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Bat Survey -

Chetham's School of Music: Palatine Building and Laundry, Manchester

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15/2/07

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1. Introduction.

1.1 I was asked to survey these buildings to satisfy a request by Greater Manchester Ecology Unit as part of the outline planning process. These two buildings only will be demolished.

1.2 *Please note however that the law relating to bats applies irrespective of any issue the planners or local authority ecologists may or may not have drawn attention to. Therefore to be protected from any risk of potential prosecution the developer should pay close attention to the recommendations made in this report.*

1.3 My main objective was to assess both the importance of these buildings to bats and whether or not the development is likely to affect their favourable conservation status through the destruction of a roost or roosts.

1.4 These buildings are on a site in central Manchester, close to the River Irwell. Apart from a good-sized, adjacent, triangular piece of land with trees on grassy banking, surrounding a car-park, which forms part of the development site, there is little vegetation in the area apart from a few trees along the opposite boundary of the site and a few more adjacent to the nearby Cathedral.

1.5 No date for demolition of the laundry and Palatine Building is set, and I believe this may not take place for a number of years. Prior to this the triangular piece of land with the trees on it will be developed. Some tree planting is proposed in the long-term landscaping scheme for the site.

1.6 The pipistrelle bat is common and widespread in Greater Manchester and this species can be found in the most urban environments, including central Manchester. Other species are not particularly likely to occur in the area, unless they pass along the river, feeding as they go.

2. My credentials.

2.1 I have been working in bat conservation for 19 years, initially as a volunteer with the South Lancashire Bat Group and English Nature. I am now Bat Welfare Officer for the Greater Manchester Bat Group and represent the bat groups of the north-west region at national Bat Conservation Trust meetings.

2.2 My first formal training was in 1988, when I attended a 5-day bat ecology course run by acknowledged expert Dr. Robert Stebbings. Following this, I trained for and obtained an English Nature Bat Conservation and Education licence in 1989. It was extended in 1991 to cover winter hibernation sites/scientific work and to allow me to train volunteers for Conservation and Education licences.

2.3 Over the last 11 years I have done increasing numbers of bat surveys on a consultancy basis, firstly part-time, then-full time from December 2003.

2.4 Since November 2000 I have gained experience in applying-for and obtaining licences from the Department of the Environment, Food and Rural Affairs for clients whose developments have affected roosting bats.

2.5 Other experience includes:

- Attending the annual weekend-long Bat Worker's Conference every year since 1988.
- Helping the Clwyd Bat Group with their surveys of underground hibernation sites, mainly in the late 1980s and early 1990s.
- Participating in "Bat Detector Workshops" during the 1990s in different areas of the country, concerned with locating bat roosts and feeding sites/commuting routes.
- Sitting on local council "Wildlife Advisory Groups" (WAGs) in the Greater Manchester area form the early 1990s onwards.
- Participating in the Bat Conservation Trust's 3 year "Bats and Habitats" survey in the 1990s.
- Helping local authorities and the Greater Manchester Ecology Unit formulate their Biodiversity Action Plans for bats, as required under the European Habitats Directive.
- Administering the bat casework for English Nature in the South Lancashire and Greater Manchester areas over 1998-2000.
- Spending 8 nights in 1999 helping with bat survey work on a National Trust site in Somerset: involved participation in mist netting and radio-tracking.
- Assisting with similar work in 2001 in Wales.
- In 2001, attending a new 3-day course run by the Bat Conservation Trust - "Bats and Bat Surveys : a Foundation Course for Consultants".
- Continuing to attend courses run by recognised experts to ensure I stay up-to date both with respect to bat ecology and issues such as health and safety.

3. Bats and the Law.

3.1 All British bats and their roosts are legally protected under the Wildlife and Countryside Act of 1981 (as amended), through inclusion in Schedule 5 and under the Conservation (Natural Habitats, &c) Regulations 1994 which implements the EC Directive 92/43/EEC in the UK. Under this legislation it is an offence to intentionally or recklessly kill, injure or capture bats, disturb bats or damage, destroy or obstruct access to bat roosts. Since the introduction of the Countryside and Rights of Way (CROW) Act in 2000, doing so can result in a custodial sentence. Fines of up to £5000 per bat can be issued in cases of non-compliance with the law.

3.2 This puts the onus on developers to ensure as far as possible that they will not be impacting on a bat roost before commencing work. Bat roosts are protected irrespective of whether bats are present at the time. A "bat roost" is generally acknowledged to be "any structure or place which any wild [bat]... uses for shelter or protection". This quote is taken from English Nature's "Bat Worker's Manual".

3.3 Where a development will impact on roosting bats, a European Protected Species Licence is required before the roost can be interfered with in any way.

3.4 One of the conditions of such a licence is the maintenance of the favourable conservation status of the species. This has generally been interpreted as meaning no net loss of roosts. Therefore mitigation/compensation measures are required, followed by monitoring of the success of these. Mitigation has to be provided on as close to a like-for-like basis as possible.

3.5 It is also necessary to time the work to minimise the impact on bats. Therefore work must be planned for when the bats are expected to be absent, and an appropriate alternative roost must be available for them by the time they would normally be returning.

3.6 European Protected Species licences are issued providing planning permission has been granted, there is an over-riding public need for the development and there is no reasonable alternative available.

3.7 The CROW Act now gives a statutory basis to the Biodiversity Action Plan process. A number of "key" bat species nationally, including the Pipistrelle (*pipistrellus* and *pygmaeus*), have been the subject of Bat Biodiversity Action Plans. Equivalent plans have been devised by most local authorities to cover either the Pipistrelle or bats in general. Some local authorities have added an extra species - for example the noctule or Daubenton's - where their borough is particularly important for that species.

3.8 In the case of a building, tree or other feature not already known to be a bat roost, if bats are found during the course of work contractors must stop and seek advice from the bat consultant involved with the site, if one had been appointed, or English Nature, before proceeding. Assuming a good-quality bat survey had been carried-out before the commencement of work and its recommendations followed, it would be unlikely that the discovery of bats during the course of the work would be considered to be "reckless" interference.

4. Basic Bat Facts.

4.1 Some basic bat facts are :-

- Bats have one baby each per year and females gather together in summer in warm, clean, draught-free maternity roosts to give birth.
- The average number of the commonest species of bat in a colony is around 50 individuals, but these bats are tiny, having a body length of around 4 cms, and therefore occupy little space and do no damage.
- Adult British bats feed solely on insects and their droppings quickly turn to powder which is easily blown or washed off external surfaces. Bat droppings are harmless.
- Bats are mammals and feed their babies on milk.
- Babies are generally born in June and are dependent on their mothers for about 6 weeks. When the youngsters are able to hunt independently, the summer maternity colonies disperse.
- Bats - pipistrelles in particular - generally change roosting place frequently. Each colony will use a range of different roost sites, even during summer when there are dependent young present. Once a roosting site is established bats are likely to return to it again.
- Often male bats roost singly, but in autumn are visited by small numbers of females for mating purposes. The females then store the sperm inside their bodies until spring when they become pregnant.
- Alternatively, in autumn some male bats gather at cave entrances and their equivalent and undertake swarming activity.
- Bats hibernate in winter in cool, humid places with stable conditions. Some bats will fly long distances to suitable sites, which can be quite remotely situated. Hibernation sites and summer sites are usually located separately.
- Bats are particularly vulnerable in summer when they have dependent babies, and in winter when they are unable to rouse quickly from their state of hibernation.
- Bats feed where insects occur, therefore they particularly favour habitats such as woodland edge, areas where there is standing or flowing water, usually where there are native shrubs and trees adjacent, and mature gardens.
- Bats follow "linear landscape features" such as lines of trees, hedges, buildings and waterways in order to commute from their roost sites to their feeding grounds. Likewise they use these features to navigate between feeding areas and alternative roosts.
- Sometimes bats use "night-roosts" for part of the night while out feeding. They return to a "day roost" at the end of the night, leaving behind droppings and/or discarded moth wings.
- Bats use a range of feeding sites over the course of a night and concentrate on different sites on different nights according to weather conditions and insect availability.

4.2 Bats traditionally roosted in holes and cracks in old trees, beneath ivy-cover and in caves. With the decline in old deciduous woodlands, the most common species have adapted to roosting in buildings and other man-made structures. They often choose to roost within crevice systems, especially in winter, where they are hard to locate. Confirming whether or not a potential roost is ever used can be difficult, unless there is clear evidence present such as the accumulation of old droppings.

4.3 In general bat roosts are likely to occur in cavities in mature/dead trees where these are available, behind weather boarding or hanging tiles on buildings, in roof voids, under roof slates/felt, above/within wooden beams, in cellars, in cavities in walls and in crevices in culverts and bridges, especially where the latter are associated with water.

4.4 Bats can be located when feeding or commuting, away from the roost, by use of an ultrasound receiver. This converts their normally inaudible calls to a pitch that can be heard by the human ear.

4.5 In summer bat roosts can be located by the "swarming" activity of colony members around the roost at dawn.

4.6 In light of the recent discovery of European Bat Lyssavirus in Daubenton's bats in Britain, the current recommendation is that bats should not be handled by the public.

5. Regional Bat Species and their Requirements.

5.1 The commonest species, the Pipistrelle (*Pipistrellus pipistrellus),* has adapted well to roosting in buildings of many types, and most commonly roosts behind weather boarding and under slates or in other crevices associated with the exterior of buildings.

5.2 There is a second Pipistrelle species (*Pipistrellus pygmaeus*). This roosts in the same sort of situations to Pipistrellus pipistrellus, but it is generally less common, and prefers locations near water.

5.3 Pipistrelles feed on midges and small flies. These are still abundant, in contrast to the more specialist moths and beetles that some species need.

5.4 The Daubenton's bat (*Myotis daubentonii)* is the species most likely to use culverts and bridges, but often uses trees or buildings near water to rear its young. It is usually discovered feeding where there is water, for example over lodges, rivers and canals.

5.5 The Brown long-eared bat (*Plecotus auritus*) is the species found most commonly inside barns and buildings with open roof-voids, where it will fly at dusk before emerging to feed. This species is mainly a woodland species. It is difficult to locate away from the roost as it echolocates very quietly, so its calls are hard to pick-up by ultrasound receiver. One characteristic of this species is that it sometimes leaves collections of moth wings beneath a favoured "feeding perch". Its droppings typically are found beneath the ridge beam or other major beams.

5.6 Other species such as the Noctule (*Nyctalus noctula*) are still relatively dependent on holes in trees for roosting, but fly long distances when out feeding.

5.7 Species such as the whiskered(*Myotis mystacinus*)/Brandt's(*Myotis brandtii*) and Natterer's (*Myotis nattererii*) will use buildings, similar to those favoured by the brown long-eared in the case of Natterer's, or trees. Natterer's bat is relatively uncommon.

5.8 Brandt's bats can only be separated from whiskered in the hand. Most records of these species come from observing bats in flight and hearing their echolocation calls by ultrasound receiver.

6. Survey Method.

6.1 I visited the site during the day on 14th February 2007.

6.2 As far as possible, I inspected the buildings inside and out for the presence of live bats and signs that bats were, or had been, present. This involved observing for droppings, dead bats, food remains such as moth wings, staining and scratch marks with the aid of a million candle-power torch and binoculars.

6.3 I also assessed the potential for use by roosting bats in terms of factors such as temperature, draughtiness, humidity, cleanliness and presence of suitable crevices.

6.4 In addition I made a basic inspection, from the outside only, of adjacent buildings and trees, to assess whether demolition of the Palatine Building and laundry is likely to impact on any bats that may roost in them.

6.5 The survey was conducted with the needs of different species of bat over the seasons in mind.

6.6 I made an assessment of whether additional survey work was required at dusk/dawn or at a more appropriate time of year.

6.7 I assessed the likely impact of the proposed development on the favourable conservation status of bats.

7. Limitations of the Survey.

7.1 The Palatine Building is very large and four storeys high, with adjoining buildings in places, so not all features could be seen well. Externally, the roofs had to be inspected from a distance using binoculars, except where fire escapes allowed closer-range inspection.

7.2 One loft was inaccessible at the time of the visit due to the hall below it being in use.

7.3 With hindsight I think I was only shown to two of the three lofts, plus a small area between two of them.
7.4 As a general rule, a bat survey carried-out in winter, when bats are hibernating and relatively inactive, should be considered to be a preliminary survey, as additional survey work outside winter may be required to assess more accurately whether or not a building's potential is made use of by bats.
7.5 No dusk or dawn survey work was undertaken as bats are now hibernating and largely inactive.
7.6 Any droppings deposited on the outside of a building are often washed or blown away quickly, so evidence of use often doesn't last long once the bats have moved, but an assessment has been made of potential bat roosting places associated with the exterior of the building.
7.7 As bats often roost in crevices in winter, and are particularly hard to locate when hibernating, the report highlights the areas that could be used by bats in winter without their presence necessarily being obvious.

8. Findings.

Laundry.

8.1 This is a two-storey, brick building with a flat roof. The upper storey has a solid ceiling with no access available to inspect any void that may be present within the flat roof.
8.2 There is a type of boxed "eaves" at both ground and first floor level and there is wooden panelling on the walls at first storey level.
8.3 There is access available for bats to roost within the "boxed eaves" at both levels. There does not appear to be access for bats to roost between layers of the flat roof.
8.4 The building is only attached, at one end, to a modern extension that connects to the older building behind. This modern construction has a metal roof and metal fascia and does not appear to have significant potential for use by bats.
8.5 I do not think demolition of the laundry will impact on any bats that may or may not roost in nearby buildings.

Palatine Building.

8.6 This is a very large, four storey, brick building in three main sections. It is aligned north-to-south. The three sections have separate roofs which gradually step-down in height from north-to-south.
8.7 The northern-most roof has velux windows and a, relatively low in height, roof void above. The slates have been lined with fibre-glass roof insulation material. The loft was quite dirty and there was no evidence to suggest bats had been present. It seemed bat access probably wasn't possible.
8.8 Externally the roof slates are uneven and there are stone gutters along the roof edges. The ridge is covered with lead sheeting, providing gaps between the lead and the ridge tiles. At the northern end the roof is hipped. There is lead flashing along the small drop-down to the next roof.
8.9 The middle roof I have been told is constructed of steel girders with only a false ceiling separating it from the floor below. Inspection of it will have to take place by raising ceiling tiles at different points using a scaffolding tower, though I believe there is a hatch in an adjacent part of the roof that would allow me to look out over the false ceiling. The hall was occupied at the time of this survey, preventing either option being used at this visit.
8.10 Externally, the slates are smaller and thinner than on the northern roof, reducing the access available to bats, and the gable edge is fitted with a dry verge. The ridge looked to be well pointed, but I was a long way away, viewing it through binoculars.
8.11 The southern-most roof has similar slates to the middle section but the ridge is less well pointed. There is a stone parapet along the gable edge.
8.12 From outside the building there is a small additional roof between part of the southernmost roof and the middle roof. With hindsight, I'm not sure I was shown into the southern-most roof. Possibly I only saw this smaller area. The interior of the part I did see was clearly accessible to bats via a hole in the east-facing wall. There was also access for bats into cavities within the brickwork via this hole, but the roosting conditions are quite "open" so I don't rate it as having high potential for use by roosting bats. There was no sign that bats had been present.
8.13 On the east side, the middle part of the Palatine building connects at first floor level to an old chapel. At the northern end it is close to one of the 15th century buildings. Both these buildings have roofs with uneven slates, but I do not think the demolition of the Palatine building would be likely to affect bats roosting in these buildings. I do not rate their potential for use by a maternity colony as high as there do not seem to be any "free" gable edges or other features from which bats could "free-fall" into flight.
8.14 On the east-facing elevation of the Palatine Building there are small areas of hanging tiles. There are gaps between some of the tiles and there are some defects allowing bats access at the bottom of the tiles to roost behind them. There are also gaps between the simple wooden fascias and the walls, allowing bats access behind. From a fire escape it could be seen that the structure at the eaves behind these simple fascias is such that bats could enter cavities in brickwork at the eaves and could roost on and between rafters without entering the roof as such. There are a few places where the wall projects out from the main line of the building and bats could enter between edge slates on these parts of the roof.
8.15 I made a very superficial assessment of the trees on the adjacent plot of land. Although I could see two with the beginnings of defects where bats might roost in time, the age and condition of the tress generally does not give them high potential for use by roosting bats. However, this number of trees, in an area otherwise largely devoid of vegetation will almost certainly constitute a feeding resource for any bats in the area. There are also a few smaller trees growing within the northern boundary wall of the school, alongside these trees, and I saw a goldfinch feeding in one of theses trees at the time of the survey.

9. Conclusions.

9.1 There are a few places where pipistrelle bats could enter to roost within "boxed eaves" on the laundry building.
9.2 The lofts I was able to inspect in the Palatine Building showed no sign of having been used by bats. Although I was unable to inspect at least one other loft, I think the likelihood of discovering a roost within the outstanding area/s is very small. This is largely due to the urban location of the site where I think the likelihood of species other than the pipistrelle frequenting the site is very small. Although the Palatine Building is close to the river, any bats relying on the river as a feeding or commuting resource would have to regularly have to cross a wide, busy main road. I think any species other than the pipistrelle would have to use this commuting route in order to access satisfactory feeding areas some distance from the site.
9.3 The pipistrelle however is known to be quite common in the centre of the city and can be found feeding even in built-up areas where insect numbers superficially appear to be low. Given that the only trees in the vicinity are growing right next to the School of Music, the likelihood of pipistrelles feeding around them is high and those at both ends of the site probably constitute an important feeding resource for this species. N.b. pipistrelles roost under external features on buildings and in most cases do not leave evidence within lofts of having been present.
9.4 The east-facing of the Palatine Building has potential roosting places associated with hanging tiles, edge slates, lead flashing and simple wooden fascias in association with defective brickwork and access to the roof eaves.
9.5 Otherwise there is access under lead-work that overlies the northern-most ridge and between uneven slates on this roof, plus access under the ridge tiles on the southern-most roof.

9.6 Overall I think the pipistrelle bat will occur in the vicinity of the buildings, attracted by the adjacent trees. There are numerous places where individuals or small numbers of pipistrelle bats could roost in association with the Palatine Building and there is a possibility of a maternity colony of pipistrelles roosting in association with either of the buildings in summer. It's hard to put a level of probability on use of the buildings at any given time, but additional survey work in summer would be of help. The presence of nearby trees increases the likelihood of bats making use of these buildings to some extent. Given the size and location of these buildings, I believe dawn survey work is preferable for assessing the level of use by roosting bats.

9.7 Unfortunately pipistrelles can change roost frequently and droppings are soon washed and blown away from external surfaces by rain and wind (and would be very hard to spot at high level on the Palatine Building). This makes it hard to confirm with certainty that this species does not use a building and to predict when bats will be present/absent. Therefore, although additional survey work is recommended to try to shed more light on the situation, precautions will need to be taken at the time of demolition, irrespective of the findings of future survey work.

9.8 In addition, as these buildings have some good features for roosting pipistrelle bats, and proving that bats never use them is essentially impossible, alternative potential roosting places **must** be provided in the new build to ensure this development does not compromise the favourable conservation status of bats by causing the loss of a roost or roosts.

9.9 I do not think the demolition of either building will impact on bats elsewhere on or adjacent to the site, but there should be a programme of survey work at dusk/dawn in summer to assess the level of importance of the trees, as well as the Palatine Building and laundry to bats.

9.10 There are arguments for and against doing summer survey work in 2007. One the one hand if a roost is located, there is plenty of time to plan the timing/phasing of the development and to apply for a European Protected Species Licence. On the other hand if no bats were found roosting in 2007, there would still be a need to repeat the survey work in the summer prior to the development going ahead. This survey work will be necessary irrespective of whether survey work is done in 2007, to bring the findings up-to-date. My advice would be to have survey work done in 2007, even if the development is unlikely to start for a few years, to at least gather baseline data.

9.11 So long as the recommendations are followed, I do not think this development will affect the conservation status of bats.

9.12 My expectation would be that the planners would grant consent, with a condition applied requiring the recommendations of this report, and any subsequent reports relating to bats on the site, to be followed.

10. Recommendations.

10.1 There should be two dawn surveys in summer 2007, preferably in June and July/August to assess the level of use of the trees at the northern end of the site, and the two buildings to be demolished.

10.2 There should be two additional dusk surveys to assess the use of the same trees at and after sunset. These should be in late May and early September.

10.3 Depending on the findings of these surveys, additional recommendations will be made with respect to the extent and type of compensatory planting that will be required, whether or not a European Protected Species licence is clearly needed, and the type and timing of future survey work in the summer prior to demolition.

10.4 Whatever the findings of future survey work, all external features that could shelter bats will need to be removed by hand with care, possibly under the supervision of the bat consultant. The bat consultant must at least brief the contractors personally. (If a bat or droppings that may have come from a bat are found, work **must** stop immediately. As far as practicable the feature that was sheltering the bat/s should be replaced. Further advice **must** then be sought before work continues, either from myself or from Natural England in Wigan (01942 820342). Any bat found should not be handled. Any bat found should not be handled.)

10.5 Provision for roosting bats must be incorporated into the new build to ensure the development does not result in a net loss of roosts. Discussions are required between the bat consultant and architect to devise the most appropriate means to fit with the proposed building design.

10.6 Although I do not expect to find signs of bats in the outstanding loft/s, this/these should be surveyed sometime over 2007 to double check on this.

11. Further Reading.

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11.2 Office of the Deputy Prime Minister. Planning Policy Statement 9: Biodiversity and Geological Conservation. 2005. HMSO.

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

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11.8 Childs, J. Bats and the Law. 2001. The Bat Conservation Trust and the Royal Society for the Protection of Birds.

11.9 Action for Biodiversity in North West England. Andre R Farrar. The Government Office for the North West, the North West Regional Assembly and the North West Biodiversity Forum, 2000.

11.10 Local Planning Authorities/Greater Manchester Ecology Unit. Biodiversity Action Plans for Bats. Dates vary.

11.11 Wild about the North West – A Biodiversity Audit of North West England. Regional Biodiversity Steering Group, 1999.

11.12 Ketchin, M. The Design and Construction of Bat Boxes in Houses. 1996. Scottish Natural Heritage.

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