

St Nicholas Church, Fyfield – Bat Surveys

Bat surveys of St Nicholas Church, Fyfield were carried out by Ecology by Design as part of the Bats in Churches Project (Lot 17). This report presents the results of the surveys and interprets the survey findings. It was originally intended that only three surveys would be conducted in 2019 to inform the mitigation measures for the church, however, given what were assumed to be uncharacteristically low levels of activity in 2019, two further surveys were conducted in 2020 to enable a robust assessment to be made. Departure from the agreed methodology for the project was decided upon after discussion with the Churches project personnel and members of St Nicholas Church.

Survey dates / types

- 12th / 13th June 2019 - Dusk emergence and pre-dawn re-entry
- 11th July 2019 - Dusk emergence
- 12th August 2019 - Dusk emergence
- 6th / 7th July 2020 - Dusk emergence and pre-dawn re-entry
- 20th July 2020 - Dusk emergence

On each occasion five surveyors surrounded the building externally using Batlogger M detectors and a single surveyor was present internally with a thermal or infra-red camera during the pre-dawn re-entry surveys.

Droppings within the Church

A mixed sample of droppings was taken from the church on 24th May 2019 and sent to Ecotype Genetics for mixed species identification. The DNA of three species was confirmed;

- Common pipistrelle (*Pipistrellus pipistrellus*)

- Brown long-eared bat (*Plecotus auritus*)
- Serotine bat (*Eptesicus serotinus*)

The church was re-inspected on 6th July 2020 after three months of disuse and no cleaning as a result of the Covid-19 pandemic. As a consequence, the survey reflects four months of bat activity within the church without disturbance.

The surveyors found a total of around 400 droppings with characteristics of brown long-eared (dominant), pipistrelle (occasional), serotine (rarely) and Myotis (rarely) bats. Droppings and urine stains were found throughout the church, with the greatest numbers along the south aisle where the higher roof provides greater flight-space for bats. The droppings were of various ages, with few appearing to be fresh (< 2 weeks) although many non-crystallised urine stains were observed. Representative photographs are included in Appendix 1.

Emergence/Re-entry Results

Five species of bat were confirmed to be making use of the church for roosting with a sixth species probable.

A minimum of eight species have been recorded within the site as follows:

- Common pipistrelle - max 2 bats roosting externally / internally;
- Soprano pipistrelle (*Pipistrellus pygmaeus*) - max 1 bat roosting externally;
- Nathusius' pipistrelle (*Pipistrellus nathusii*) - max 1 bat roosting externally;
- Brown long-eared bats - max 4 bats roosting internally (small maternity colony) and 1 bat roosting externally;
- Serotine - max 1 bat roosting externally;
- Myotis species (*Myotis* sp.) - max 2 bats roosting internally;
- Noctule (*Nyctalus noctula*) - foraging at height overhead; and
- Barbastelle (*Barbastella barbastellus*) - commuting near building.

The Myotis species was not confirmed through DNA analysis of droppings, however, given the characteristics of the droppings, features of the call, features present within the Church and foraging habitats in the local landscape it is considered most likely to be a Natterer's bat (*Myotis nattereri*).

During the internal inspection on 20th July 2020 a dead baby brown long-eared bat was recorded in the south aisle below the confirmed roost location beneath the rafters between the door and the font.

Date	Number of roosting bats present							Total bats
	Common pipistrelle	Soprano pipistrelle	Brown long-eared bat	Serotine	Nathusius' pipistrelle	Myotis species	Silent bat	
12 th June 2019	2		1					3
13 th June 2019	1		3					4
11 th July 2019	2		4	1	1 probable ¹			8
12 th August 2019	2		2				1	5
6 th July 2020		1	4			1		6
7 th July 2020	1		4			1		6
20 th July 2020			5			2		7

¹Nathusius' pipistrelle were frequently encountered foraging in the field to the east of the church and on one occasion a bat thought to be a Nathusius' pipistrelle was observed emerging but as there was a large volume of mixed pipistrelle activity outside the building at this time cluttering the detectors with recordings we cannot be certain.

Roosting locations

Internally, the following roost locations have been recorded:

- Beneath the rafters situated between the door and the font in the centre of the south aisle;
- Gaps beneath rafters above the south aisle towards east of the church;
- An unconfirmed location in the chancel (likely at the eastern gable).

It is possible that bats are moving from the main body of the church into the tower, perhaps through the bell rope holes, or individuals are roosting within crevices of the tower. Whilst the Tower was not subject to an internal inspection in 2020 due to lack of access (i.e. the bolt was immovable), we are confident from the activity surveys that we haven't missed a significant roost in this area.

Externally, the following roost locations and/or access features have been recorded:

- Beneath the coping stone on the east facing gable where the two roofs meet; and
- Top of the wall plate on the southern aspect (accessed between wall and wooden fascia).

Assessment

The low numbers of bats recorded roosting in 2019 and 2020 does not correspond with the reported use of the building in previous years. The church has not supported significant roosts in the 2019 or 2020 breeding seasons, being confirmed in use by a small maternity colony of brown long-eared bats

(maximum 4 adults), and day / occasional / transitional roosts of brown long-eared and five other species in low numbers (maximum 2 of each).

Recommendations

It is not considered appropriate to modify current emergence / re-entry points or prevent bats gaining access to internal areas of the Church given the low numbers of roosting bats present and variety of access points in use. Creating any bespoke external roosting features (to try and encourage bats to avoid using internal areas) such as affixing a bat box on the tower could only serve to increase use of the building in the long term.

The following mitigation measures are therefore recommended:

- Given the majority of evidence of bats was within the shorter pew on the south aisle and window ledges on the south side, we suggest making some bespoke fitted sheets and/or covers to protect these while the church is not in use, making cleaning before services less onerous;
- A bespoke unit could be created to house the visitor book, resources and hand sanitiser by the front door to include a perspex cover which can easily be cleaned and its' contents accessed; and
- An interpretation board could be produced to explain how roosting bats are using the church and measures which are being used to protect the historical artefacts and visitors of the church.

Other Considerations

Installing a woodcrete / woodstone bat box suitable for crevice dwelling species (such as a Schwegler 2F or an equivalent) to a tree within the church grounds could act as a lure to attract bats away from the church. Conversely, it could attract additional bats to the area or increase their reproductive success such that greater numbers make use of the church at other times of year. It is therefore at the congregation's discretion whether they would like to include a bat box or not.

We have considered whether a bat box could be integrated within the church to contain the bats (preventing them flying within the church), however, in this instance it is not a viable option. This solution is appropriate where there is one main entrance / exit point which can be boxed in. In this instance there are several which are regularly used and none would be appropriate for boxing in.

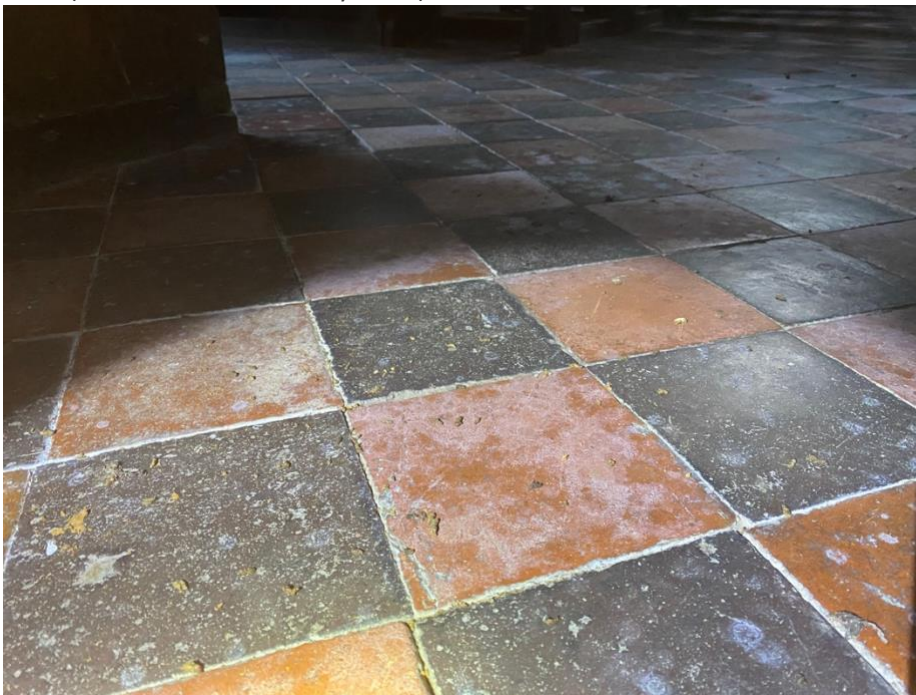
Appendix 1: Photographs

The following photographs were taken on 6th July 2020 after four months of the Church not being cleaned during the peak activity period (spring transition and maternity season).

Photograph 1: Droppings accumulated on table in chancel



Photograph 2: c. 40 brown long-eared droppings accumulated beneath main roost (4 individuals on 07 July 2020) beneath central beam in south aisle



Photograph 3: Urine stains and droppings on internal shelf by front porch



Photograph 4: Mainly historic urine stains on organ (no fresh droppings observed)

