

Bats in churches: balancing conservation needs

Church bat roosts can be a contentious issue, even occasionally surfacing in Parliamentary questions. With professional interests in conserving both churches and bats, Nicholas Kelly provides a personal perspective

Churches contain some of our most important cultural and historical built fabric, decoration and furnishings. In an ever-changing landscape where potential bat roosts are cut down, blocked up or given new uses, churches also provide important, safe and stable roosts for eight of the 18 UK bat species, including some of our largest, most important bat populations.

Bats roost in many churches throughout the year, according to environmental conditions and their biological needs, returning each year to favourable roosts, some of which are hundreds of years old. In summer, bats need warm relatively dry conditions to rear their young and in winter they require stable, cold humid conditions to hibernate. Other roosts relate to emergence (spring), mating (autumn) and feeding (year-round).

Church congregations and bats usually co-exist harmoniously, with little evidence of occupation. Most principal church services occur outside the larger bat roost periods, but large maternity (summer) roosts can lead to noticeable deposits of droppings and urine on internal finishes.

Conservation conflicts

Bats urinate and defecate on leaving their roosts, some exiting quickly to forage and hunt, while others, such as Natterer's bats fly past windows and walls depositing waste. Where church monuments and furnishings lie below flight paths, urine and droppings can damage wall paintings, tombs and screens, brasses, textiles and paintings, organ pipes and timberwork.

UK bats provide efficient and environmentally sustainable insect control; for example, one Pipistrelle bat can eat 3,000 midges per night. Analyses of bat waste (based to date on captive-fed rather than wild bats) reveal that droppings contain small amounts of nitrates, phosphates and ammonia, and that urine is predominantly urea, with ammonia and other acids. Nitrates from droppings can mobilise within materials and form films where lime and phosphates react, with gelatinous binders causing staining, leaching and subsurface tensions within paintwork substrata. Urea causes visible staining and can decompose historic organic paint binders. Soluble sulphates can pass into substrates causing micro-flaking of paint layers.

With limited scientific data available, it is difficult to objectively quantify and apportion damage found in churches to bat waste, inappropriate



Image 2 – An illegal partial obstruction of a roost entrance following building works. The fur-oil stain to the soffit board indicates a bat roost entry point, obstructed by recently applied mortar

cleaning methods and materials, inherent material defects or the variable environmental conditions (temperature, relative humidity and light), though some damage clearly results from bat waste (see Image 1).

Several research projects are underway: at University College London the chemical composition and degradative effects of bat waste on various materials are being examined, while methods of cleaning deposits from historic surfaces are being investigated at the University of Bristol. Elsewhere, mitigation measures are being trialled on behalf of the Church Buildings Council and in conjunction with the University of Bristol, and a Natural England working group is also investigating and monitoring the issue.

Legal protections

The cultural heritage of churches is managed by the respective Diocesan Authority through Faculty approvals, largely mirroring the Listed Building regime, protecting against inappropriate alterations, additions or removals affecting the fabric or furniture. Equally protected under the Conservation of Habitats and Species Regulations 2010 as part of our designated Natural Heritage, it is illegal to disturb, capture, injure or kill a bat, or to damage, destroy or obstruct a bat roost (see Image 2).

Both legal protections are relatively complex evolutionary treatises, developing on a piecemeal basis, and include management tools to control the rate and extent of any allowable change. Church custodians tread a difficult line, managing both cultural and natural heritage resources. Great care is needed to avoid the over-representation or transgression of either regime, whether intended or not.

An evolving methodology

Change to either cultural or natural heritage can be legally effected, but must be based on objective holistic evaluations of qualified conservation evidence, considering their relative significance with an evaluation of the extent and nature of the risks posed. There is no formulaic solution. Value gradients provide one useful resource management methodology to weigh the relative merits of competing resources, but are not obligatory. The present state of knowledge hinders evaluations, but as studies are released, informed debate will improve.

The currently declared position is precautionary. The main sources of advice – the National Trust, English Heritage, Natural England and the Bat Conservation Trust – provide clear, objective and consistent advice on how to successfully manage joint occupation by both congregations and bats, in accordance with the legal position. At its least interventive, the advice to amend cleaning rotas to just-before use, and to move/cover objects when not in use should be manageable by most congregations (see Image 3). The use of sacrificial or protective material coatings is familiar to most building conservationists, and physical interventions such as dropping deflector boards below roosts are now more readily accepted. More contentious are vertically hung screens to deflect bat-flight activity from sensitive materials, and lighting adjustments to reduce periods of internal flight activity, each necessitating a licence.

Equally, proposals for a roost or access relocation, or a roost exclusion to the church interior, will also need licences. In practical terms, churches offer numerous entry points and roost opportunities which, excepting the difficulties of identification and access, if sealed to exclude bats would create an airtight building envelope. The cumulative reductions in airflow would create an airtight building envelope, at odds with conservation practice. Care is also needed to ensure that the cumulative effects of essential maintenance and improvements, do not obstruct or damage roosts, or significantly alter internal environmental conditions.

Licences to legitimise otherwise unlawful bat-related works can be issued by Natural England to prevent serious damage to property, to preserve public health or safety, or for other reasons of overriding public interest. They are unlikely to be issued where a lesser intervention is practicable. Licensable operations will necessitate increasingly detailed and considered proposals as the negative impact on the bat population increases. An ecologist should be retained at the earliest opportunity, both to collect bat-use data, which can take upwards of a year to collect and interpret, and to save abortive costs in redesigning inappropriate proposals.

Any licensable process will require substantial amounts of expensive supporting data, often approaching £8-10,000 even for less contentious proposals, together with the costs of agreed mitigation measures, which in itself may preclude many schemes, and with no guarantee of the desired outcome. By contrast, non-interventive measures can successfully address an issue much more cheaply and quickly, but depend on the support of those responsible for the day-to-day management of a church.



Image 3 – Plastic sheet protective covers. These are simple and easy to install and remove

The use of churches by bats is not necessarily negative, as the following case studies show.

Holy Trinity, Tattershall, Lincolnshire

Holy Trinity is a 15th-century Grade I listed church. In summer, the church hosts a maternity roost of 600 Pipistrelle bats. Any attempt to obstruct or relocate such a large roost could significantly affect the Pipistrelle population. The church custodian's approach is to limit damage by placing frames and sheets each night to protect sensitive furnishings. Timberwork is cleaned, polished and stained as necessary. The church promotes the bats as a visitor attraction, with displays and information explaining the approach, similar to the National Trust's approach in opening properties during conservation works to explain their practical conservation measures.

Church of St Nicholas, Thame, Buckinghamshire

The Church of St Nicholas, a 14th-century Grade I listed village church, hosts a maternity roost of 150 of the much rarer Natterer's bats. Being rarer, the roost size is significant in terms of maintaining their breeding status. By comparison, the approach here is more modest. Bat waste is generally found along walls, which contain no historic decorative schemes but do contain historic monuments. Villagers of all generations take pride in caring for 'their' second largest Natterer's roost in the UK and have provided a web page for the bats. Working closely with the local bat group, the church is cleaned thoroughly each year following vacation by the bats. Regular contact and visits through the summer months by the bat group helps the roost to thrive.

Holistic conservation

Successful examples aside, where does this leave us? Consistent considered practical advice from both sides of the debate is available, but occasionally laid aside as partisan interests conflict with statutory controls. Arguments can be made both for and against both buildings and bats – the common argument against bats runs similar to the rather tired mantra that owners can't do what they want with a historic building. Both resources, whether cultural or natural, are managed sustainably for the good of the many rather than the partial benefit of the few. The issue can be contentious, but only by bringing all parties to the debate will the most appropriate solution be found in each instance. This position can only improve as current research is completed to better inform decision-making, balancing the needs of both protected conservation interests. Churches help to both inform our cultural identity and provide spiritual solace, and it is important that their message is delivered with a conscience.

Further reading

Bats in Churches: a management guide, 2011, Natural England
Bats and Traditional Buildings, 2009, English Heritage, National Trust, Natural England

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Related competencies include: T051, T052



Image 1 – Difficulties in damage apportionment. Similarly dated wall plaques within the same major bat roost exhibiting dramatically differing damage: (left) the lower plaque within reach for cleaning is delaminating, (right) the upper plaque merely shows spotting