

BAT SURVEY RESULTS AND MANAGEMENT PLAN

ST JOHN THE BAPTIST, KEYSTON, HUNTINGDONSHIRE

OCTOBER 2021



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EXECUTIVE SUMMARY

B J Collins Protected Species Surveyors Ltd have undertaken bat surveys at the Church of St John the Baptist, Keyston, Huntingdonshire in connection with the Heritage Lottery funded 'Bats in Churches' project.

The survey data confirmed that the church is used as a maternity site for up to 100 Natterer's bats and for day roosting by individual bats from the Pipistrelle species. The bats utilise 2 principal access points into and out of the Church along with a further 3 features used to a lesser degree.

The numbers of Natterer's bats given the geographical region are such that the maternity colony is considered to be important on a regional scale. It is considered unlikely that there is a similar sized colony of this species within the core sustenance zone of the bats which reside within Keyston Church.

The 2021 bat surveys were the first detailed surveys known to catalogue and describe the use of the Church by bats.

Over 2021 the Natterer's bat roost was in the north transept, an area set aside by a partial screen as a vestry, and therefore the bulk of droppings from this large aggregation of animals is contained within a non-public area. The Pipistrelle bats roost within the south transept. There is a spread of droppings and urine across the entire body of the church. Furthermore, the aggregations of droppings across the Church pre 2021 suggest that bats may use other areas in different seasons and in varying numbers. This potential can be identified by further surveys required at the time when intervention works are undertaken, and follow-up works are carried out.

As a result of the 2021 surveys a suite of management options has been prepared to attempt to address the burden of droppings and urine that is distributed across almost every section of the Church. This summary of management options was discussed at a site meeting with the project managers, the architect and key personnel from the Church. Subsequently to this, the options were submitted and discussed by the Parochial Church Council meeting in October 2021. Various options were selected as favoured, and the potential implementation of these are described and set out within this Bat Management Plan.

This document then expands upon the principal actions associated with each of the options, including the favoured options.

The document then provides some estimates of costs for each element Option. This includes an accurate assessment of the costs of bat surveys to advise and ensure the continued favourable conservation status of the important bat roost within the Church. An estimate of the fees required by the architect based upon works undertaken at another project Church. A crude estimate of costs of the installation of intervention actions are based upon those costs incurred at other churches within the project, and by informal conversations with a leading church conservation contractor.

There are four intervention actions identified from the 2021 investigations that fall between an estimate of £8000 and £10,000 each, inclusive of ecologist and architect fees, one option is estimated at £1500. In accordance with the scale of costs provided by Natural England (October 2021), the options labelled as A, B and C are at the lower end of the "medium cost of works". Option D is within the category of "low-cost of works".

1 INTRODUCTION

B J Collins Protected Species Surveyors Ltd have been commissioned by Natural England to undertake bat surveys and to develop a Bat Management Plan for the Church of St John the Baptist, Keyston, Huntingdonshire.

The surveys were carried out under the “Bats in Churches” project funded by The Heritage Lottery Fund and under the request of the PCC of the Church of St John the Baptist.

Over 2021 the project has resulted in detailed bat surveys establishing the status of bats, the species of bats and the number of bats within the body of the Church. It has then identified the principal access points in and out of the Church in order to inform possible management practices and solutions.

This Bat Management Plan has been completed taking into account the survey results and a response to draft management options provided to the PCC, the Church Architect and the Bats in Churches Project Manager at a project meeting in September 2021, and a subsequent Parochial Church Council meeting in October 2021. It also considers documents provided upon instruction, including for:

- The request for quotation-Bats in Churches HF Project HG-16-02183;
- The Church project plan;
- The statement of significance - in the form of the Heritage statement “129 Huntingdonshire, Keyston St John the Baptist”;
- The bat roost advice received from Natural England following a site visit from the volunteer bat warden dated 6 June 2019, reference CAM_PE280RH_271118.

A desktop study was also undertaken by consultation with the Cambridgeshire Bat Group and the Northants Bat Group, which identified that there are no records of detailed surveys of the Church historically.

The enclosed Bat Management Plan has been prepared to address 3 principal objectives:

1. To investigate cost-effective and novel management solutions to reduce the burden of droppings and urine, allowing greater use of the structure by the congregation and the residents under the curtilage of the Church.
2. To implement cost-effective and novel management solutions to reduce the impact of bats upon the Church, principally from the effects of droppings and urine, whilst maintaining the Favourable Conservation Status (FCS) of the regionally important bat roost the Church supports.
3. To ensure developed schemes include, as a priority, the preservation of the historic appearance, fabric and history of the Church - the significant heritage value of the building.

2 METHODS

Background study

The consultant team approached the county bat groups surrounding the Church for records of bats. The PCC provided results of a previous visit to the Church to carry out a preliminary bat roost assessment by a volunteer from Natural England.

Bats

Preliminary roost assessment and light touch survey

In accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition (Collins J, 2016), a preliminary roost assessment was carried out on the Church to determine whether any features were present that bats could use for entry/exit points and roosting, and to search for signs of bat presence indicating roost features. High-powered torches and binoculars were used to search for internal and external features including but not limited to:

- Gaps in window and around doors
- Gaps >15mm in timber frames and stonework
- Bat specimens (live or dead)
- Bat droppings and urine staining
- Feeding remains (e.g., moth wings)

Evening emergence surveys

A team of between 4 and 5 surveyors undertook the dusk emergence surveys on the 17th of June, 19th July and the 23rd August 2021. The first emergence survey was adversely affected by rainfall, but the remaining surveys were carried out under suitable weather conditions, this was not considered to be a constraint. A fourth survey was then undertaken on the 16th of September 2021 to determine the potential for bats to be roosting independently within the Church tower.

The surveyors were positioned at all of the suspected/known roost locations and access points into and out of the Church.

Dawn re-entry survey

A team of 5 surveyors undertook a single dawn re-entry survey on the 17th of June 2021. The survey was carried out under suitable weather conditions.

Species identification/video cameras

The confirmation of bat emergence and exit points from the Church and the roost areas inside the Church was made by utilising infrared night vision cameras.

3 SURVEY RESULTS

Information on Historical Bat Use of the Church

There was no detailed information available as to previous bat surveys of the Church and the status of the bats within. The only information provided was from the Natural England visit in 2019 which comprised of a daytime visit and from that an assessment of bat species present and bat roost status. At the beginning of 2021 there was no detailed information with regards to the bat species which occupied the Church and their status.

The geographical setting of the Church

Examination of aerial imagery, courtesy of Google Earth, identifies that the village properties support valuable woodland features which are denuded in the wider landscape due to intensive arable agriculture. There is however connectivity via retained hedgerows to smaller areas of woodland and wooded linear features offering bats a foraging resource away from the village centre. Examination of aerial imagery identifies that the village itself represents a vital oasis for bat species within an intensively modified landscape.



Figure 1: The setting of the Church within the wider landscape

Preliminary roost assessment

Upon commencement of the survey the Church contained extensive aggregations of droppings across a wide area which identified the presence of established bat roosts and potentially the presence of up to 3 species of bat.

The determination of roost locations was impeded by the extent of droppings and the length of time that the protective sheeting have been placed out. This was overcome by the range of emergence and activity surveys.

The aggregations of droppings identified in the south transept suggest that there is the potential for the Natterer's bat roost to move to this area, potentially due to normal factors such as climatic

conditions and parasite loading within the roost area. This factor requires consideration within the management plan, and taken into account when considering the effectiveness of management solutions.

Evening emergence/dawn re-entry surveys

The results of the evening surveys and the dawn re-entry surveys are provided in summarised graphical form overleaf. Detailed results are included within a stand-alone report which will be utilised for the Bats in Churches Class Licence, when this becomes a requirement.

In summary, the Church supports a maternity colony of Natterer's bats with a peak count of approximately 100 individuals. It then, over the 2021 season, supported day roosting by individual Common pipistrelle and Soprano pipistrelle bats.

The main centre of roosting for the Natterer's bats is in the apex of the north transept adjacent to the north wall. The Pipistrelle bats appear to be roosting in isolated locations within the south transept, but droppings also indicate that this may also occur across the body of the Church in other suitable locations within the roof frame and underboards.

There were two main access points for the bats over the 2021 season, the gap around the priest door in the chancel and out of a gap at the top of the window in the western elevation of the ground floor section of the tower. There was then a further three access features in use to a lesser degree across the 2021 surveys.

During late August 2021 the bat ecologist opened up a previously sealed, by the use of steel mesh, gap in the window opening on the east elevation of the north transept. The survey on 16 September noted a single bat emerging from this, a feature available for approximately 3 weeks prior to that survey.

A summary of the findings from the 2021 surveys included overleaf:

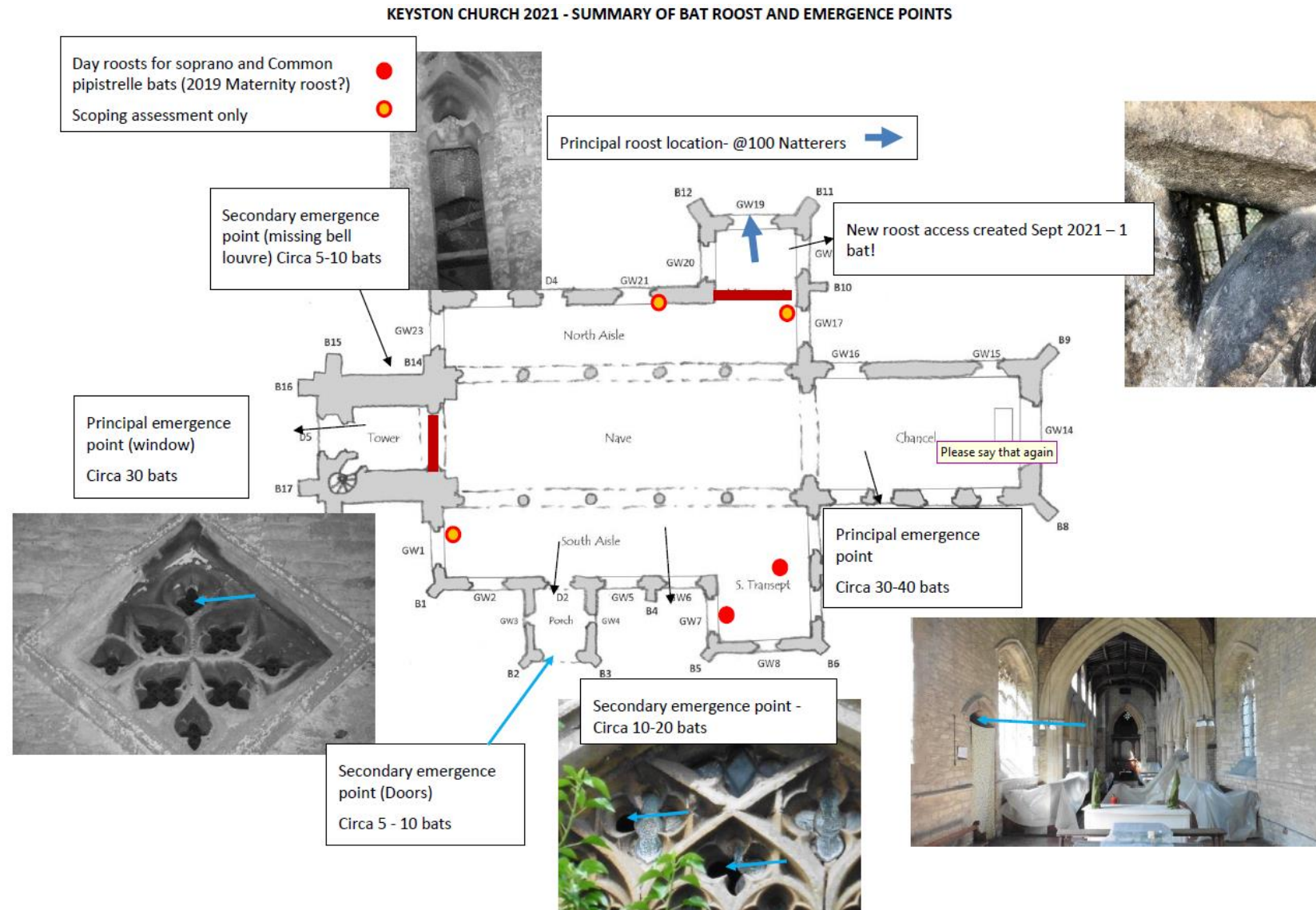


Figure 3: Survey Results from 2021

4 DISCUSSION

Bats

Legal protection

All species of British bat and their roosts are protected under British law by the Wildlife and Countryside Act 1981 (as amended), and bats are classified as European Protected Species under the Conservation of Habitats and Species Regulations 2017 ('the 2017 Regulations'). This has recently been amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations (2019) which continue the same provision for European protected species, licensing requirements, and protected areas after Brexit.

The legislation makes it an offence to kill, injure or disturb a bat and/or to damage or destroy a breeding site or resting place for a bat. It is also an offence to disturb the animals such that it impairs their ability to survive, to reproduce, to nurture their young, or such that it impairs their ability to hibernate or migrate. Under this any legislation activities that could affect a bat or bat roost can only be permitted under a licence from Natural England.

Licences in respect of European Protected Species affected by development can be granted under Section 55(2) (e) of The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations (2019), for the purpose of preserving public health or public safety or other imperative reasons of overriding public interest including those of social or economic nature and beneficial consequences of primary importance for the environment.

Under Section C Regulation 55(9) of the Regulations licences can only be issued if Natural England is satisfied that:

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

A roost is defined as being 'any structure or place that is used for shelter or protection', and since bats regularly move roost site throughout the year, a roost retains such designation whether or not bats are present.

Overview of the use of the Church

The surveys confirmed that the Church is used by at least three bat species and that the Church supports a sizeable maternity roost of Natterer's bats. Over 2021 the bats were centred entirely on the north transept. There is some dropping evidence in the south transept to suggest that the colony may have roosted there in the past and this requires some caution within the management objectives.

There are then individual Pipistrelle bats roosting in various locations and over 2021 these were centred within the south transept.

The access points include gaps in windows and missing panes, gaps above and around the doors and out of the northern bell louvre.

All of the bat roost features and access points are protected under the relevant legislation from damage or disturbance.

Overview of the impact from bat activity

The surveys identified that the bats are active within all sections of the Church and in abundance, with slightly less activity occurring within the north aisle. During the survey the extent of urine deposition and droppings was significant and spread across the nave in particular.

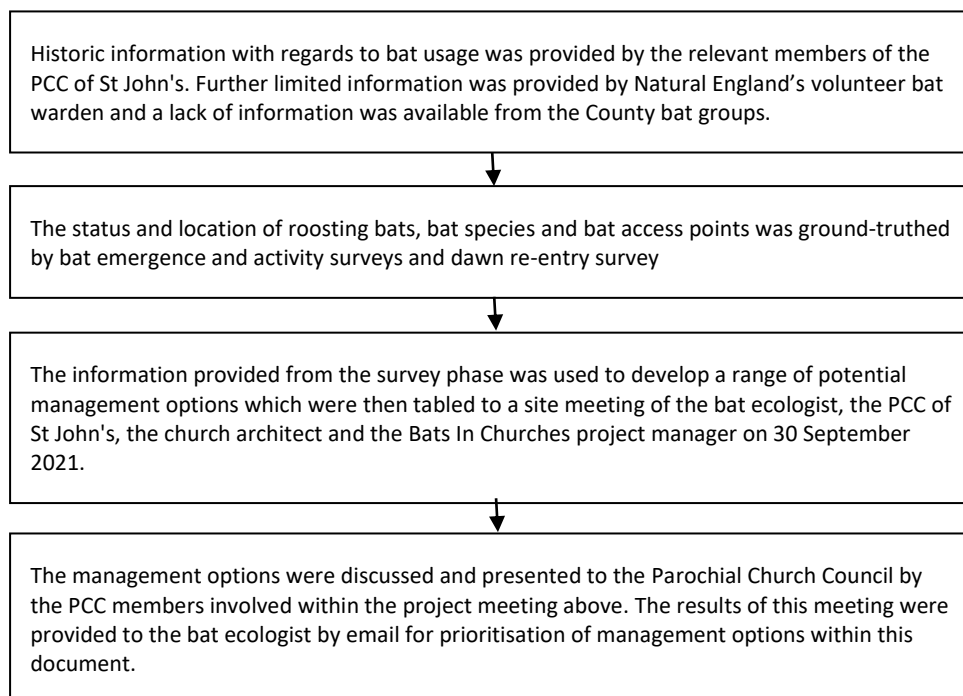
Dropping aggregations below roost features are such that they will have an impact within a relatively short period of time due to the numbers of bats present. The area of principal droppings load was within the north transept, an area set aside as the vestry and therefore utilised by a small number of people. However, over the extended period prior to the 2021 surveys, dropping aggregations were noted across the entire plastic sheeting covering the pews in the nave, chancel and aisles.

There are further aggregations of droppings on the plastic sheeting within the north aisle, nave and south aisle to suggest that the Natterer's bats but more likely the Pipistrelle bat roost in greater numbers on occasional years within these areas.

Development of recommendations

The development of recommendations is based upon the known bat activity recorded over 2021. This is as described within the overview in section 4.2 above. The recommendations may need to be adapted and modified should the bats moved to an alternative roost location or, as the historic aggregations on the plastic sheeting suggest may occur, the low numbers of Pipistrelle bats roost occasionally in large numbers in isolated locations.

The development of recommendations followed the flow chart below:



The Heritage

The heritage value of the Church was provided to the ecologist by the Bats in Churches project team via the listed building description.

The relevant section of the summary of this document is provided here and the full document is provided within appendix 1.

“An impressive building, placed centrally in the village and with a landmark broach spire. The design reflects the status of the manorial lords, and is of high archaeological, architectural and historical significance. The Church was built in several stages between the thirteenth and early sixteenth centuries, but has a high degree of architectural cohesiveness, not least because of the additions and programme of wider window replacement in the fifteenth century. It was fairly sensitively restored around the turn of the twentieth century. Medieval fabric of high significance includes carved stonework (notably in the west porch of the tower and the sedilia and piscina in the chancel) and the sixteenth-century carved timber roofs of the porch, nave and transepts. Furnishings of note include an early fifteenth century oak cadaver (of national significance), fragments of fine fifteenth century stained glass, early seventeenth century pews and a fine east window by F.C. Eden.

Evidence of impact from bat droppings and urine is widespread and extensive, especially in the nave, aisles and transepts. There are scatterings of droppings and urine throughout, particularly evident on the encaustic tile floors and wall monuments. Most of the furnishings (the organ apart) have been protected, but the oak cadaver needs to be more securely protected. The parish is considering the possibility of screening off the chancel and seeking to exclude bats from this part of the building. For the rest of the Church, a balance has to be struck between the desirability of putting the building to greater use (and reducing the onerous burden of regular cleaning), while recognising the presence of bats and their legally protected status.”

The oak cadaver is currently placed in the north-east corner of the chancel, an area used to a lesser degree by bats, but there is a proposal to provide greater interpretation of this unique heritage feature.

The bats

The bat assemblage at the Church is poorly studied; with only one detailed survey undertaken via a range of visits over 2021.

This is identified a maternity colony of Natterer’s bats, the colony is of a size to be of regional significance, particularly taking into account the modified landscape of this part of Huntingdonshire.

Whilst only day roosting individual Pipistrelle bats were identified during the 2021 surveys there are dropping aggregations on the plastic sheeting to suggest that a larger colony of this species may have been present in previous years. This is alluded to by the preliminary bat roost assessment carried out by Natural England in 2019 (see Appendix 2).

People

The Church congregation and the Parochial Church Council include committed and enthusiastic individuals with a desire to see the Church as a centre for the community of Keyston and surrounding villages.

The Bats in Churches public event was well attended with 50 attendees, including 10 children. The event was advertised in the local parish magazine, Village Matters, and the Raunds Roundup local town magazine. The PCC advertised the event via the relevant social media and circulated posters in all public information areas. The PCC have been actively promoting the bats within the Church since information was provided via a short article in the monthly community magazine.

The Church hope to provide further community activities as well as to recommence a regular schedule of worship.

5 MANAGEMENT OPTIONS

Draft Options Presented

A range of draft management options were tabled at the project meeting of the 30th of September 2021. The advantages of each of these management options are discussed and the current proposal containing the favoured option, following the 5th of October Parochial Church Council meeting is then prioritised below.

Chapter 6 then provides draft costings for each of these management options based upon costs of similar works across the Bats in Churches project has provided by Natural England (Milne J, October 2021), actual costs prior divided by the ecologist and budget prices provided for another similar project and through conversation with a leading church conservation contractor.

The following is a draft menu of management options to test to reduce the burden of droppings and urine within the body of the Church.

These options are not prioritised and therefore they are numbered a – e

- A. Confining the Natterer's bats within the tower
- B. Confining the Natterer's bats within the north transept
- C. Excluding the bats from and sealing off the chancel
- D. Reducing the burden of droppings within the body of the Church
- E. Providing for the Pipistrelle bats

A - Confining the Natterer's bats within the tower

This option would see the ground floor of the tower modified with alternative bat roosting features, probably heated, with a view to attracting the bats to roost within the tower. At the same time, the opening from the base of the tower into the nave is then sealed so the bats cannot gain access into the body of the Church.

Advantages

- a relatively cheap prospect
- bats are confined in an area easier to segregate
- bats are already emerging and returning by main bat access features in this area

Disadvantages

- bats may ignore the area and utilise the other access points
- if the other access points are closed, this could result in the abandonment of the roost
- both Soprano and Common pipistrelle bat roosts could be lost

B - Confining the Natterer's Bats within the North Transept

This is this potentially the simplest solution construction wise but the most difficult ecological. With the new access point opened in the window in the north transept, the proposal will be to infill the space of the transept arch with a timber screen that the bats within the north transept. The success of this option is entirely dependent upon the bats changing from the other 2 main access features to utilise that within the north transept. There is considered to be a relatively high risk of the loss of the bat roost and therefore monitoring is required to determine the proportion of the animals are using

the feature to exit and enter the church.

Advantages

- cheap and easy to install
- retain the bats in their existing roost area so if the new access works, then there is a high potential of success
- droppings are retained in an area which is utilised by a small number of people
- a screen ceiling could be positioned above the changing area, similar to Tattershall

Disadvantages

- trials with moving bat access points have not been successful so far
- could result in the abandonment of the roost
- the Natterer's bats could access and select another part of the church as the main roost area
- both Soprano and Common pipistrelle bat roosts will be lost

C - Excluding the bats from and sealing off the chancel

The concept was adapted from the 30th of September team meeting. The idea is to provide a screen system which prevents bats accessing the chancel. This has added advantages of assisting with costs of heating the Church and removes the burden of cleaning the Church before each and every service of worship.

This concept has been delivered effectively at Tattershall Church in Lincolnshire.

For this to work the main bat access point of the priest door in the chancel would have to be closed.

Advantages

- There will be no droppings located within the chancel.
- There will be the potential to reduce heating bills and improve the comfort of the chancel during services over the winter months.

Disadvantages

- This is a potentially expensive option due to the size of the chancel arch
- One of the principal bat access points will be lost with the possibility of the abandonment of the maternity colony, Natterers
- Possibility of the loss of the Pipistrelle bats within the Church

D - Reducing the burden of droppings within the body of the Church

The concept is to close off bat access points in the south aisle to try to reduce the burden of droppings across the body of the Church.

Advantages

- very simple and quick to do
- unlikely to have a significant impact upon the bats
- may result in a reduction in the amount of urine droppings across the body of the Church
- could be used in conjunction with other options

Disadvantages

- very few, but it may reduce the use of the Church by Pipistrelle bats.

E - Provision for Pipistrelle bats

The above options could lead to the loss of access into the Church for the Pipistrelle bat species and as a result the Church would lose at least two of the three species which currently reside within. Options available here would be to provide a bat box scheme within the Church grounds. This will provide suitable habitat for the level of roosting which has been identified over the 2021 season but does not provide for the level of roost status suggested by Natural England in 2019.

Management options for 2022

The Parochial Church Council for St John's met on 20 October 2021 to review the draft management proposals. Having considered all the options proposed and the way in which the congregation want the Church to be used, the decision was taken to prioritise the option to confine the Bats within the North Transept, Management Option B, and to also start to proactively set up a bat box scheme within the Church grounds, Management Option E, to address the replacement roost habitat for Pipistrelle bats in the long-term. This will also be developed as a possible local involvement and engagement activity.

At the draft management option meeting on the 30th of September it was recommended that if Option B was chosen, that given the potential long-term process of adapting the bats to a new access point, that the closure of the North transept, Option A, should be carried out in tandem with the closure of the archway leading into the tower at the same time installing a suitable bat roost feature within this area. During 20 October 2021 meeting the PCC felt that the implementation of Option A for the bell tower, would need further consultation with the bell ringers to understand the impact. The bat ecologist has been advised that this consultation had taken place at the date of publication of this report and considerations as to moving Option A forward will be considered and tabled.

6 CONCLUSIONS

The concerns with Option B as a stand-alone item is that there may be a significant time period for the bats to adapt to the new access, if at all. Furthermore, the closure of the transept could lead to the bats roosting in the main body of the Church increasing the droppings burden. Furthermore, closing the transept off without the new access being accepted as a principal route into the Church could result in the loss of the roost, and therefore a significant impact upon the favourable conservation status of this bat species in the wider local area.

The 2021 bat management plan therefore provides costings for each of these elements and proposes, dependent upon the availability of funds, to take forward works associated with Option A in tandem with Option B, and to also implement Option E in all other circumstances.

Favourable Conservation Status of the bats using the church must be achieved in order to register the management options under the Bats in Churches Class Licence (CL32).

Combining options requires consideration, as this has cost advantages with regard to the impact of the post development monitoring, site supervision and review of installation actions.

The estimate of costs is provided overleaf.

7 BUDGET ESTIMATES

The costings for each Management Option were based on costings provided by Natural England by email in October 2021, within a spreadsheet titled "Cost analysis fundraising for Churches for BMP". These provide costs for varying management options similar to those which are stipulated in Options A to E in chapter 5 of this report. Further information provided was accurate costings from the ecologist and provisions based upon other projects and informal conversation with a specialist church contractor. The Options requested by the PCC from the meeting of 20 October 2021 are provided in the first instance, the supplementary recommendations of the bat ecologist in the second instance and then costings for the other elements included below.

Option B. Confining the Natterer's Bats within the North Transept

To achieve this the following course of events will be required.

- 2022 - Annual monitoring comprising of two emergence and activity surveys are required covering the 2 principal bat access features and the newly created bat access, this will require 3 ecologists who will be further supplemented by the deployment of 3 night vision video cameras monitoring the transiently used access points into and out of the Church.
- 2023 - Subject to a third of the Natterer's bat population (circa 30 bats) utilising the new bat access, a temporary north transept arch screen can be installed, similar to the items adopted at Tattershall in Lincolnshire. It is recommended that in the first instance this is temporary, to allow minimal cost of installation if the screen has to be removed in the case of abandonment by the Natterer's bat roost.
- 2023 -annual monitoring comprising of 2 emergence and activity surveys will again be implemented to check the success of this installation and inform any potential abandonment.
- If the bat access point has not been taken up sufficiently, the screen cannot go ahead and ongoing monitoring should be deployed over 2022 and 2023, following that monitoring can defer to a single survey on an annual basis - if the project objective has not been amended at that point.
- A review of this objective should take place close to the end of the summer of 2022, to consider success and relevant steps forward.

Option B - Confining the Bats within the North Transept

Surveys – Emergence/dawn surveys (two monitoring surveys in 2022)

Ecologists x 3	2 surveys	£45.00/hour	£1,350.00
Travel costs	2 x 76 miles	£0.45/mile	£189.00

Installation cost estimates

Ecologists	1 day - travel and supervision	£300.00/day
Architect fees	2 days - design and supervision	£460.00/day
Travel Expenses	Architect and Ecologist, 2 x 76 miles	£189.00

Installation of temporary screen to transept arch	Cost estimate – ref. Saxlingham, St Margaret's/ Tattershall	£3,500.00
<i>Post installation– Emergence/dawn surveys (two monitoring surveys in 2023)</i>		
Ecologists x 3	2 surveys £45.00/hour	£1,350.00
Travel costs	2 x 76 miles £0.45/mile	£189.00
Annual review – Ecologist and Architect	2 x day rate plus travel expenses = £760 plus £189.00	£949.00
Total estimate for the implementation of Option B, exclusion of the north transept by screen		£8,476.00

Option E - alternative roost provision for Pipistrelle bats

The ideal location for bat boxes should be identified by the ecologist to the PCC by a site meeting during the works associated with Option B, to rationalise costs.

Provision of bat box kits	Based on a proprietary purchased kit from NHBS, considering the construction of 5 sites of 3 boxes x £20.00	£300.00
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Option A – Confining the Natterers bats within the tower.

This option would see the ground floor of the tower modified with an alternative and suitable bat roosting feature, heated to provide suitable thermal conditions, with a view to attracting the bats to roost within the tower. At the same time, the opening from the base of the tower into the nave is then sealed by an arch screen, so the bats cannot gain access into the body of the Church.

To achieve this the following course of events will be required.

- Year 1 - A temporary tower arch screen it should be installed, similar to the items adopted at Tattershall in Lincolnshire. This is temporary to allow minimal cost of installation if the screen has to be removed in the case of abandonment by the Natterer's bat roost.
- A heated Batbox will be installed into a suitable location within the ground floor section of the tower.
- Year 1 - annual monitoring comprising of 2 emergence and activity surveys will be implemented to check the success of this installation impact upon the favourable conservation status of the bat roost.
- Year 2 - annual monitoring comprising of 2 emergence and activity surveys will be required to check the success of the mitigation and the favourable conservation status of the bats.
- A review of this objective should take place close to the end of the summer following installation, to consider success and relevant steps forward.

Option A – Confining the Natterers bats within the tower

Installation cost estimates

Item	Description	Stand alone cost	In combination with item B
Ecologists	1 day - travel and supervision	£300.00/day	Nil
Architect fees	2 days - design and supervision	£460.00/day	Nil
Travel Expenses	Architect and Ecologist, 2 x 76 miles	£189.00	Nil
Installation of temporary screen to arch	Cost estimate – ref. Saxlingham, St Margaret's/ Tattershall	£3,500.00	N/A
Installation of heated bat box	Cost estimate – ref. Low Catton, All Saints – with electrical work	£1,500.00	N/A

Post installation– Emergence/dawn surveys (two monitoring surveys in Year 1)

Item	Description	Stand alone cost	In combination with item B
Ecologists x 3	2 surveys £45.00/hour	£1,350.00	Nil
Travel costs	2 x 76 miles £0.45/mile	£189.00	Nil

Surveys – Emergence/dawn surveys (two monitoring surveys in Year 2)

Item	Description	Stand alone cost	In combination with item B
Ecologists x 3	2 surveys £45.00/hour	£1,350.00	Nil
Travel costs	2 x 76 miles £0.45/mile	£189.00	Nil

Item	Description	Stand alone cost	In combination with item B
Annual review – Ecologist and Architect	2 x day rate plus travel expenses = £760 plus £189.00	£949.00	Nil

Total estimate for the implementation of Option A, confining Natterer's bats to tower.	£9,976.00	£5000.00 (survey & supervision and review activities will be the same output for both Option A and Option B)
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Option C. Excluding the bats from and sealing off the chancel

The concept was adapted from 30 September team meeting. The idea is to provide a screen system which prevents bats accessing the chancel. This has added advantages of assisting with costs of heating the Church and removes the burden of cleaning the Church before each and every service of worship.

This concept has been delivered effectively at Tattershall Church in Lincolnshire.

For this to work the bat access point of the priest door in the chancel would have to be closed.

This proposal was put to the PCC meeting on 20 October 2021 and was not selected for further progress.

However, to achieve this the following course of events would be required.

- Year 1 - A temporary chancel arch screen would be installed, similar to the item adopted at Tattershall in Lincolnshire. This is temporary to allow minimal cost of installation if the screen has to be removed in the case of abandonment by the Natterer's bat roost.
- Year 1 - annual monitoring comprising of 2 emergence and activity surveys will be implemented to check the success of this installation impact upon the favourable conservation status of the bat roost.
- Year 2 - annual monitoring comprising of 2 emergence and activity surveys will be required to check the success of the mitigation and the favourable conservation status of the bats.
- A review of this objective should take place close to the end of the summer following installation, to consider success and relevant steps forward.

Option C - Excluding the bats from and sealing off the chancel

Installation cost estimates

Ecologists	1 day - travel and supervision	£300.00/day
Architect fees	2 days - design and supervision	£460.00/day
Travel Expenses	Architect and Ecologist, 2 x 76 miles	£189.00
Installation of temporary screen to chancel arch	Cost estimate – ref. Saxlingham, St Margaret's/ Tattershall	£3,500.00

Post installation– Emergence/dawn surveys (two monitoring surveys in Year 1)

Ecologists x 3	2 surveys	£45.00/hour	£1,350.00
Travel costs	2 x 76 miles	£0.45/mile	£189.00

Post installation– Emergence/dawn surveys (two monitoring surveys in Year 2)

Ecologists x 3	2 surveys	£45.00/hour	£1,350.00
Travel costs	2 x 76 miles	£0.45/mile	£189.00

Annual review – Ecologist and Architect	2 x day rate plus travel expenses = £760 plus £189.00	£949.00
Total estimate for the implementation of Option C - Excluding the bats from and sealing off the chancel		£8,476.00
<i>Total estimate for Option C – in combination with other works cost</i>		<i>£3,500.00</i>

Option D – Reducing the burden of droppings within the body of the Church.

The concept is to close off bat access points in the south aisle to try to reduce the burden of droppings across the body of the Church.

To achieve this the following course of events will be required.

- The missing window panes within the south aisle will be repaired/replaced.
- The main Church door will be sealed to prevent bats accessing the gap between the door and the stonework.
- It is anticipated that this element will be undertaken at the same time as one of the other principal Options above and therefore the post intervention annual monitoring costs will be absorbed by the costs for those described above.
- A review of this objective should take place close to the end of the summer following installation, to consider success and relevant steps forward.

Option D – Reducing the burden of droppings within the body of the Church

Installation cost estimates

Ecologists	1 day - travel and supervision	Inc
Architect fees	2 days - design and supervision	Inc
Travel Expenses	Architect and Ecologist, 2 x 76 miles	Inc
Repairs and Joinery	Cost estimate	£1,500.00
Total estimate for the implementation of Option D, closing access into the south aisle. (When carried out at the same time as one of the other options)		£1,500.00

8 SUMMARY OF COSTS

SUMMARY	
Total of Option A	£9,976.00 ¹
Total of Option B	£8,476.00
Total of Option C	£8,476.00 ²
Total of Option D	£1,500.00 ³

There are four intervention actions identified from the 2021 investigations above, each of these falls between £8000 and £10,000 inclusive of ecologist and architect fees, one option is estimated at £1500.

In accordance with the scale of costs provided by Natural England (October 2021), the options labelled as A, B and C are at the lower end of the medium cost of works. Option D is within the category of low-cost of works.

9 REFERENCES

Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edition). The Bat Conservation Trust, London.

Mitchell-Jones A J 2004. *Bat Mitigation Guidelines*. English Nature.

Mitchell-Jones A J and McLeish A P 2004. *Bat workers manual*. Joint Nature Conservation Committee.

¹ £5000.00 if undertaken in combination with Option B (survey & supervision and review activities will be the same output for both Option A and Option B)

² Total estimate for Option C – in combination with other works cost £3,500.00

³ When carried out at the same time as one of the other options

APPENDIX 1 - Heritage statement “129, St John the Baptist”

The Heritage statement in the form of the listed building documentation, “129 Huntingdonshire, Keystone St John the Baptist” is provided overleaf:

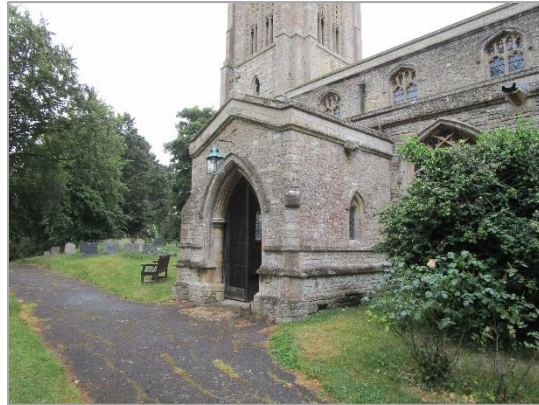
St John the Baptist, Keyston, Huntingdonshire

Raunds Road, Keyston, Huntingdonshire PE28 0RE

National Grid Reference: TL 043 754



Lychgate and view from E



S porch



Porch in W tower



Interior looking E



N aisle looking E



Looking W from chancel

EXECUTIVE SUMMARY

An impressive building, placed centrally in the village and with a landmark broach spire. The design reflects the status of the manorial lords, and is of high archaeological, architectural and historical significance. The church was built in several stages between the thirteenth and early sixteenth centuries, but has a high degree of architectural cohesiveness, not least because of the additions and programme of wider window replacement in the fifteenth century. It was fairly sensitively restored around the turn of the twentieth century. Medieval fabric of high significance includes carved stonework (notably in the west porch of the tower and the sedilia and piscina in the chancel) and the sixteenth-century carved timber roofs of the porch, nave and transepts. Furnishings of note include an early fifteenth century oak cadaver (of national significance), fragments of fine fifteenth century stained glass, early seventeenth century pews and a fine east window by F.C. Eden.

Evidence of impact from bat droppings and urine is widespread and extensive, especially in the nave, aisles and transepts. There are scatterings of droppings and urine throughout, particularly evident on the encaustic tile floors and wall monuments. Most of the furnishings (the organ apart) have been protected, but the oak cadaver needs to be more securely protected. The parish is considering the possibility of screening off the chancel and seeking to exclude bats from this part of the building. For the rest of the church, a balance has to be struck between the desirability of putting the building to greater use (and reducing the onerous burden of regular cleaning), while recognising the presence of bats and their legally protected status. In the first instance an ecologist's survey is required.

1. Core data

- 1.1 Local planning authority: *Huntingdonshire District Council*
- 1.2 Diocese: *Ely*
- 1.3 Listed Grade: *I* (List entry number [1267649](#))
- 1.4 Church Heritage Record: [614179](#)
- 1.5 Conservation Area: *Keyston*
- 1.6 Scheduled Ancient Monument: *No*
- 1.7 Churchyard: *Yes*
- 1.8 Date(s): *Medieval*
- 1.9 Date of visit: *10 June 2020*
- 1.10 Name of report author: *Andrew Derrick*
- 1.11 Name and role of church representative met on site: *Andrew Ford*
- 1.12 Parish/church website: *No*
- 1.13 Other sources:
O'Brien, C. and Pevsner, N., The Buildings of England: Bedfordshire, Huntingdonshire and Peterborough, 2014, pp. 536-7

Royal Commission on the Historical Monuments of England, [*An Inventory of the Historical Monuments in Huntingdonshire*](#), 1926

Victoria County History, [*A History of the County of Huntingdon, Vol.3*](#), 1936

Huntingdonshire District Council, [*Keyston Conservation Area Character Statement*](#), 2003

2. Brief history and description of the church, contents, churchyard and setting

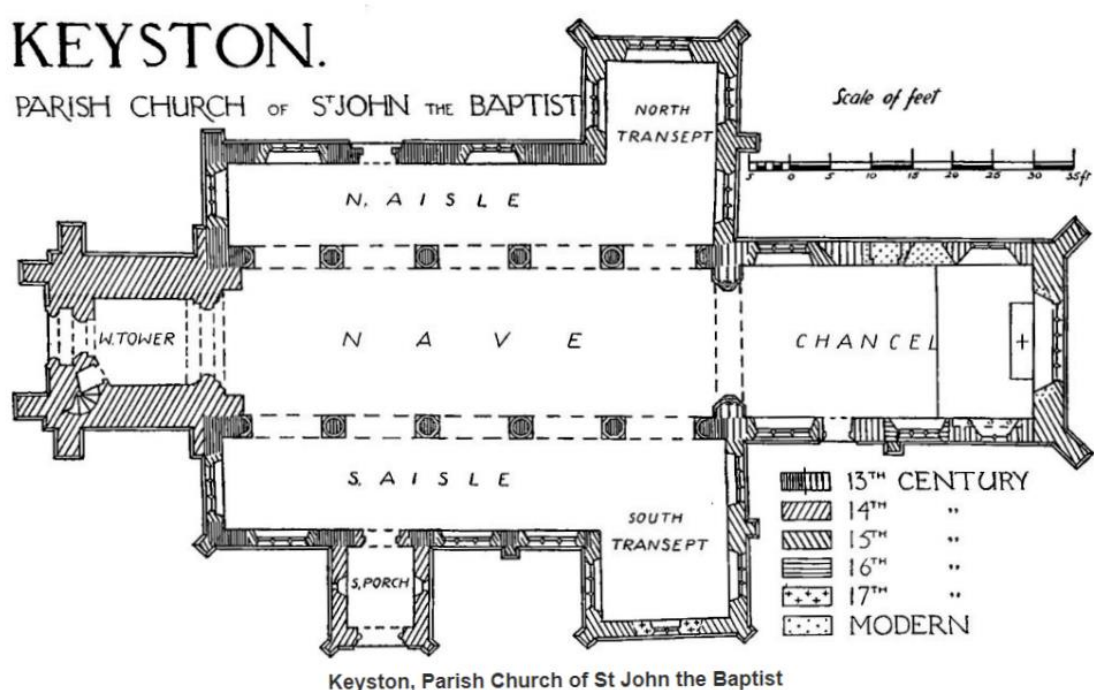


Figure 1: Plan (RCHME)

Churchyard and setting

The church stands in the middle of the village. The manor house (which was demolished in the eighteenth century) lay on the other side of Raunds Road to the east, and its remains (discernible only as earthworks) are now scheduled as an ancient monument (no. [1006824](#)). The church and churchyard are on a slightly raised site, and are reached from Raunds Road via a lychgate built in 1936. There is also pedestrian access to the churchyard via a footpath from Loop Road to the west. The perimeter of the churchyard is planted out with mature specimen trees, several of which are subject to Tree Preservation Orders. The spire is a prominent local landmark, and the churchyard is an important open space in the conservation area. It is bounded by an old boundary wall and railings and contains a large number of marked graves, including a good group of eighteenth century headstones in the angle of the chancel and south transept. The Old Rectory and a former schoolroom lie immediately to the north, and are identified in the Conservation Area Appraisal as Buildings of Local Interest.

Brief history

Keyston Manor is recorded in the Domesday survey as a possession of King Edward the Confessor, but there is no mention of a church. In 1281 the advowson was attached to the manor, and this roughly corresponds with the dates of the earliest parts of the building: the nave and aisles are of mid-thirteenth century date, while the chancel originates from about 1280. The tower and south porch are mid-fourteenth century, and there was a further major programme of reconstruction from about 1480, when the walls of the chancel were raised and its east wall rebuilt. A clerestory and south transept chapel were also added, and the south aisle windows replaced. Finally, in about 1500, the north transept chapel was added and new windows formed in the north aisle walls. The corresponding roofs were renewed at the same time, although the south aisle and porch roofs were renewed in the seventeenth century, when the church was also reseated.

The manor house was described as 'newly built' in 1589, when belonged to Robert Devereux, Earl of Essex. In 1609 it was acquired by Henry Montague, Earl (later Duke) of Manchester, in whose family manorial rights remained until 1918.

The church was restored in 1883 under the direction of H. M. Townsend of Peterborough, when the lead on the nave roof was replaced with zinc and the broach spire repaired (VCH). To explain the apparent anachronism of thirteenth-century-style lucarnes on the spire, *The Buildings of England* suggests that the spire may have been remodelled or rebuilt by Townsend rather than repaired. The transept and south aisle roofs were repaired /replaced in 1898 and the chancel re-roofed in 1904, both under Townsend's direction. Further repairs were made to the spire in 1908 and 1928, and the north transept and aisle roofs were repaired in 1922–3.

In 1936 a timber framed lychgate was added at the entrance to the churchyard, from designs by Sidney Inskip Ladds of Huntingdon.

Architectural description

On plan (figure 1) the building consists of a chancel, nave, north and south aisles each with a transept giving off, south porch and west tower with spire. The walls are rubble faced in Weldon stone (coursed in the tower), and the dressings are of Barnack stone.

Exterior

Working from east to west, the east wall of the late-thirteenth-century **chancel** appears to have been rebuilt in the fifteenth century, with a fine restored five-light window with geometrical tracery and a raised plain moulded parapet on all sides. Its north wall has an original two-light window with two-centred arch and a larger three-light fifteenth-century window with vertical tracery and four-centred head. Between the windows is a blocked post-medieval door opening. The south chancel wall also has a late thirteenth century two-light window in its eastern bay, shorter to accommodate the internal sedilia. This is followed by an early-sixteenth-century three-light window in the position of an original window (of which the eastern jamb and part of the arch remain) and a fifteenth-century window similar to the corresponding one on the north side. Between these is an original priest's door with trefoiled arch and stiff leaf capitals. Some eighteenth-century memorials are built into the outside of the east and south chancel walls.

The late-fifteenth-century **north and south transepts** are of one build, with high moulded plinths and attached buttresses between large three-light windows with cusped tracery heads. In the south transept, the south window opening was reduced in the seventeenth century, with a two-light window formed re-using original materials. To its right, a stone Mass dial is set into the wall.

The **north and south aisles** are of mid-thirteenth century date, its original doorway surviving on the north side, no longer in use. The main doorway on the south side was renewed in the fourteenth century, probably when the porch was added. Both doorways have old (sixteenth century, according to the RCHM) battened and studded oak doors with decorative strap hinges. The aisle windows were renewed in the fifteenth century and are similar to those in the transepts. So too are the **clerestorey** windows, each of two lights with vertical tracery and flattish heads. Parapets throughout are solid and moulded.

The plinth detail of the south aisle is continued around the mid-fourteenth-century **south porch**. This has diagonal corner buttresses, a two-centred archway with attached shafts, moulded capitals and bases, and a single window placed centrally on each side (with gargoyle spouts in the parapets above). The roof has moulded and cambered tie beams and dates from the sixteenth century. Hanging over the porch entrance is an attractive Arts and Crafts-style copper lantern.

The **west tower** is richly detailed and its **spire** is a local landmark. The tower is of three stages, its most striking feature a porch *in antis* (to borrow a phrase from classical architecture), set into the western wall face and with an outer ogee-headed cusped arch incorporating good carved detail, including a goat. Above this is a lozenge opening with flowing tracery, while the belfry stage has tall paired lights with carved floral detail and pierced timber and stone belfry openings. The tower is topped by horizontal panels of blind tracery before transitioning to a tall octagonal broach spire with the problematic lucarnes mentioned above.

Interior

The interior is broad and light, despite the loss of plaster on the walls (which has at least had the benefit of revealing some of the archaeology of the building). The quality of light and openness is heightened by the raised clerestory and the wide transept chapels. The floors are paved with late nineteenth or early twentieth century encaustic tiles. The north transept – which *The Buildings of England* suggests may have been a chapel for the Ferrers family - is now screened off as a vestry area.

The **nave arcade** dates from the mid-thirteenth century, and is of five bays with big bases, alternately round and octagonal piers and two-centred arches of two chamfered orders. The **tower and chancel arches** are each of three orders, the latter with moulded capitals and bases. A circular staircase in the southeast angle of the tower has a quadripartite ribbed vault. The moulded labels of the responds on either side of the chancel arch have been hacked back at some time, possibly to accommodate a screen. The walls of the **chancel** have a pronounced outward lean, not so readily discernible from the outside. On its south side is a fine stepped **sedilia and piscina** of c.1300, with small shafts and cusped arches.

As in the porch, the **roofs** of the church interior are largely of late fifteenth or early sixteenth century date, including in the tower, where a plain timber floor to the ringing chamber appears to have replaced a stone vault (or a vault that was intended; the carved corbel heads and perimeter mouldings remain). The nave and transept roof have cambered tie beams and

curved braces with foliated spandrels and other good carved detail, especially in the north transept (green man) and nave (bosses in the centre of the tie beams). The north aisle has a pent roof with curved braces to tie beams, and also has good carved detail, while the south aisle and chancel roofs were renewed plainly but sympathetically in 1898 and 1904 respectively.

Furnishings



Figure 2: Oak cadaver

The church retains a good number of medieval and later furnishings and monuments of note, including one of particular rarity. The most notable are, in roughly chronological order:

- Not seen, the RCHME refers to a rectangular stone slab built into the east wall of the porch, carved with interlace ornament, also a similar smaller stone, of eleventh-century character and uncertain provenance
- A plain thirteenth-century **font**, retrieved from the rectory garden in the late nineteenth century and now placed on the floor near its nineteenth century replacement (which sits on the original circular shaft and square base)
- Chancel **sedilia** and **piscina** of c.1300, described above
- In the south aisle, a coped **coffin lid** of c.1300, with foliated cross
- **Piscina** in east wall of south transept, fourteenth century in character (so presumably re-set)
- At the west end of the north aisle, an **oak cadaver** (figure 2), an eviscerated tonsured (therefore clerical) figure lying in a shroud, early fifteenth century (the oak has been carbon-dated to 1400). Identified by Dr Christina Welch of the University of Winchester as an early example of this type of *memento mori* memorial, she considers the depiction of evisceration to be possibly unique (another possible example at Flamborough, East Yorkshire is badly damaged)
- Set into the west wall of the north transept, an early sixteenth century **indent** for a brass which had two kneeling figures, one male and one female

- Seventeenth century **pews** in the aisles, one nearest the south door dated 1608 on the back, and other seats in the nave which re-use seventeenth century material. The pews are raised on later timber platforms and have square panelled ends and moulded tops. A bench end in the north transept is inscribed 'D. Lee her seat.'
- Oak **lectern**, possibly made up from a bedstead, with arabesque panels, turned support and flat tripod base, c.1640
- Oak **reading desk** in the chancel, made up probably from a seventeenth-century former communion table, with turned legs at the corners and fluted top rails
- Seventeenth- and eighteenth-century **floor slabs** in the floors of the chancel nave and transepts. Other slabs are fixed to the internal walls of the chancel and south transept
- In the north transept, a large slate **wall monument** with lengthy inscription to the Revd Henry Lee, rector (d.1751)
- The **pipe organ** is a handsome early instrument attributed to George Holdich of London, c.1840, moved to its current location in front of the tower arch in 1965 (information from [BIOS](#) website)
- In the south transept, a simple marble neoclassical **wall monument** to Frederick Henry Binns (d.1846)
- Stone and marble **pulpit** on a tapering pedestal, c.1883
- **Choir stalls**, c.1883
- **Font bowl**, c.1883
- **Encaustic tile floors** in chancel and circulation areas, c.1883, more elaborate in the dais around the Communion table
- Timber **screen** in tower arch with quirky detailing, presumably c.1883
- **Painted timber panel** over north door (Sanctus, Alleluia), late nineteenth century
- **First World War memorial** in north aisle
- Not seen, the RCHME lists five **bells**, inscribed: (1) Feare the Lorde, 1592; (2) William Marks churchwarden: Eayre fecit 1743 gloria Deo soli Francis Clitherow Esquire; (3) Remember the ende 1592; (4) Give God the praise 1592; and (5) Thomas Russell of Wootton near Bedford made me in 1733 Thomas Simmons churchwarden. The first, third and fourth bells were cast by Francis Watts of Leicester.

Stained glass

- The windows are nineteenth and twentieth-century diamond quarries with some coloured borders. There are fragments of fifteenth and early sixteenth century glass in the **chancel** and **transepts**, including a winged lion with scroll inscribed 'Marcus' (figure 3) and the figure of a female saint with palm branch in the chancel
- In the lancet window in the **chancel (north side)**, a window in memory of George Palmer (d.1853) by Thomas Willement, patterned in thirteenth century-style
- The fine five-light **east window** is in memory of Joseph Henry Horsley and his son Wilfrid, who both died in 1917, the latter in action, with a central Crucifixion flanked by St George and St Joan of Arc, by F.C. Eden
- In the **north aisle**, a three-light window to T.B. Spencer (d.1863)
- In the **south transept**, a three-light window depicting Acts of Mercy, to Elizabeth Binns (d.1885)



Figure 3: Lion of St Mark in the chancel

3. The significance of the church

The church of St John the Baptist is an impressive building, placed centrally in the village and with a landmark broach spire. It reflects the status of the manorial lords, and is of **high archaeological, architectural and historical significance**. This is reflected in its Grade I listing (reserved for only about 2.5% of all listed buildings). It was built in several stages between the thirteenth and early sixteenth centuries, but has a high degree of architectural cohesiveness, not least because of the additions and programme of wider window replacement in the fifteenth century. The church was sensitively restored around the turn of the twentieth century. Medieval fabric of high significance includes carved stonework (notably in the west porch of the tower, the sedilia and piscina in the chancel) and the sixteenth-century carved timber roofs of the porch, nave and transepts. The chancel and south aisle roofs are of moderate significance.

The following furnishings are of **high significance**:

- Coffin lid of c.1300
- Elements of original font
- Fragments of fifteenth century stained glass
- The early fifteenth century oak cadaver (of national significance)
- North and south doors
- The early seventeenth century pews
- The east window

The following furnishings are of **moderate to high significance**:

- Willement window
- Lectern
- Reading desk

- Indent for brass in north aisle
- Holdich organ
- The bells
- Remaining pews incorporating seventeenth century fabric

The following are of **moderate significance**:

- Remaining nineteenth century stained glass
- Pulpit
- Choir stalls
- Encaustic tile floors
- Seventeenth- and eighteenth-century floor slabs
- Lee monument
- Binns monument
- First World War memorial
- Font bowl
- Tower screen

The vestry screen in the north transept and the painted panel over the north door are of **low-moderate significance**.

4. Assessment of impact of bats



Figure 3: Urine spotting on war memorial

There is no ecologist's report at the time of writing. There is plentiful of evidence of bats in the church, but numbers, species and entry points have yet to be established. At the time of the visit (June 2020), the church had been closed for almost three months in line with the Archbishops' directive in the wake of the Covid-19 epidemic. Even before this it was used only infrequently (four services a year). There is a local wish to increase use of the church, both for worship and other activities, but it is felt that this is being hindered by the presence and impact

of bats. No cleaning has taken place during the most recent closure, and the evidence of ongoing impact from bat droppings and urine is widespread and extensive, especially in the nave, aisles and transepts. There are scatterings of droppings and urine throughout, with urine spotting particularly evident on the encaustic tile floors and wall monuments. The Communion table, choir stalls, pulpit, pews, and font have been protected with cloths or polythene sheets, and the cadaver has been given its own improvised modern nylon shroud, but the organ is unprotected and there is staining on the pipes.

Area/item	Significance	Impact	Total
Roof structure	5	3	15
Wall surfaces (plain)	5	1	5
Wall surfaces (painted or decorated)	-	-	-
Floor surfaces	3	5	15
Wall monuments	3	5	15
Floor memorials/ brasses	-	-	-
Altar/communion table	3	2	6
Reredos	-	-	-
Seating (chancel)	3	2	6
Rood screen	-	-	-
Pulpit	3	2	6
Lectern	4	4	16
Seating (nave and aisles)	5	4	20
Seating (other)	-	-	-
Font (original)	5	1	5
Font (Victorian)	3	2	6
Organ	4	4	16
Other	-	-	-
Overall impact on significance			129

5. Recommendations

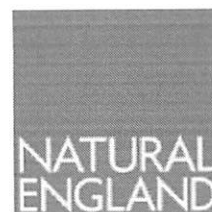
The score of 129 would be a lot higher if measures had not already been taken to protect furnishings. It is evident that bats are having a harmful impact on fabric and furnishings, although (the organ apart) those of high significance have been protected. The chancel appears to be less impacted by the presence of bats, and the parish is considering screening this area off and seeking to exclude bats; the space is large enough to accommodate those normally attending services. This will require careful consideration, and input from the DAC and Historic England, but should in principle be possible. However, it prompts the question of what should be done with the rest of the church. Here a balance has to be struck between the desirability of putting this to greater use, and reducing the onerous burden of regular cleaning, while recognising the presence of bats and their legally protected status. The church is in effect one large volume, or series of volumes, and (the chancel arch apart) there is no discrete area which might easily be separated off. Given the current low level of use, and the protection already given to furnishings, it may be questioned whether (other than in the chancel) extensive efforts to exclude bats are desirable or necessary. However, the prospect of (in effect) abandoning the main body of the church to bats is not one which local people would relish. One short-term measure would be to protect the organ and wall monuments with voiles or

similar. The oak cadaver also needs to be more securely protected, from possible theft as much as from bats. Long-term measures require a clear steer from the parish as to how local people wish to use the building in future, and will need to be informed by an ecologist's survey.

APPENDIX 2 - Natural England report CAM_PE280RH_271118

The report detailing the results of the daytime inspection by the Volunteer Bat Warden from Natural England in 2019 is provided overleaf:

Date: 6 June 2019
 Our reference: CAM_PE280RH_271118
 Your reference: Droppings & urine in the church



Mr Andrew Ford
 The Old Rectory
 Raunds Road
 Keyston
 Huntingdon
 Cambridgeshire
 PE28 0RH

Technical Services Wildlife
 Licensing (EPS)
 Natural England
 Horizon House
 Deanery Road
 Bristol
 BS1 5AH

Dear Mr Ford,

Bat Roost at St John the Baptist church, Raunds Road, Keyston, Huntingdon, Cambridgeshire, PE28 0RH

Background and survey information

Thank you for seeking advice from Natural England regarding the bats living in your church. We understand your concerns about the problems being caused and we hope we can work with you to mitigate some of these issues. We very much appreciate your cooperation in helping us protect these special but scarce species. The loss of natural roosts, such as hollow trees, has meant that most species of bat have become increasingly reliant on buildings, many of them churches, and are now dependent upon the goodwill of people such as you if they are to survive.

Please accept my apologies for the delay in writing to you. Natural England's batline contractors, the Bat Conservation Trust, received a high number of enquiries this summer and have had a backlog of letters to write.

As all species of bat have undergone significant decline with some species now being very rare, the law protecting all bats is strict. Therefore where possible it is best to organise any work on buildings used by bats so that any risk of harming the bats or their roosts is avoided, for example, by timing operations to fit with the life-cycle of the bats. This is important not only to help protect these scarce species, but also because it will help you get the work done in the most efficient way possible within the constraints of these strict laws. Natural England provides a free advice service for small-scale repair works to a church where bats may be affected, and relies on the generosity of volunteers to be able to run this service. If you are unable to resolve matters by following the advice, please contact Natural England¹ for further advice.

I understand that you are experiencing a high volume of bat droppings and urine inside the church and the concerns about how these may damage unique and valuable items inside the church. We would like to thank you for taking the bats into consideration and for seeking expert advice. Acting as you have will help to protect the bats and their roosts from potential harm, and it will also ensure that you don't inadvertently breach the strict laws protecting bats.

Following a visit to St John the Baptist on 4 May 2019 by Daniel Fellman, Natural England's Volunteer Bat Roost Visitor, I have received a report and am writing to confirm our advice.

¹ Contact Natural England via the Bat Conservation Trust (a registered charity in England, Wales and Scotland) on their helpline 0345 1300 228. The Bat Conservation Trust is currently contracted to provide the Natural England Bat Advice Service.

The table below summarises the bat roost information based on this report.

Bats visible at visit	None seen
Bat species and numbers	Pipistrelle bats identified by volunteer Daniel based on the droppings. Myotis bats (species unconfirmed) and long-eared bats (most likely brown long-eared bats) also identified by Daniel via the droppings.
Bat droppings information	A large number of droppings of mixed age in the main body of the church were recorded. The majority of the droppings appear to be from pipistrelles, approximately a third were from <i>Myotis</i> bats and fewer than 10% were from long-eared bats.
Roost type	<p>A maternity roost of pipsitrelles is present, alongside a hibernation roost.</p> <p>It is thought possible that maternity and hibernation roosts of <i>Myotis</i> bats are present.</p> <p>It is not thought that a maternity roost of long-eared bats is present, but that a hibernation roost is possibly present.</p>
Roost location	<p>The pipistrelle maternity roost is located in the gaps at two roof support posts in the south transept, and probably also in the north transept, where pipistrelles were heard. See figures 1 & 2.</p> <p>It is thought a maternity roost of <i>Myotis</i> bats is present in the north aisle where there is an accumulation of droppings, but the exact location is unknown. See figure 1.</p> <p>The location of the brown long-eared bat roost is unknown.</p>
Bat access point/s location	<p>Exact access points are unconfirmed, however there are many possible access points including gaps in doors, missing glass from windows, gaps around window frames and in stonework. See figures 3-6 for examples.</p> <p>There is also potential for bats to access the main body of the church via the roof.</p>
Additional information	<p>I understand the church is in irregular use and the majority of the church had not been cleaned in the 3 months prior to the volunteer visiting. You have reported a significant increase in droppings during the summer. I understand you currently use long sheets of plastic to protect the pews from bat droppings and urine.</p> <p>The tower was not inspected during this visit as it was not possible to gain access here.</p>

¹ Contact Natural England via the Bat Conservation Trust (a registered charity in England, Wales and Scotland) on their helpline 0345 1300 228. The Bat Conservation Trust is currently contracted to provide the Natural England Bat Advice Service.

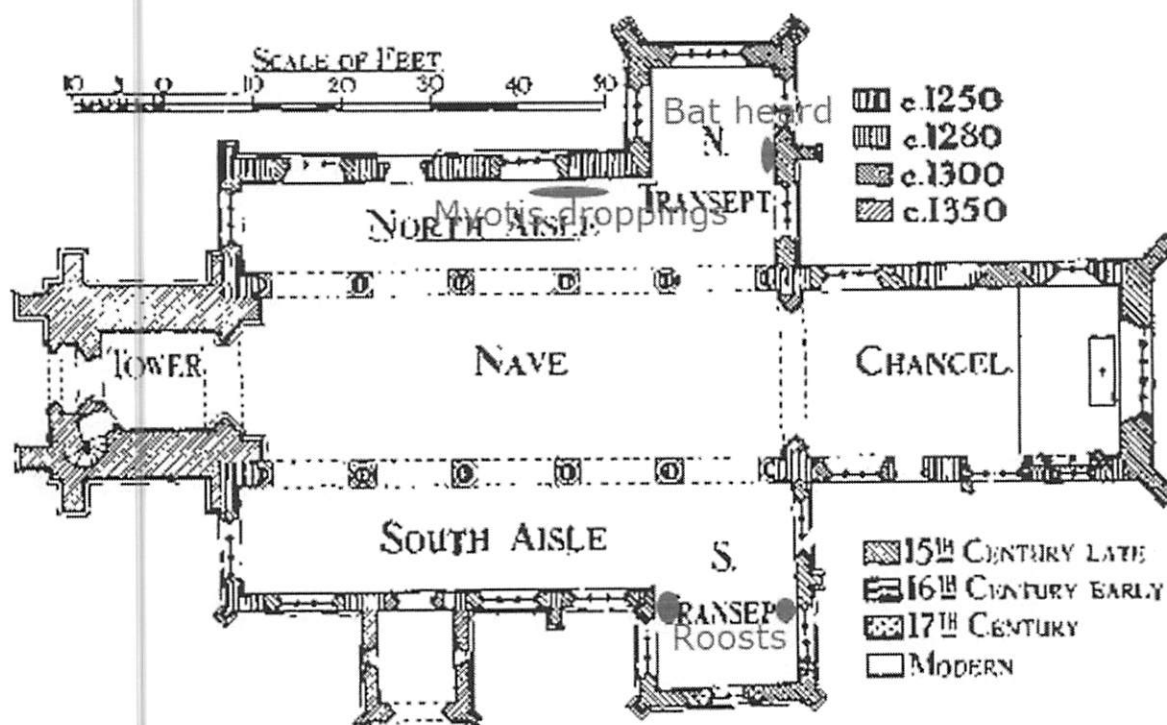


Figure 1: Diagram annotated by volunteer Daniel indicating the two pipistrelle roost locations in the south transept and the likely pipistrelle and Myotis roost locations in the north transept and north aisle respectively.

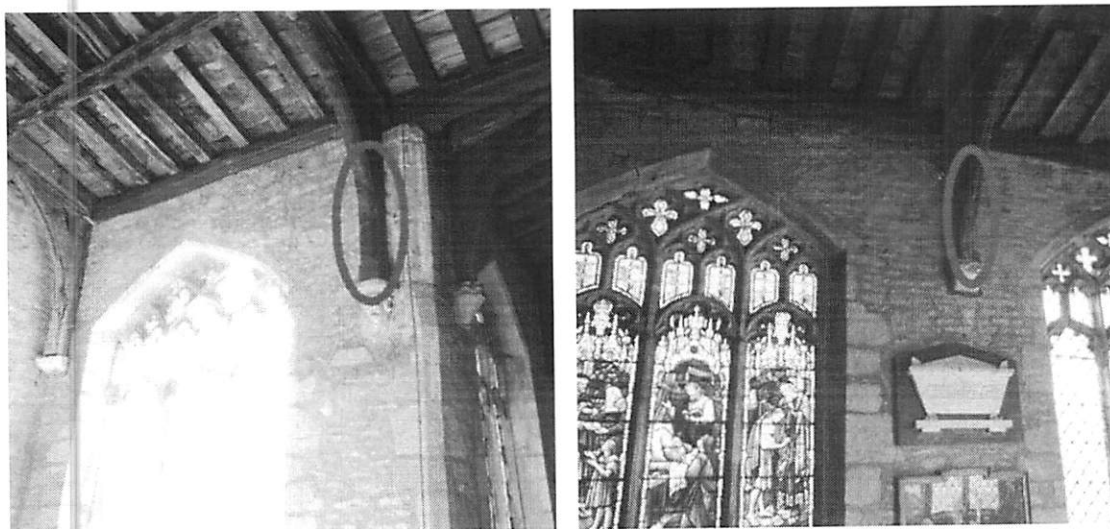


Figure 2: Photographs taken and annotated by volunteer Daniel. The left image shows the support post on the west side of the south transept. The right hand image shows the support post on the east side of the south transept. Pipistrelles use both of these locations as their maternity roost.

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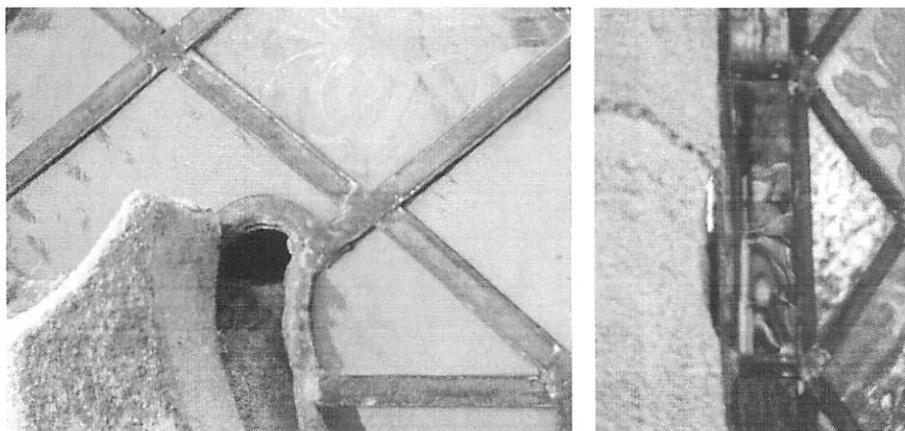


Figure 3: Examples of potential access points via gaps between stonework and windows. Photos provided by volunteer Daniel.

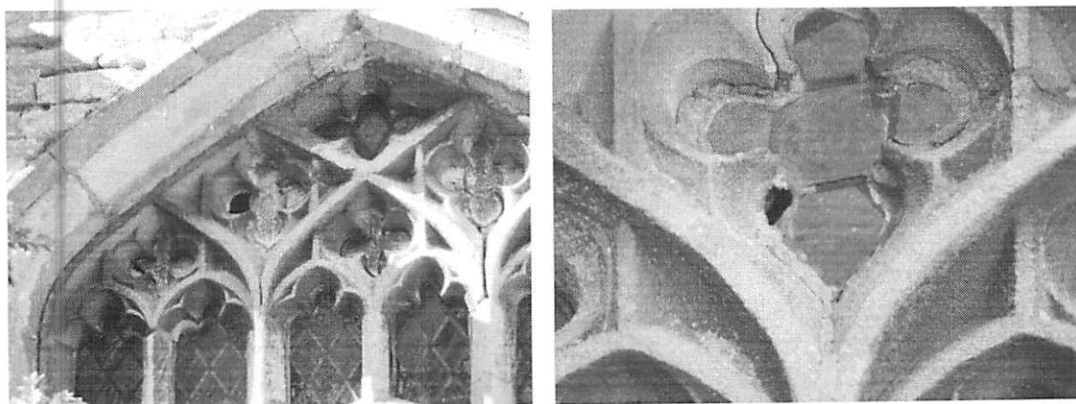


Figure 4: Examples of potential access points via broken windows and missing glass. Photos provided by volunteer Daniel.

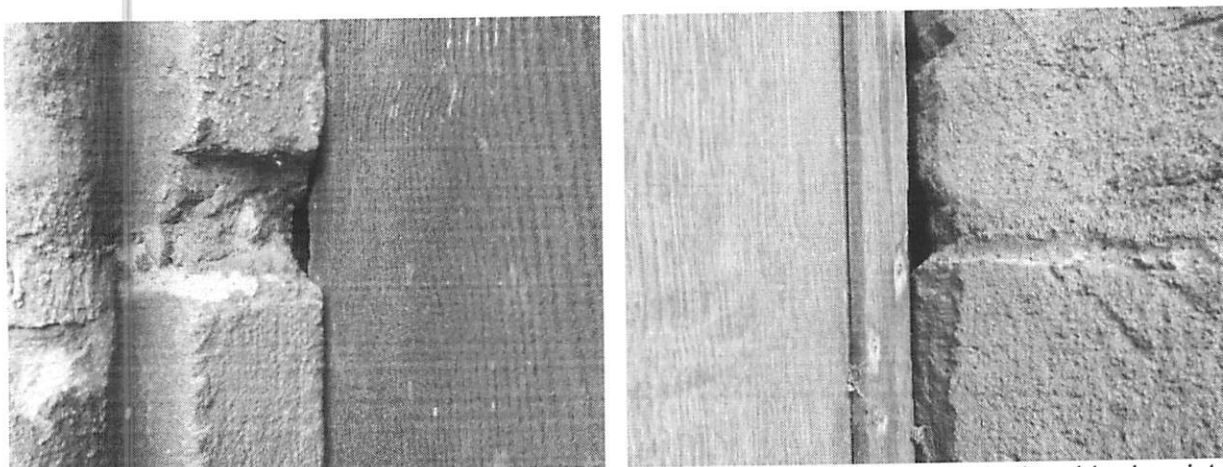


Figure 5: Examples of potential access points via gaps around the doors (left is the side door into the chancel, right is the door at the west end of the church). Photos provided by volunteer Daniel.

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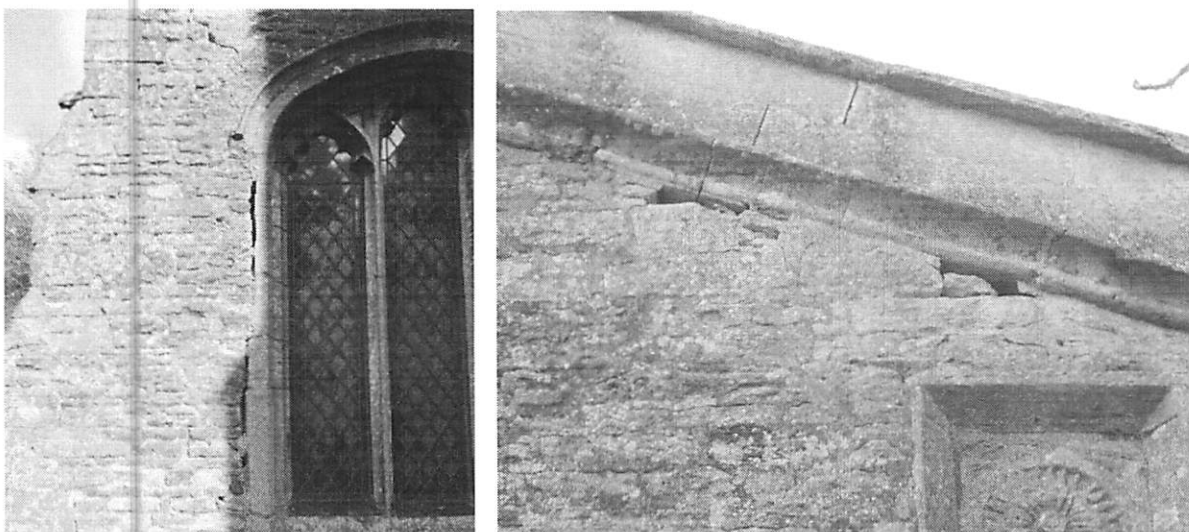


Figure 6: Examples of potential access points via gaps in the stonework (left is the west end of the north aisle, right is the east side of the north transept). Photos provided by volunteer Daniel.

Droppings and urine

Bats form maternity colonies in the summer months. Some species of bats may remain in a church all year round but roost in smaller numbers outside the breeding season and therefore large amounts of droppings are likely to only be a seasonal problem, occurring from May until late August.

Droppings accumulate under the main roosting sites, with a lighter scattering around the rest of the church if bats fly around also inside the church, as they do at St John the Baptist. Although a large quantity of droppings may be unsightly, there is generally nothing to worry about with bat droppings. In very rare situations some people can develop allergies, so we suggest you wash your hands after handling any droppings. If you need to clean up a large number of droppings then consider wearing a dust mask. As they make a good fertiliser, they can be safely swept up and disposed of on flowerbeds etc.

The easiest and cheapest way of dealing with bat droppings is to remove items from under the main roosting sites and cover items with cloth sheets when the church is not in use, particularly overnight. I understand that you currently use long sheets of plastic to protect the pews. We would recommend using a material such as linen, which will work to absorb bat urine and can be cleaned over winter when bat use is lower. You may also find that smaller sheets of material to cover each of the pews will be more manageable to clean, and prevent droppings falling off of the sheets when moved.

If bat urine and droppings are damaging wall mounted etchings, ornaments or paintings, you could consider using covers or fitting baffling around the affected items which would prevent droppings and urine from coming into contact with the item. Permanent and elegant wooden or cloth covers can be made to protect fixtures in the church, and used when the bats are present and active. Perspex casings could also be used to protect fixtures while also allowing them to remain on display. Similarly, linen or cloths can be used to protect these casings over night when bats are most active, and reduce the need for regular cleaning of the fixtures. We would also recommend contacting your DAC who can put you in touch with conservators for professional advice on other methods of safeguarding these items.

To protect furniture against urine staining, furniture polishes that are specifically designed for historic surfaces, applied regularly to wood work will provide protection from bat urine, and in the worst cases, remedial work by a specialist can remove the pale urine stains from the wood. By not completely removing the polish, an additional layer of protection is added, and an occasional thorough polish

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followed by a reapplication of the product should prevent urine marks from recurring. We would however recommend that you seek advice via your DAC before undertaking this work. More information about cleaning the church and protecting materials is available from the Historic England website: <https://www.historicengland.org.uk/advice/caring-for-heritage/places-of-worship/places-of-worship-at-risk/bat/>

Alternatively you could consider fitting temporary canopies over the worst affected areas, which can be wheeled away when the church is being used. Hammocks or false ceilings could also be fitted.

If you wish to pursue any of these options, please get in touch with Natural England via The Bat Conservation Trust on 0345 1300 228. Work to install any of these devices should be in conjunction with a Volunteer Bat Roost Visitor who can help advise and the work should be timed so not to disturb the roost. Access must not be blocked when installing such devices.

Please note that Natural England relies on the generosity of Volunteer Bat Roost Visitors to run this free information service. If it is not possible to arrange the necessary number of visits with our Volunteer Bat Roost Visitors during the summer, or if the scale of the works is outside the remit of the volunteer service, it may be necessary to engage an ecological consultant.

Repairs and maintenance of potential bat access points

Should you wish to carry out repairs or maintenance in any of the areas that may be providing access to bats, further advice should be sought in advance. Please do not hesitate to contact Natural England¹, quoting your reference number if this is the case.

Should you wish to permanently close any of these potential bat access points, for example replacing missing glass, further surveys would be required to determine use of these gaps and a licence may be required. In this case, Natural England advises that you undertake the following actions in order to avoid harming bats or their roosts.

Before these works can commence, further surveys will be required to:

- Identify the exact access points so that they can be retained or reinstated during works to allow the bats to return to their roosts.
- Determine the status of the roost/s.

Unfortunately the scale of these works falls outside the scope of the free Natural England roost visitor service, although the information gained from this initial visit may be used in support.

You will therefore need to engage an ecological consultant with knowledge of bats who will be able to advise on how to carry out the work with minimum disturbance to the bats, and who can prepare any necessary licence required on your behalf.

Licences

If works cannot be conducted outside of the sensitive times* to avoid disturbance and the bats or their roost will be impacted by any work undertaken for the purpose of closing potential access points, the works may require a Regulation 53(2)(e) overriding public interest licence which is administered by the licensing unit of Natural England.

**Bats occasionally use the same roost throughout the year. Bats are very vulnerable to disturbance during hibernation, late pregnancy, and while dependent young unable to fly are in the roosts: hence these periods of the year should be avoided, unless it can be confirmed that no bats are present during these times.*

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Natural England can issue licences in restricted circumstances, to permit what would otherwise be illegal actions, (though there is no guarantee that a licence will be issued in every situation). Natural England advises applicants that a licence may be applied for in situations where there is no other alternative to the work you need to do and offences are unavoidable.

As any Natural England advice or a licence is likely to include stringent timing advice e.g. to avoid disturbing hibernating or breeding bats, you are advised to consult an ecological consultant at an early stage, so as to not to delay the works.

If you wish to discuss any licensing queries please contact Natural England's Technical Services Wildlife Licensing (EPS) on 0300 060 3900 or e-mail: EPS.mitigation@naturalengland.org.uk.

Finding consultants

Ecological consultants can be located via:

- Your local telephone directory.
- Local bat groups and wildlife trusts.
- The Chartered Institute of Ecology and Environmental Management (CIEEM) www.cieem.net (click on 'professional directory' (right of screen), scroll down and select 'bats' in species and licences drop downs, and add your postcode for a list of options to get quotes from).
- CIEEM's guidance '[A Householder's Guide to Engaging an Ecologist](#)' may also be of interest to you.
- ENDS www.endsdirectory.com.

Natural England would like to thank you for your cooperation in this matter.

Talks and community engagement

I understand that you are interested in someone talking to pupils at the local school about bats, and the possibility of a community lead survey at the church which would allow the congregation and the local community to learn more about bats and have their questions answered.

Bats are amazing animals that are important to ecosystems in the UK and worldwide. We have 18 species of bat in the UK, and they provide a great example of how varied conservation and surveying methods are currently being used to protect wildlife in the UK. They have a fascinating life cycle and inhabit a wide range of habitats, making them an interesting group of animals to use in education and community events.

I would advise contacting your local bat group, as they may be able to assist you with events such as these. They may even be able to provide you with more specific local advice on organising a bat survey, and what local species to look out for. Some local bat groups may even be able to provide bat detectors for use on the survey. You can find your local bat group via the following link: <https://www.bats.org.uk/support-bats/bat-groups>. You may be interested in combining your event with a National Bat Monitoring Programme survey. The NBMP has been running a number of volunteer-led surveys since 1996, the results of which enable us to track changes in bat populations. The NBMP includes surveys for all levels of experience, from beginner to expert, and there are opportunities for everyone to help out and learn more about bats. For more information on the surveys we run and to sign up to take part, please visit: <http://nbmp.bats.org.uk/Surveys.aspx>.

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The Bat Conservation Trust can provide leaflets for events and also have the *Bats For All* resource pack which is designed to help people organise bat related activities for a range of different audiences and is available to download free of charge from our website through completion of a short submission form: <https://www.bats.org.uk/resources/education-outreach-resources/bats-for-all-resource-pack>

Please do not hesitate to contact Natural England¹, quoting your reference number, if you foresee any difficulties or have any questions about this advice. We may contact you to see if the advice was helpful.

Lighting

Lighting can have a detrimental impact on some bat species when placed in the vicinity of their roost, access points or flight paths. If you are considering the use of lighting at the church, please contact Natural England¹ in the first instance.

Planning future work

The presence of bats should be considered when planning works to any building. As bats are known to roost at this church, it is always advisable to seek advice from Natural England prior to planning works. It is best to seek advice at the earliest possible stage of planning to allow for adequate survey work to be arranged and in case any alterations to the plan of works is necessary.

If in the future any works are proposed at this church (such as those included on, but not limited to, the list below), please contact Natural England¹ for advice at your earliest opportunity.

1. Roof repairs, chimney/flashing works, replacement of lead
2. Internal and external pointing works and other masonry repairs
3. Timber treatment, repairs or replacement
4. Renewal or repairs of fascias, soffits, bargeboards, rainwater goods, hanging slates or any work at the eaves
5. Work within the roof space such as insulating or plumbing
6. Window (including stained glass pane replacement), door or porch works
7. Electrical wiring works
8. Control of rodents, wasps, cluster flies or birds
9. Changes to internal and external lighting (including street lighting and flood lighting)
10. Internal and external re-decoration (including lime washing, surface wood treatments), renewal/ repairs to ceilings and walls
11. Removal and/or replacement of pews
12. Use of any scaffolding; internal/external
13. Installation of high level heaters
14. Investigative works
15. Crypt works

Please note that some works may not fall within the scope of the free advice service, for example some lighting projects, full roof replacements, conversions and extensions, and you may be advised to employ an ecological consultant.

Summary of the law relating to bats

As population numbers have fallen, all bats and their roosts are protected under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations

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2017. Bats use roosts on a seasonal basis and therefore bat roosts are protected whether the bats are in occupation or not. Under these pieces of legislation it is illegal to:

- deliberately capture (or take), injure or kill a bat;
- intentionally, recklessly or deliberately disturb a bat (in relation to the Wildlife and Countryside Act 1981 (as amended) the offence applies whilst the species is occupying a structure or place which it uses for shelter or protection; in relation to the Conservation of Habitats and Species Regulations 2017 it applies anywhere);
- damage or destroy the breeding or resting place (roost) of a bat;
- possess a bat (alive or dead), or any part of a bat;
- intentionally or recklessly obstruct access to a bat roost;
- sell (or offer for sale) or exchange bats (alive or dead), or parts of bats.

Thank you again for seeking our advice. The successful conservation of threatened mammals such as bats depends on their having access to suitable sites for breeding and hibernation. In view of their current dependence on churches, which are now central for their continuing existence, their survival now and into the future is very much dependent on the goodwill of individuals such as you.

We look forward to working with you on finding a constructive way forward, so please do not hesitate to get in touch again if you require further advice.

Yours sincerely,



Hannah Van Hesteren
 Helpline Manager
 The Bat Conservation Trust acting on behalf of Natural England
 Tel: 0345 1300 228
 Email: hvanhesteren@bats.org.uk

Enclosed: Bats in Churches

Contact Natural England via the Bat Conservation Trust on 0345 1300 228¹

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APPENDIX 3 - Bats in Churches Keystone Project Plan

The bats in churches project Keystone Project Plan is included overleaf:

St John, Keyston, Norfolk		DIOCESE	Ely
FULL SURVEYS- NEW			
CONTACT			
Rev Carol Brennand			
CHURCH CODE	614179	GRADE	I
FULL SURVEYS	Cat 2	SofS	Yes
SUMMARY OF CHURCH			
<p>Nave, north and south aisles mid C13, chancel late C13. West tower and south porch mid C14. Late C15 east wall of chancel rebuilt and north and south walls heightened, north and south transepts added and aisles largely rebuilt; clerestory added to nave. Restorations in 1883, 1898. C15th glass and C13th font.</p> <p>The church contains a C15th wooden tomb cadaver, possibly one of only two in the country.</p> <p>The church was brought to the attention of the project via an official request through DCMS in March 2019 after the church were advised they could not repair a broken window as this may have affected bat access. Diana Evans and Lisa Wortledge were both involved in the initial enquiry and LW recommended passing the church details on to project staff to see if we could help.</p>			
SUMMARY OF BAT ISSUES			
<p>Significant bat droppings throughout church, pews and cadaver covered with sheets and significant cleaning needed before services.</p> <p>Church has considered screening off the chancel (cf Tattershall) and leaving the body of the church to the bats, and are confident that they can help fund any proposed mitigation</p>			
SUMMARY OF POTENTIAL/PROPOSED WORKS			
<p>Recommended for full surveys in 2020, set in cat 2 as they are a new church and came into the project on the understanding that we could help with surveys but not necessarily mitigation</p>			
EVENTS			
<p>Bat walk or talk depending on results of survey and bat numbers. The church is keen to run community events and activities and there is a high chance the use of the church will be increased if we can solve the bat issues</p>			
INTERPRETATION			
<p>Send bat species sheets, BiC posters and BiC leaflet</p> <p>Interpretation about the bats would help explain the condition of the interior</p> <p>Some new interpretation about cadaver may be appreciated</p>			
EDUCATION			

Brington C of E school nearby

CONSERVATION AND CLEANING

Could potentially host cleaning workshop

May be a candidate for deep clean

SITE VISIT

DS initial visit 16/8/19

DS follow up visit 11/3/19

