The impact of resident bats upon planning the development of buildings

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Some species of bats share the built environment with people, while others inhabit areas in close proximity, which directly impact upon human usage of buildings. Bats will choose areas of buildings, which are away from current usage, or choose buildings such as churches and barns, which have sparse occupancy patterns. Their presence can impact, beyond psychological issues, directly upon human occupancy. There is a link through bat bites to the spread of rabies, however this link exists with many species of British wildlife. Bat faeces and urine although unpleasant are not generally believed to pose a serious health risk (National Trust (NT), 2003). Bat urine can however cause damage to metal, marble and polished wood surfaces. The nutrients in bat faeces encourage fungal and algal growth within porous materials such as plaster, which damages that material (NT, 2003). Some of these fungi have been linked to possible human health issues. Owing to the location of roosts in roof voids and the nocturnal nature of bats, many property owners can be ignorant that they share their building with a colony of bats. However, this situation often changes when maintenance or development of the property is planned.

In the United Kingdom, there are a myriad of statutes to protect heritage, landscape, plant life and wildlife, including bats. These statutes often conflict with plans for proposed development of buildings, however none so directly as when bats are discovered to be active within the premises proposed for development. Owing to a perception of plummeting bat numbers, not just in the United Kingdom but across Europe, first the Wildlife and Countryside Act 1981, with its Scottish and Northern Irish equivalents, and then the Conservation (Natural Habitats &c) Regulations 1994 brought statutory protection to bats in Britain. The latter was a response to EEC directive 92/43/EEC/1992, which specifically lists bats as being in need of strict protection (Bat Conservation Trust (BCT), 2007). Such protection is in place, as current legislation makes it illegal for a person to capture or kill a bat, disturb a bat while at rest, or damage or destroy a bat's roost or breeding site. Only highly trained and licensed bat surveyors can initially engage in any activity that might contravene these regulations, such as entry in to an area where bats are known to roost. To reinforce these regulations in respect of development, Planning Policy Statement number nine (PPS9), entitled 'Biodiversity and Geological Conservation', directs planning authorities to make protection of natural habitats a material consideration in planning decisions, and to use planning control to prevent loss of biodiversity (Office of the Deputy Prime Minister (ODPM), 2005). There is also a current British Standard PAS 2010:2006, entitled 'Planning to Halt the Loss of Biodiversity', written to help the planner's appointed task of preventing losses in biodiversity.

In legal terms, the contravention of regulations regarding disturbance of bats by unlicensed persons warrants a fine of up to £5000 and possibly in extreme cases a 6-months prison sentence (BCT, 2007). In terms of planning permission, the likely

presence of bats becomes a major factor in the decision-making process, and instructions from the Office of the Deputy Prime Minister in circular 06/2005 state that the presence or otherwise of protected species must be established before the granting of planning permission. Hence, where there is a suspicion of the presence of bats, a specialist bat survey must be arranged by a licensed bat surveyor, before any further action in respect of the development is taken. If the presence of bats is established, any development work that might contravene the regulations can only be undertaken subject to the granting to the developer of a Habitats Regulations Licence. This would be applied for, issued or declined independently of planning permission. As the detailed information obtained by survey would be required to support any application for a licence, a detailed bat survey becomes essential. There are, however, a number of different types of survey that can be undertaken.

A bat survey is not, in essence, a different general process to a building survey. BCT describe it as being a 'scientific activity during which people and/or equipment gather discrete information from a site or area' (BCT, 2007). They go on to cite the purpose of the survey being to identify the species of bat present, approximate numbers of each species and why the bats are using the specific site. Clearly, when planning an action that might impact upon a bat colony this information is pivotal in accessing that impact. It would clearly be less desirable to disturb a site used for hibernation or as a breeding site. Whatever the findings of the survey, such information when presented to the planning authorities or the licensing body will impact on the nature of the development permitted to take place.

Every additional survey undertaken for any purpose holds both time and cost implications for a development. Planning guidance states that even a presumption of bat occupancy should influence planning decision, and that any required surveys be undertaken before planning permission is granted (ODPM, 2005). It is therefore essential that before engaging a bat surveyor, a number of issues are resolved. These are whether the survey is reasonable, what form of survey will best meet the objectives for this case and whether the survey information sought is appropriate for the purpose. In respect of the former issue, reasonability, that would involve there being a reasonable likelihood of the presence of bats. BCT has produced a trigger list of buildings where bats might reasonably be expected. These include agricultural buildings, particularly those with exposed beams. They also cite domestic residences that pre-date 1960 and are located in woodland settings as being likely locations. Churches and civil engineering structures such as mines, bridges and ruins are also popular with bats. The presence of a watercourse increases the likelihood of bat activity (BCT, 2007). To these target properties can be added any properties where creatures that might be bats have been observed entering or leaving. Clearly, cost is a factor in determining what is reasonable, and the size and scope of the development must be a deciding factor (BCT, 2007).

Part of the decision-making process to identify which type of survey is most appropriate would be an initial desk survey. This would involve obtaining maps and charts of the area and data on known bat activity from the wildlife trust, local bat groups, the county nature conservancy department, county mammal recorders and any other groups that might record bat activity. It is essential to cover an area of at least 1 km from the subject building. A desk survey would rarely be sufficient without a supporting walkover survey, which is a non-destructive survey of the area, looking for physical signs of the presence of bats and features that would increase the likelihood of bat activity. Despite bats being nocturnal, it is recommended that the walkover survey is performed in daylight. The results of the desk survey, the walkover survey and the time

Table 1: Types of survey and their uses

<i>Survey type</i>	<i>Built roost</i>	<i>Tree roost</i>	<i>Under ground</i>	<i>Swarming site</i>	<i>Foraging site</i>	<i>Commute</i>	<i>Migrate</i>
Manual	—	—	—	—	X	X	X
Automatic	X	—	X	X	X	X	X
Internal	X	X	X	—	—	—	—
External	X	X	—	—	—	—	—
Emerg/enter	X	X	X	X	—	—	—
Backtracking	X	X	—	—	—	—	—
Catching	X	X	X	X	X	X	X
Radio	—	X	—	—	X	X	X

Source: Using data supplied by the Bat Conservancy Trust (BCT, 2007).

of year, because bat habits vary with the seasons, including periods of hibernation, will inform the choice of most appropriate bat survey.

Surveys can be invasive or non-invasive (see Table 1). Clearly, the latter is preferable, and possibly essential. Non-invasive surveys would include internal inspection, external inspection, emergence/re-entry observation, backtracking observation, manual bat-activity survey and automated bat activity survey. All these if undertaken by a skilled and trained surveyor should not disturb or destroy the habitat. Intrusive surveying might include catching and tagging bats or using radio waves to discover them. The non-intrusive surveying methods will be analysed later in this work.

A manual bat-activity survey is one of the least intrusive. It involves fieldwork to observe bats outdoors. Equipment used might include a sonar bat detector, low-light video equipment and night vision equipment. The purpose of such a survey would be to establish the presence of bats and the species involved, detect bats entering specific locations, determine the nature of activity, find roosts, and estimate population numbers. Clearly, this form of survey would be ineffective at times of hibernation. One disadvantage of this form of survey, particularly with a large development, is the size of area requiring coverage, and it often requires a team effort. The survey can however sometimes be undertaken automatically, with electronic detection equipment and night vision camera and video recorders taking the place of the field operative. As can be seen from the table of the non-intrusive surveys, this automatic survey can be used for the greatest number of purposes.

An internal survey is often the only sure way of identification of bats inside a specific building. It is also the only possible survey during hibernation season. This must be undertaken by a licenced bat surveyor. This survey is the closest in activity to a building survey, and looks to establish the presence of bats, their location within the structure, ingress/egress points, nature of the activity and which species are present. Inspection is best undertaken during the day, however bats are most active at dusk or dawn, so this may be combined with an automatic or emergence/re-entry survey. As bats often choose dark inaccessible areas to hibernate, lights, mirrors and boroscope/endoscope equipment might be required to locate them, and also automated monitoring equipment. As with a building survey, photographic evidence would be used to support the survey findings. It is sometimes possible to complete the survey from the exterior of the property, or by purely concentrating upon the identified emergence and re-entry points on the building. If sufficient information can be gathered this way, it will greatly reduce costs. A backtracking survey will return at dawn to locations where bats were noted as swarming at dusk to track them back to their roosts. The two intrusive surveys noted should only be contemplated on strong advice and under licence.

SUMMARY

The presence of bats can affect and even prevent development of a property. It is illegal under criminal law to harm a bat or its habitat, with penalties for offenders including prison sentences. Planning guidance dictates that the presence of wildlife habitat should be taken in to account during planning decisions and that even a likelihood of the presence of bats should be sufficient to warrant a bat survey. This survey is to be undertaken before planning permission is sought. A bat survey performed in three stages, by a licenced bat surveyor, will include a desk survey, walkover survey and relevant fieldwork, and is required to provide the information upon which development actions that might be permitted can be assessed. The strong legal protection afforded to bats by UK statute and EEC directive makes full compliance with the suggested procedure essential for developments of all sizes. It is only the level of survey required that should vary depending upon the size of the development and any available prior information in respect of the number, species, activity and location of the bats within the building.

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