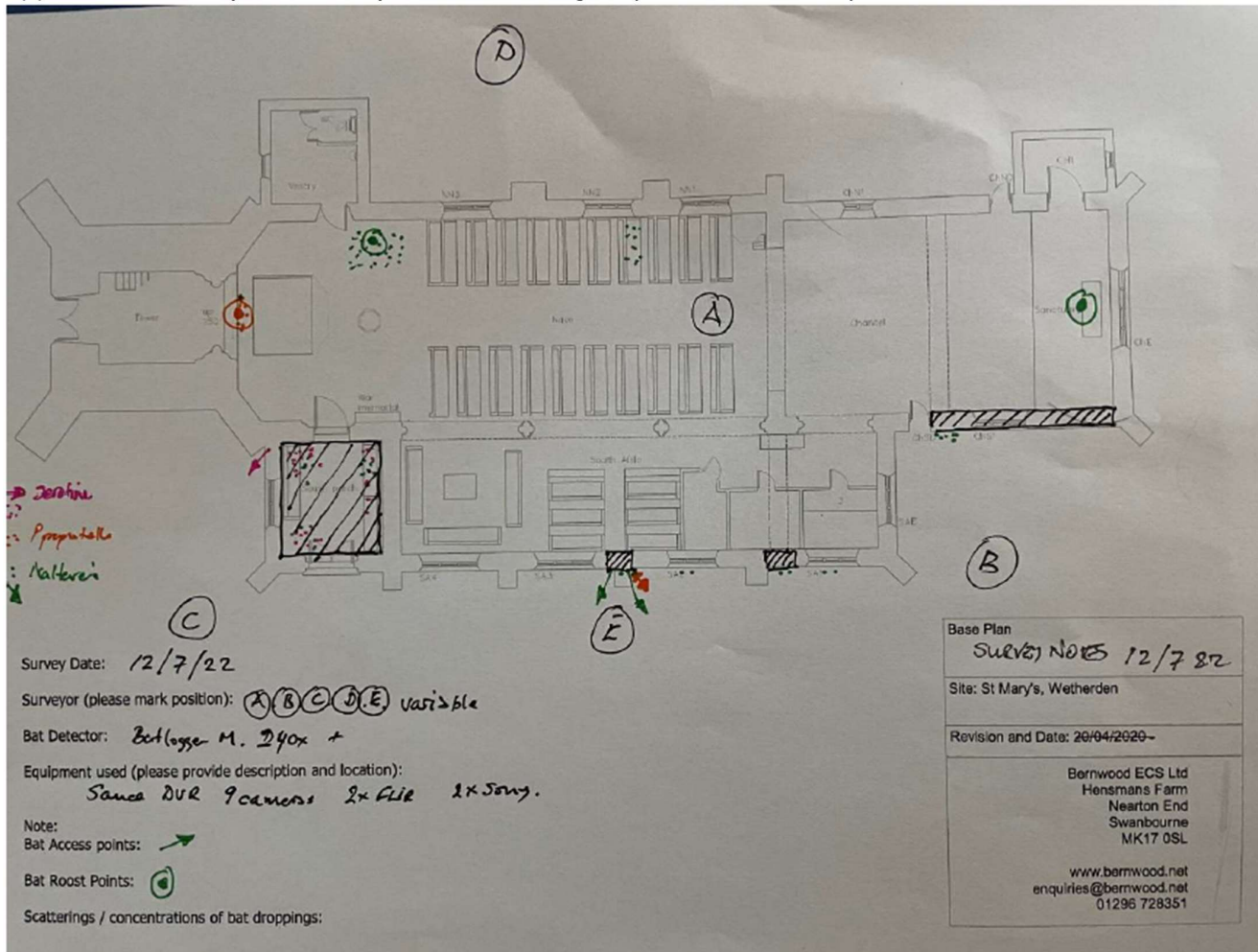


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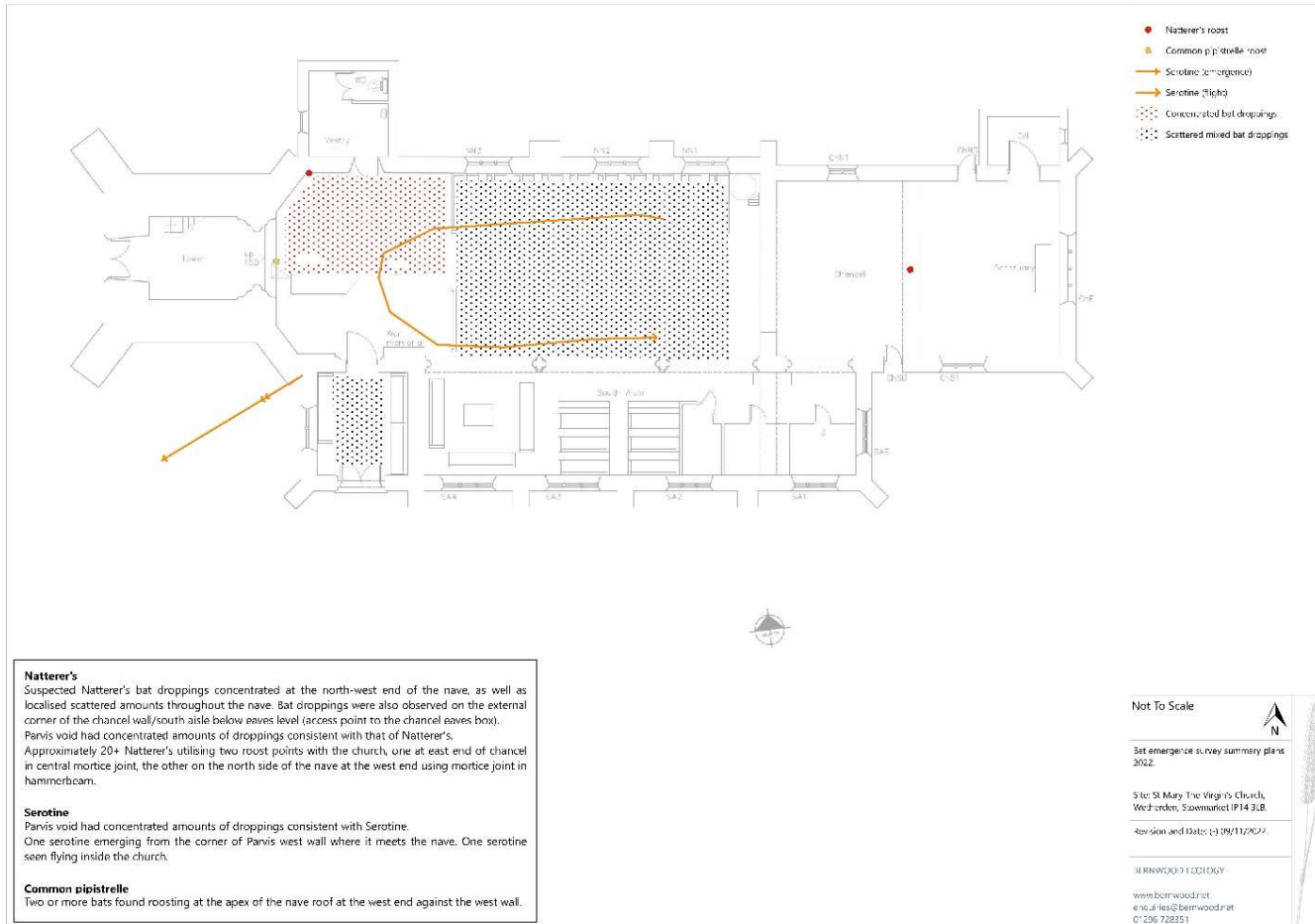
Appendix 4. 12th July 2022 survey results including suspected bat access points.



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Appendix 5. 2022 bat surveys summary plan.



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Appendix 6. Notes/Observations following 2022 exclusion attempt.:

