Greena Ecological Consultancy

Bat Mitigation Plan

St. Michaels Archangel

Batch Lane

Compton Martin

Somerset

BS40 6JQ

DRAFT V1

31st October 2021

Report compiled by:

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Church details

Church name	St Michael the Archangel
Location	Compton Martin, Somerset
Church representative/s	Kate Reynolds
Project representative/s	Rose Riddell
Appointed ecologist	Geoff Billington
Church Heritage Record	601296
Listing	I

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Brief

To carry out bat surveys over several months to determine the extent of use of the site by bats and to produce a report including the production of a bat management plan (BMP) outlining possible bat mitigation measures to address the problems caused by the bats in the church. The architect, with their knowledge of the church building, will be involved from the outset in order to help create a bespoke solution for the church.

The BMP will aim to improve conditions inside the church for the church community, building and items of heritage significance, while maintaining a home for the bats and protecting their conservation status.

Summary

- Greena Ecological Consultancy was instructed by Judith Milne Natural England Finance Officer for the bats in churches project to undertake this survey, assessment and to draw up a mitigation plan to resolve the bat problems experienced at this site.

- The survey site comprises St. Michaels Archangel church in Compton Martin completed in the 12th century, a grade I listed building.

- The building was inspected in April, July & October and four activity surveys were carried out between June and September 2021.

- The church has long term historical use by bats, having had many visits by batworkers, though the only detailed information has been made available from a 'light touch' survey by RSK in 2017 with information gleaned from a 2013 report – not supplied. Previous conclusion they made based on a daytime visit was that colonies of: Daubenton's and Soprano pipistrelle bats used the church as well as lower numbers of Serotine.
  Conversation with Richard Crompton who was involved in using the church for bat licence training clarified Natterer's and Long eared bats had also been recorded.

- Over activity surveys eight bat species were recorded in flight in the area around the church, seven bat species were recorded roosting in the church species were recorded emerging;
  - ❖ Natterer's and individual Daubenton's bats from the south eaves roosting above north and south Isles
  - ❖ Individual Common and Soprano pipistrelle bats in the roof
  - ❖ Small numbers of Long eared bats in the roof
  - ❖ Lesser horseshoe bat night roost in the porch

  The only species occurring in numbers in 2021 was Natterer's bat, in previous years aggregations of Daubenton's and Pipistrelle had been reported.

- A solution to stop/substantially reduce the numbers of bats entering the church has been presented to stop bats using the south Isle roosts, retain the north Isle roosts by sealing up around the ceiling of that area, to provide mitigation for loss of roosts and interior by making the Columbarium more accessible to bats and creating a ceiling beneath the roof rafters in it.
  This methodology would need an EPS bat licence.

1. Introduction

1.1 Background

Greena Ecological Consultancy was instructed by Judith Milne Natural England Finance Officer for the bats in churches project to undertake this survey, assessment and to draw up a mitigation plan to resolve the bat problems experienced at this site.

In the past Daubenton's, Soprano pipistrelle, Natterer's and individual other bats have been recorded in the church, though recorded information does not include Natterer's.

The bats use of the interior have caused damage to the fabric of the church, monuments, fixture and fittings, in part by significant dropping staining in the east end of the north Isle and near the organ and widespread urine staining particularly in the south Isle.

1.2 Legislation

All UK bat species and their roosts are fully protected under the Wildlife and Countryside Act 1981 (as amended) through inclusion in Schedule 5, under the Countryside and Rights of Way Act 2000, and under Schedule 2 of the Conservation (Natural Habitats &c) Regulations 2012 (as amended). The Conservation Regulations designate bats as European Protected Species.

Taken together, the Acts and Regulations protecting bats make it an offence to:

- Deliberately kill, injure, capture or take bats
- Deliberately disturb bats. This particularly relates to disturbance that is likely to:
    - Impair their ability to survive, breed or reproduce, or to rear or nurture their young
    - Impair their ability to hibernate or (for migratory species) migrate
    - Affect significantly the local distribution or abundance of the species to which they belong
- Damage or destroy bat roosts
- Possess or transport a bat or part of a bat, unless acquired legally
- Sell, offer for sale or exchange bats or parts of bats.

A roost is any structure or place used for shelter or protection. Bats need to have access to a number of roosts because they use different roosts depending on season, breeding status and prevailing weather conditions. For this reason roosts are protected whether or not bats are present at the time.

As bats are designated European Protected Species (EPS), development and building works that are likely to result in the disturbance of bats, damage to or destruction of their roosts, or require bats to be caught or translocated, usually require an EPS licence to be obtained from Natural England before any works begin. Obtaining a licence involves completing an Application Pack, including a Method Statement that details mitigation appropriate to maintaining the 'favourable conservation status' of the local bat population. Three conditions must be met before a licence can be granted:

- There is no satisfactory alternative

- The development will not be detrimental to the maintenance of local bat populations at a 'favourable conservation status' in their natural range
- The development must be for 'imperative reasons of overriding public interest including those of a social or economic nature'.

An EPS licence is required for all development activities if there is a reasonable likelihood that an offence against Conservation of Habitats and Species Regulations 2012 (as amended), Wildlife and Countryside Act 1981 (as amended) or Environmental Damage Regulation 2009 (as amended) **will be committed.**
The following offences could potentially be committed by carrying out the proposed development if any bat species are present during the conversion works:

- Capturing or killing – a wild animal of an European Protected Species (EPS) could be deliberately captured, injured or killed (Reg 41(1)(a))
- Disturbing EPS – a wild animal of an EPS could be deliberately disturbed including in particular a disturbance which is likely to impair its / their ability to survive or hibernate (Reg 41 (1)(b))
- Disturbing EPS whilst occupying a structure or place used for shelter or protection – includes intentional and reckless disturbance (s9 (4)(b)WCA)
- Damage of an EPS breeding site or resting place – (Reg 41 (1)(d)) – strict liability

The above stated **offences can be avoided** where works are to take place when bats are not present and bat roost will be maintained unchanged. If roost is going to be available to bats at the time they usually occupy the structure, a **continued ecological functionality of the site will be preserved**. Suitable mitigation measures must be put in place prior, during and post works to ensure that continued ecological functionality will be maintained.
In case the above listed offences cannot be guaranteed to be avoided throughout the proposed development, an EPS licence must be sought.

The full EPS licence generally applies if the proposed development is to cause greater than low ecological impact. A simpler and faster way of carrying out development with low ecological impact had been implemented by Natural England in its trial version during 2013 and 2014. The results of the trial were assessed and the low ecological impact licence was fully re-introduced from spring 2015. It involves selected highly experienced individual ecologists who can supervise the proposed low impact development under their personal class licence, the need for preparation and processing of an EPS licence is vastly reduced. The development is carried out in line with a method statement prepared for the works and under the supervision of the licensed ecologist. **Low ecological impact class development licence** only covers low impact development affecting low numbers of "common" bats and providing the site in question does not serve as a maternity or hibernation roost.

The **Bats in Churches licence** has been available over the last few years that allows special methods to be used to resolve problems in churches, held by individuals, including strict detailed assessment and post works monitoring.

2. Aims and Objectives

To carry out bat surveys over several months to determine the extent of use of the site by bats and to produce a report including the production of a BMP (bat management plan) outlining possible bat mitigation measures to address the problems caused by the bats in the church. The architect, with their knowledge of the church building, will be involved from the outset in order to help create a bespoke solution for the church.

The BMP will aim to improve conditions inside the church for the church community, building and items of heritage significance, while maintaining a home for the bats and protecting their conservation status.

3. Site description

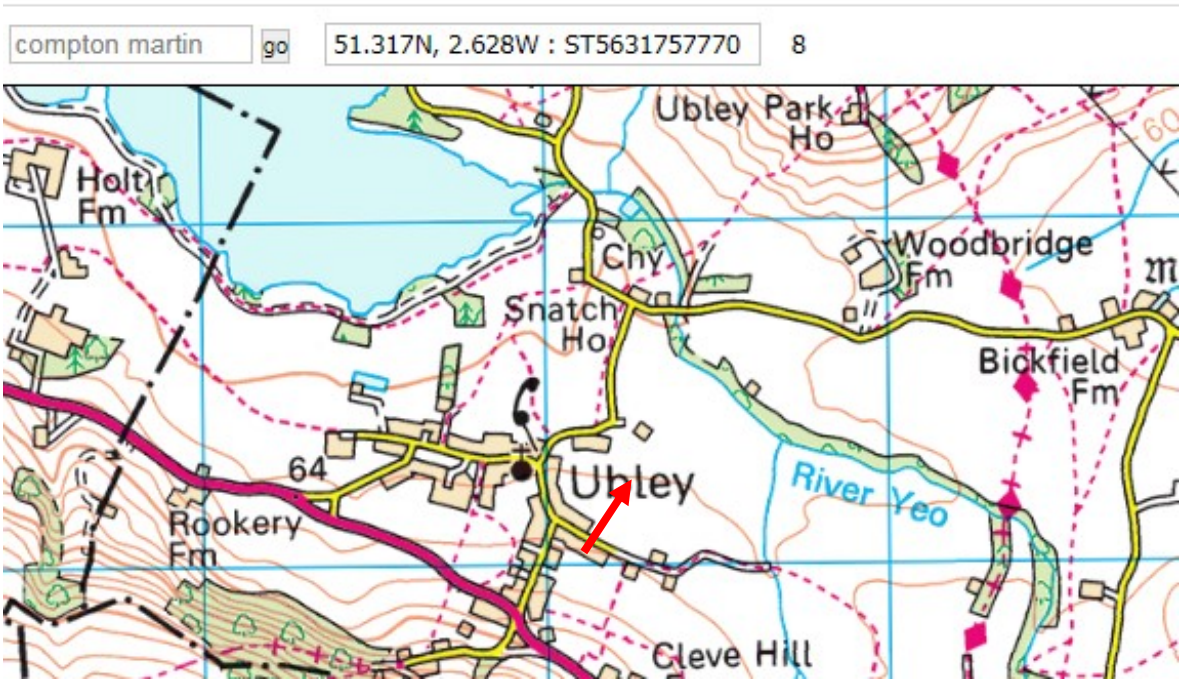
3.1 Surrounding Area

The building is located in a small village in a rural area on the edge of the Mendip Hills adjacent to trees in the village, within 180m of continuous treelines and 360m from extensive ancient woodland. Two large water bodies Chew Valley Lake and Blagdon Lake lie within 2.6km.

The surrounding habitat offers very high quality roosting and foraging opportunities for bats.

The location of the church is shown in Figure 1; Figures 2 & 5 show photos of the church.

Figure 1 Location of the church in Compton Martin



3.2 Description of the building

The church was built in the 12th century in a Norman style. The four stage tower was added in 1441 it is some 21m high and contains six 18th-century bells.
Above the ceiling of the Bickfield Chapel there is a void which contains a Columbarium. This housed 140 “squabs” or pigeons in 1606 for the rector's table.
The building is located at NGR ST545570.

Figure 2 photo of north side of the church

Figure 3 photo of south side of the church

Figure 4 photos of interior of Columbarium

Figure 5 church interior

4. Methods

Surveyors Geoff Billington, Jacquie Billington both of Greena Ecological Consultancy and both holders of class 3 & 4 Natural England bat licenses, Geoff Billington is a full member of CIEEM. Also Laura Holmes an experienced bat worker assisted on one survey.
At night surveyors used a range of bat detection and viewing equipment including: Bat Box Duets, Walkabout, Batlogger, D1000X, D240X and Batcorder bat detectors. Also assisting surveyors was a generation 2 night vision scope, a thermal imaging scope and IR camera systems detailed below.

Initial site meeting with architect, church representative and Engagement Officer Rose Riddell was held on 20th April during which an inspection of the interior, exterior and tower was carried out.

Evening activity surveys were undertaken on 17th June, 30th July & 20th September and on pre-dawn on 20th July.
An internal inspection of the Columbarium was carried out on 27th October 2021 by Geoff Billington assisted by Rachel Denness.

The interior and exterior of the building was inspected with the aid of a high-powered torch to locate potential roosting sites, discover possible points of egress for bats and detect bats or any signs of bats such as droppings, wear marks, staining and feeding remains.

On all bat activity surveyors were assisted with SpyCamera CCTV 1080HD with built in infrared illumination and with time-synchronized bat detectors EcoObs Batcorders that contain recorders.

The manufacturer's specifications of the high-definition cameras lists its range for both, colour (daytime, dusk) and black&white (post-dusk to complete darkness) during infrared illumination as 100ft (30.48metres).
The cameras are fitted with a varifocal (adjustable) 2.8-12mm lens covering the field view from very wide (up to 100 degrees) to narrow and zoomed in. The setting is manual, and a maximum possible view of the surveyed structure is always ensured prior to the start of the survey. The smart IR technology enables the cameras to automatically adjust the intensity of the infrared lighting based on the distance objects are located from the camera (wide dynamic range enhancement).
The recordings from each night is subsequently viewed by an experienced licensed bat ecologist with the possibility to rewind and view segments repeatedly, providing much higher accuracy of the assessment than the traditional in-field survey method alone.

On two of the evening surveys on 17th June & 30th July an addition to the specified methods/ equipment was added to of a 5MP triple IR camera system fed to a LCD screen inside the church was used by the internal surveyor to view three different areas simultaneously.

5. Survey Constraints

The entire building could be accessed except for the low attic above the nave which was assessed as posing a risk to the plasterwork if entered on the rafters.

The edge of the Columbarium could only be accessed and not the centre but being a small void all areas could be viewed sufficiently.

The parapet walls surrounding the main roof and south Isle obscure edges of the lead roof and flashing so small numbers of bats emerging or entering may have been missed.

6. Results

6.1 Past records

The church has long term historical use by bats, having had many visits by batworkers, though only detailed information has been made available from a 'light touch' survey by RSK in 2017 (RSK 2017) with information gleaned from a 2013 report – not supplied.

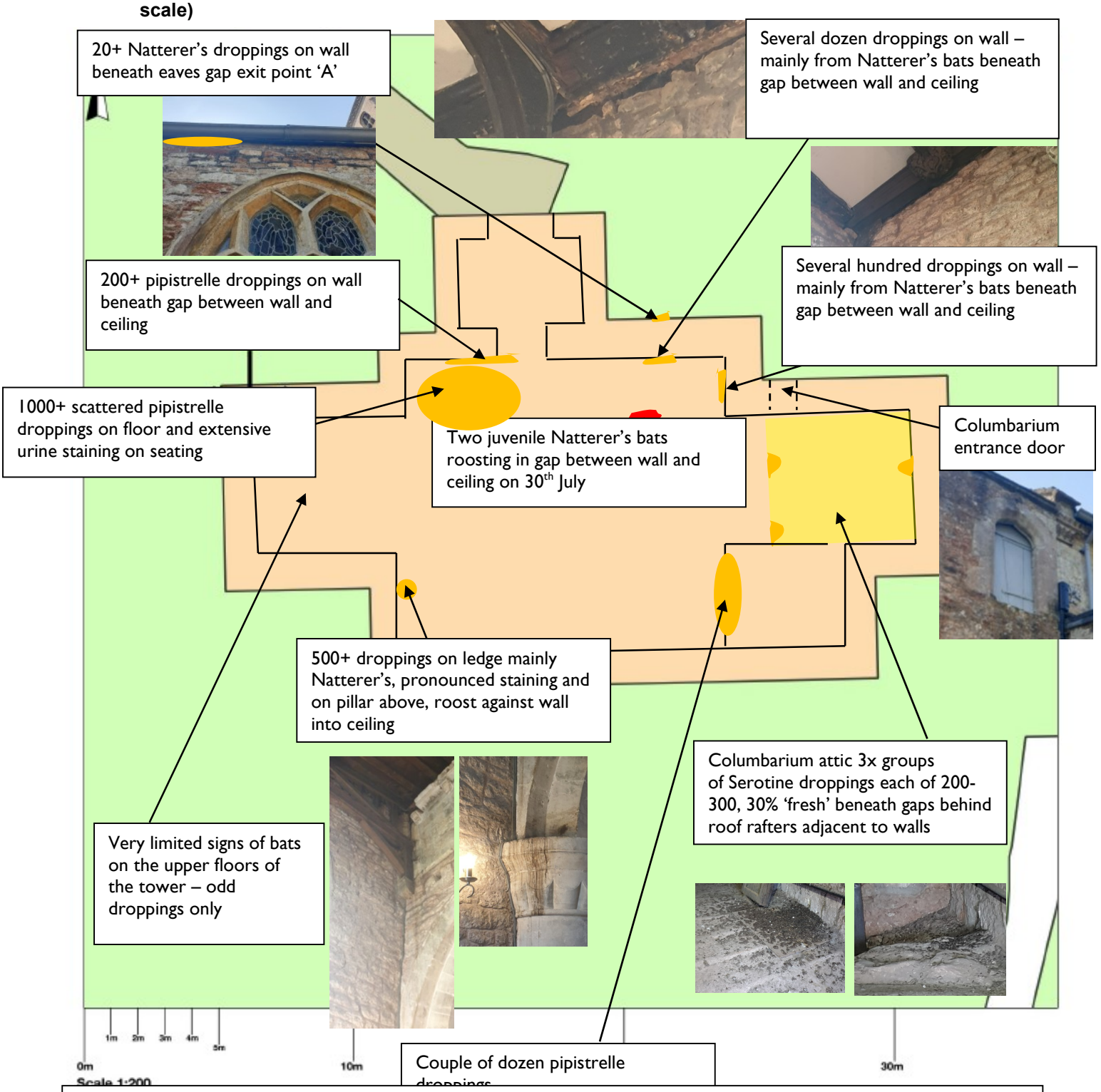
Previous conclusion based on a daytime visit was that colonies of: Daubenton's and Soprano pipistrelle bats used the church as well as lower numbers of Serotine.

Conversation with Richard Crompton who was involved in using the church for bat licence training clarified Natterer's bats had been recorded.

6.2 Building survey bats

Figure 6 shows the results of building inspections plan is adapted from a basic planning site plan purchased from UK planning as no plan of the church is available.

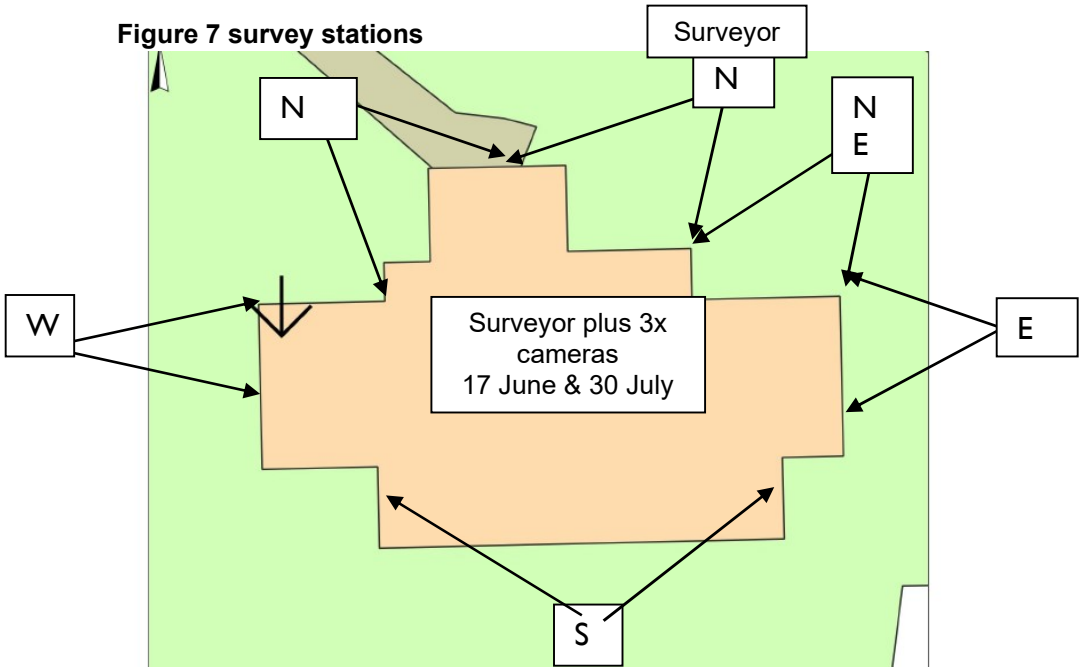
Figure 6 building inspection results, outer plan to scale, rough interior sketch (not to scale)



6.3 Bat activity surveys

Figure 7 shows the survey points used for surveyors/ equipment

Figure 7 survey stations



17th June 2021 dusk

Survey was conducted between 2113 & 2314 (sunset 2130)

Geoff Billington & Jacquie Billington

Weather

	Temp.	Cloud	Rainfall	Wind
Start	17C	90%	0	0
End	16C	70%	0	0

North

Geoff Billington

time	bat species	behaviour	notes
2145	45P	commuting	Heading to N
2157	LE	emerged	from porch
2200	N	emerged	from main exit 'A'
	Sert	commuting	W-E
2211	55P	commuting	E-W
2214-2218	45P	foraging	N of church
2217	Daub	commuting	E-W
2218	N	emerged	from main exit 'A'
2224	N	emerged	from main exit 'A'
2233	N	emerged	from main exit 'A'
2240	2x N	passing	
2242	Sert	foraging	N of church
2244	N	passing	W-E
2247	N	passing	W-E

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine, N – Natterer's, LE - Long eared, Daub – Daubenton's

Four Natterer's bats emerged from main exit 'A'.

One Long eared bat emerged from the porch.

Inside the church
Jacquie Billington

time	bat species	behaviour	notes
2140	55P	flying	flying inside
2145	Daub	flying	flying inside
2152	LE	flying	flying inside
2159	LE	flying	flying inside
2210	LE	flying	flying inside
2212	LE	flying	flying inside
2214	Daub	flying	flying inside
2216	LE	flying	flying inside
2219	N	flying	flying inside
2224	3x N	flying	flying inside
2230	2x N	flying	flying inside
2235	3x N	flying	flying inside
2246	3x N	flying	flying inside
2252	N	flying	flying inside
2254	N	flying	flying inside
2302	LHS	Roosting	In porch

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine, N – Natterer's, LE - Long eared, Daub – Daubenton's, LHS – Lesser horseshoe
Up to 14 Natterer's bats emerged from roosts bats were seen emerging from and re-entering roosts two above east end of north Isle, one to roost above pillar at west end of south Isle, all taken to be roosting here.
One Soprano pipistrelle, up to two Daubenton's and up to five Long eared had emerged into the church all taken to be roosting here.
One Lesser horseshoe night roosted in the porch.

Northeast
Batcorder & video recording

time	bat species
2216-2230	5x 45P
2231	2x 55P
2233-2241	Daub
2241-2242	2x Sert

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine, Daub – Daubenton's
No bats emerged on video

East

Batcorder & video recording

time	bat species
2216-2230	5x 45P
2231	2x 55P
2233-2241	Daub
2241-2242	2x Sert

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine, Daub – Daubenton's

No bats emerged on video

South

Batcorder & video recording

time	bat species
2148-2150	12x 55P
2150	2x 55P & 2x 45P
2151	2x 55P & 45P
2152	2x 45P & 55P
2153	2x 55P & 45P
2154-2155	7x 55P & 45P
2156	4x 45P
2158-2159	2x Sert
2200	45P
2201	6x Sert & LE
2202	Sert
2203	2x 45p & LE
2204	Sert & 55P
2205	3x Sert
2208-2211	3x Daub
2214-2217	5x 45P
2217	Daub & 2x 55P
2218	5x 55P
2218-2226	3x 45P
2228	55P
2230	45P, Daub & Sert
2231	2x Sert
2232	Daub
2241	6x Sert
2242	Daub
2242-2243	10x Sert
2245	Daub
2256	45P
2304	6x N

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine, Daub – Daubenton's, N – Natterer's, LE – Long eared

No bats emerged on video

West

Batcorder & video recording

time	bat species
2142-2146	5x 55P & 3x 45P
2148-2149	20x 55P & 3x 45P
2150-2154	23x 55P & 12x 45P
2155-2158	35x 45P & 3x 55P & 2x Sert
2158-2202	4x Sert & 22x 45P
2203-2204	12x 55P & 2x 45P & Sert & N
2207-2210	4x 55P & 42x N
2210-2219	73x N & 2x 45P & 9x 55P
2226	45P
2228	3x N
2242	N
2304	N
2307	2x Noc
2308	2x N

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine, Noc – Noctule, N – Natterer's

No bats emerged on video

Northwest

Batcorder & video recording

time	bat species
2204-2212	3x 55P
2214-2218	6x N
2221-2220	2x 55P
2241	LE

55P – Soprano pipistrelle, N – Natterer's, LE – Long eared

No bats emerged on video

Summary

The following table shows the minimum number of bats roosting in the church during this survey

Species	**No.**	**Location**	**Exterior exit route**
Natterer's	14	Above north Isle ceiling, in NW corner of south Isle roof above pillar	Point A north eaves
Soprano pipistrelle	1	In church roof	Unknown
Daubenton's	2	Unknown	Unknown
Long eared	5	In church roof	At least one around front door
Lesser horseshoe*	1	Porch	Open porch

*Night roosting only

26th July 2021 dawn
Survey was conducted between 0331 & 0531 (sunrise 0526)
Geoff Billington & Laura Holmes
Weather

	Temp.	Cloud	Rainfall	Wind
Start	14C	10%	0	0
End	13C	5%	0	1

North
Geoff Billington

time	bat species	behaviour	notes
0355-0415	10x N	swarming	around entrance 'A' bats entering
0415-0418	15x N	swarming	around entrance 'A' bats entering
0417			Tawny owl sitting on porch roof
0418-0425	20x N	swarming	around entrance 'A' bats 2 seen entering
0425-0437	15x N	swarming	around entrance 'A' bats 1 seen entering
0437	Daub	entering	into 'A'
0439-0444	3x N	swarming	around entrance 'A' bats entering
0449	55P	passing	to SW
0455	45P	passing	to NW
0507	N	emerged	from main exit 'A'

45P – Common pipistrelle, 55P – Soprano pipistrelle, N – Natterer's,
Daub – Daubenton's
At least 30 Natterer's bats & one Daubenton's entering into 'A'

Inside the church
Laura Holmes

time	bat species	behaviour	notes
0410	55P	flying	flying inside
0418	N	flying	flying inside
0425-0433	10x N	flying	Entering from north Isle ceiling flying across to east end of south Isle and entering roof just west of the organ.
0437	55P	flying	flying inside

55P – Soprano pipistrelle, N – Natterer's, LE - Long eared, Daub – Daubenton's,
LHS – Lesser horseshoe
Up to 10 Natterer's bats entered from entrance 'A' and headed to roosts mainly in the roof near the west side of the organ.
At least two Soprano pipistrelle bats had come into the church

Northeast
Batcorder & video recording

time	bat species
0344	3x 45P

45P – Common pipistrelle
No bats emerged on video

East
Batcorder & video recording

time	bat species
0344	3x 45P

45P – Common pipistrelle
No bats emerged on video

South
Batcorder & video recording

time	bat species
0350	LE
0353	Sert
0356-0357	4x 55P & 2x social calls
0403-0409	6x 45P
0415	Sert
0415-0425	9x 55P
0428-0432	2x N
0436-0442	2x 45P
0449	55P
0454	45P

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine,
N – Natterer's, LE – Long eared
No bats emerged on video

West
Batcorder & video recording

time	bat species
0338-0342	17x 45P
0348	5x 55P
0349	2x Daub
0350-0351	3x 55P
0353-0356	4x Sert
0356-0359	5x 55P & LE
0403	3x 45P
0404	LE
0407	2x 45P
0407-0409	6x Daub
0409	2x 45P
0411-0415	6x Daub
0415	55P & LE
0417	55P
0417-0419	6x Daub
0420	55P & N
0422	55P & 2x LE
0425	45P & 55P

0425-0431	5x N
0435	8x 45P & N
0439	N
0441-0501	31x 45P
0502	55P

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine,
N – Natterer's, LE – Long eared, Daub – Daubenton's
No bats emerged on video

Northwest
Batcorder & video recording
No sound recordings battery fault
No bats emerged on video

Summary
The following table shows the minimum number of bats roosting in the church during this survey

Species	No.	Location	Exterior entry route
Natterer's	30	At least 10 in roof immediately west of the organ, others above north Isle ceiling	Point A north eaves
Soprano pipistrelle	2	In church roof	Unknown
Daubenton's	1	Unknown	Unknown

30th July 2021 dusk
Survey was conducted between 2046 & 2233 (sunset 2102)
Geoff Billington & Jacquie Billington
Weather

	Temp.	Cloud	Rainfall	Wind
Start	16C	95%	0	2
End	16C	80%	0	1

North
Geoff Billington

time	bat species	behaviour	notes
2122	45P	commuting	S-N
2124	N	passing	NW-SE
2131	55P	heard	to N
2134	45P	foraging	N of church
2136	45P	foraging	N of church
2140	55P	foraging	around church
2143	N	emerged	from main exit 'A'
2202	N	emerged	from main exit 'A'
2206	Sert	passing	
2207	N	emerged	from main exit 'A'
2208	N	emerged	from main exit 'A'
2216	Sert	passing	
	45P	passing	

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine, N – Natterer's,
Four Natterer's bats emerged from main exit 'A'.

Inside the church
Jacquie Billington

time	bat species	behaviour	notes
2122	LE	flying	flying inside
2124	2x N	flying	flying inside
2137	45P & 2x N	flying	flying inside

45P – Common pipistrelle, N – Natterer's, LE - Long eared
At least four Natterer's bats emerged from roosts bats were seen emerging from and re-entering roosts above pillar in NW of south Isle, west of organ and roof around centre of south Isle. Two juvenile Natterer's bats remaining roosting in crevice edge of ceiling above north side of north Isle
One Common pipistrelle emerged from roof roost

Northeast
Batcorder & video recording

time	bat species
2130-2140	5x 45P
2151	2x 55P
2213	6x Noc
2215	2x Sert & 2x 55P

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine, Noc - Noctule
No bats emerged on video

East
Batcorder & video recording

time	bat species
2124	5x 45P
2124-2127	52x 55P
2130-2132	38x 45P
2132-2136	46x 45P
2137-2140	2x Sert
2151-2157	2x N
2213	3x Noc
2114	45P

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine, Noc – Noctule
No bats emerged on video

South
Batcorder & video recording

time	bat species
2108-2120	53x 55P
2121	NathP
2121-2124	7x 45P & 55P & 2x Noc
2124	7x 45P & 6x 55P
2124-2128	35x 55P & 8x 45P & Sert
2128-2130	26x 55P & 45P & 2x Sert

2130-2135	96x 55P & 3x 45P & 8x Sert
2135	Daub
2135-2136	8x 55P & 45P
2136	Daub
2136-2137	35x 55P & Sert
2137-2140	35x 55p & 4x Sert
2141	3x N
2143-2144	10x 55P & 6x Sert & 4x N & 45P
2144	5x 55P & 3x LE
2145-2146	5x 55P & 4x N
2147-2151	32x 55P
2151-2153	4x 55P & 16x 45P
2154-2155	9x 55P
2156	N
2156-2200	24x 55P & N
2201-2208	46x 55P & 3x N & 45P& 2x LE
2208-2211	15x 55P
2212	5x 45P
2213-2214	5x 45P & 4x Noc
2214-2215	8x Sert
2216-2220	25x 55P& 7x Sert
2220-2223	24x 55P& Sert
2223-2227	19x 55P & 2x 45P & Noc

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine, Daub – Daubenton's, N – Natterer's, LE – Long eared, Noc- Noctule, NathP – Nathusius pipistrelle
No bats emerged on video

West
Batcorder & video recording
No bats recorded on detector and no bats emerged on video

Northwest
Batcorder & video recording

time	bat species
2120	45P
2136	55P
2142	N
2151	45P
2213	Noc
2214	55P & Sert
2226	45P

55P – Soprano pipistrelle, 45P –Common pipistrelle, N – Natterer's, Sert – Serotine, Noc - Noctule
No bats emerged on video

Summary

The following table shows the minimum number of bats roosting in the church during this survey

Species	No.	Location	Exterior exit route
Natterer's	6	Above north Isle ceiling, in NE corner Above centre of south Isle roof	Point A north eaves
Common pipistrelle	1	In church roof	Unknown

20th September 2021 dusk

Survey was conducted between 1855 & 2031 (sunset 1913)
Geoff Billington & Jacquie Billington
Weather

	Temp.	Cloud	Rainfall	Wind
Start	14.5C	30%	0	0
End	13.8C	10%	0	0

North

Geoff Billington

time	bat species	behaviour	notes
1932	45P	commuting	distant
1937	45P	foraging	in churchyard
1942	55P	heard	
1944-1954	45P	foraging	around church
1956	55P	foraging	around church
2001	LE	passing	
2009	LHS	passing	
2010	Sert	heard	distant

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine, LHS – Lesser horseshoe
No bats emerged

Inside the church

Jacquie Billington
No bats heard or seen inside

Northeast

Batcorder & video recording

time	bat species
1937-1942	7x 55P
1942-1956	57x 45P
2001	N
2010-2011	2x Sert
2017	45P

45P – Common pipistrelle, 55P – Soprano pipistrelle, Sert –Serotine, N – Natterer's
No bats emerged on video

East

Batcorder & video recording
No bats recorded on detector and no bats emerged on video

South
Batcorder & video recording
No bats recorded on detector and no bats emerged on video

West
Batcorder & video recording
No bats recorded on detector and no bats emerged on video

Northwest
Batcorder & video recording

time	bat species
1938	55P
1941	45P
1959	N
2003	Sert
2008	Daub
2014	Sert & 45P

55P – Soprano pipistrelle, 45P –Common pipistrelle, N – Natterer's, Sert – Serotine, Daub – Daubenton's
No bats emerged on video

Summary
No bats were recorded roosting in the church this survey but it is possible individual pipistrelle bats could be.

7. Discussion and Recommendations

Overall summary of bat use of the church in 2021

Natterer's
In June a colony of at least 14 were present, this built up to over 30 by late July when juveniles were present (so a nursery colony) two observed would have been born in early-mid July, all or most of the bats had moved out by late September.
They roost in three locations the western half of the north Isle roof above the ceiling, above the pillar in the northwest corner of the south Isle and the east end of the south Isle in joint between chancel and nave sections.
The north eaves exit 'A' was the only recorded exit.

Common pipistrelle
Just a single bat was recorded in the church others were liable to be present but only in small numbers no colony, roosting sites and exits unknown liable to be main roof. Social calling suggest church is a lekking site so probably mainly used by males.

Soprano pipistrelle
Just up to two bat was recorded in the church others were liable to be present but only in small numbers no colony, roosting sites and exits unknown liable to be main roof. Social calling suggest church is a lekking site so probably mainly used by males.

Long eared
Five bats were recorded in June but not in July so had probably moved to another roost by then, so a small colony uses the church but not for breeding this year.
Roosting site liable to be somewhere in the main roof, around the front door in one exit route others are liable to be used.

Serotine
Individual bats roost behind timbers in the Columbarium, none were confirmed in residence but as this species regularly change roosting sites odd ones are liable to have been present at some time.
Exit/entry to the Columbarium is around the access door.

Daubenton's
Up to two Daubenton's were recorded roosting in the church in unknown location but will be in one of the roof sections, they use exit 'A'.

Solutions and Mitigation

Due to nature of the parapet walls and curved plaster ceiling in the nave there is no simple solution to retaining the south Isle roosting sites.

The north Isle roosts above the ceiling can simply be preserved as bats have access to exterior from this area.

The following suggested mitigation works require an EPS bat licence (standard or church licence or level 3 earned recognition licence (not available yet) must be carried out in winter.

- Carry out blocking up of south Isle roosts in first half winter (November-December) which will require use of lightweight scaffold platform or MEWP small enough to enter church. It is important to fit temporary excluder devices i.e. 20cm lengths of 32mm waste pipe set at least 45 degrees from horizontal, in case any bats are present these will allow them to evacuate. After four weeks tubes can be removed and holes sealed.
- Once south Isle roosts have been completely sealed the north Isle roosts can be isolated. Seal all gaps >10mm wide but it is very important at the front (north side) to ensure sealing near the roost exit is kept to a minimum depth (i.e. not more than 25mm) so the access route is not compromised. Again will require use of lightweight scaffold platform or MEWP small enough to enter church. These works should be carried out after the final sealing of the south Isle ceiling is carried out and before the end of February.
- As mitigation for loss of south Isle roosts and church interior void modifications should be made to the Columbarium.
  Access should be improved by making a flight hole either by (ideally) removing the top section of the door – leaving a 20cm high gap or making a 20cmH x 40cmW hole in the door.
  On the inside of the door opening a panel should be fitted that extends from the top across the width down to 10cm below the height of the flight hole plus at least 30cm gap between it and the door should be created to not obstruct flying bats.
  Inside crevice roosts should be created by fastening boards (e.g. 25mm thick untreated timber) to the sides of roof rafters with spacers so a range of crevice widths (12-25mm) are constructed, these should be made to every rafter.
  Over half of the roof a wood board ceiling should be installed this must be spaced 25mm off rafters so bats can access rafter crevices and 20mm gaps

left at the edges so bats can access areas. The ceiling boards should not obstruct the gaps between rafters and east & west walls that serotine bats use.

- If funds permit small cameras (e.g. 6) should be installed into the Columbarium along with a recording system ideally mains powered or otherwise from substantial batteries.

  Monitoring emergence counts should be conducted in three years starting summer after works next but one summer and further next but one summer after that.

  As specified in the Bats in Churches licence if funds permit the Natterer's and/or Daubenton's (if a colony present) should be radio tracked (e.g. 5 bats of each species) the summer before works start (in late July) to establish other roosts being used.
  Again if funds permit this should be repeated the summer after works have been completed.
  Greena may be able to help fund the tracking activities.

- The suggested measures will need input from the churches architect and faculty to agree the materials to be used for exclusion and Columbarium modifications.

- These measures will maintain/create roosting sites to maintain the conservation status of these species at this site and in this area.
  Though wider roosts cannot be controlled a weeping ash tree roost of 19 Myotis bats on Compton Martin parish council public green area was removed in the last five years, with no replacement created on the site.

8. References

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