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BAT SURVEY

**The Parish Church of St. Deinst,
Llangarron, Herefordshire**

Prepared on behalf of Llangarron Caring for God's Acre Project

February 2005

1.0 Introduction

- 1.1 Llangarron is a small village set to the south-west of the town of Ross-on-Wye at Ordnance Survey Grid Reference SO 530 212.
- 1.2 The survey was requested as part of the Llangarron Caring for God's Acre project, to look for evidence of bat activity within the parish church and the churchyard, as part of a programme of wildlife surveys.
- 1.3 The Church of St Deinst (Figure 1) is built adjacent to a crossroads in the centre of the village. The current church was built from stone with slate roofs and a spire, between the fourteen and the seventeenth centuries. Dwellings surround the church, and the adjacent countryside includes pasture and arable fields, the Garren Brook (giving the village its name), hedgerows and trees.

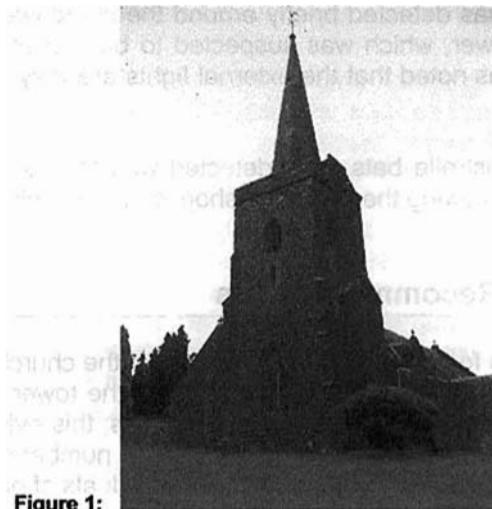


Figure 1:

2.0 Methodology

- 2.1 A daytime survey was carried out by Rebecca Collins, an English Nature licensed bat worker (licence number 20040519) with the assistance of Mike Coleman on the 4th June 2004 to examine the church, both internally and externally, for evidence of use by bats, such as droppings and grease marks. An examination of the church spire was carried out on the 2nd October 2004 due to previous access restrictions.
- 2.2 An evening bat detector survey was carried out around the churchyard on the evening of the 4th June 2004, to assess the level of bat activity around the church and to detect any emerging bats. Mini III bat detectors were used, tuned to 50kHz whilst walking the site, with periodic stops when the detectors were tuned through a range of frequencies. If a bat was detected the species was identified, where possible.

3.0 Results

- 3.1 Evidence of bat activity in the form of droppings was found during a careful internal and external search of the church on the 4th June and the 2nd October 2004. Several small droppings, thought to be that of pipistrelle (*Pipistrellus* sp.), were found around and on the altar. It was observed that the roof of the church is panelled and that there are some small gaps between panels and that daylight can be seen through the roof in several places. It was also noted that due to the fact that the church is cleaned regularly evidence of bat activity would have been removed. A collection of approximately fifty fresh lesser

horseshoe (*Rhinolophus hipposideros*) droppings was found behind the door from the vestry into the tower. Older lesser horseshoe droppings were also found on the staircase, and larger droppings (thought to be that of long-eared (*Plecotus* sp.) bats), were found throughout the tower. A mummified long-eared bat was also discovered part way up the tower. Within one room of the tower the amount of detritus and rodent faeces made it difficult to identify individual bat droppings.

- 3.2 Historical evidence includes local residents having noted bats foraging around gardens of an evening. There are records of other bat roosts within the village and the surrounding area, including that of lesser horseshoe.
- 3.3 During the evening survey on the 4th June 2004 the weather conditions were partially clouded, dry and still with an ambient temperature of 10.0°C; sunset was around 21:21 hours. The first bat detected was a common pipistrelle at 21:50 flying away from the main body of the church; the exact roost site was not identified. Foraging by at least one common pipistrelle was detected briefly around the churchyard. At 22:45 a faint bat call was heard by the tower, which was suspected to be that of a long-eared bat emerging from the tower. It was noted that the external lights are very bright and illuminate a large area.
- 3.4 Several common pipistrelle bats were detected with the use of a bat detector, foraging around the church, following the 'Bat Workshop' on the evening of the 2nd October 2004.

4.0 Discussion and Recommendations

- 4.1 Evidence of bats was found within the main body of the church and within the tower. The droppings and the dead bat that were found within the tower indicate both historical and current use by long-eared and lesser horseshoe bats; this evidence verifies the uncertain bat identification on the evening activity survey. The number of droppings found indicates use by either a single bat or a small number of individuals of each species. The droppings within the church indicated the presence of pipistrelle bats as confirmed by the evening activity survey; again only several bats were identified as being present. The bats of each species are likely to be males due to the small numbers present and the sub-optimal habitat; maternity colonies tend to be larger and in areas of optimal foraging habitat.
- 4.2 The long-eared species is most likely to be the brown long-eared bat (*Plecotus auritus*), due to the fact that this species is widely recorded in Herefordshire, and that the grey long-eared (*P. austriacus*) tends to be a more southern species. Brown long-eared bats tend to roost in relatively small groups, a maternity roost usually containing ten to twenty individuals.
- 4.3 The churchyard and adjacent vegetation is used as foraging habitat by common pipistrelle. The lesser horseshoe and long-eared bat(s) do not appear to forage within the churchyard. The sparseness of the churchyard, such as the absence of a hedgerow or area of dense habitat, and the external lighting will dissuade these species from remaining within the area around the church. Both species require vegetative cover and unlit areas to forage.
- 4.4 The conditions during the evening survey will have affected the activity of bats within the area, due to the reduction in insect activity as the temperature drops. Therefore this single survey is not a truly accurate representation of usual bat activity for this area.
- 4.5 Common pipistrelle bats are Britain's smallest bats being only 35 to 45mm long, weighing the same as a two-pence piece and able to fit into a matchbox with ease. This species will quite easily squeeze between a roof tile and the roof lining to roost, so may go unnoticed if roosting in small numbers. The pipistrelle detected flying away from the main body of the church was not observed emerging but is likely to be roosting beneath the roof slates and/or ridge.

- 4.6 Brown-long eared bats emerge about an hour after sunset, preferring to leave the roost when it is dark, rather than half-light like pipistrelles. This is why they will 'exercise' and roost within the tower or the main body of the church first. This species is known for feeding on any available insects within the roost, such as the butterflies, and even spiders. They forage for insects, especially moths, within vegetation, their short, broad wings making them very manoeuvrable. For this reason they are not likely to spend much time within the churchyard. Their large ears and quiet calls makes them very good 'gleaners', picking insects from the vegetation before they have taken flight.
- 4.7 Lesser horseshoe bats also emerge about an hour after sunset. Horseshoe bats carry out a behaviour called 'light sampling' before emergence to ensure that it is dark enough outside the roost before they leave its safety, this involves flying in and out of an open aperture, such as a window, until the bat decides it is dark enough. Horseshoes do not land and crawl into their roost, instead they need to be able to fly straight into the structure. This species has a specific Species Action Plan in the Herefordshire Biodiversity Action Plan being one of the rare bat species in the country.
- 4.8 **British bat species have different roosting and foraging habitat requirements.** The common pipistrelle only requires small crevices, such as those between a roof tile and the roof lining material. Brown long-eared and lesser horseshoe bats prefer a more open roosting area, such as that found in a loft space or a church tower.
- 4.9 To aid cleaning where bat droppings are found within the church dustsheets and a washable or wipe-able material can be used to cover areas that are utilised most often by the bats. The wipe-able tablecloths available are very suitable. The droppings can then be gathered up and deposited in the graveyard. Bat guano is a very good fertiliser, as it contains a large proportion of undigested insect (droppings just crumble to the touch), due to the rapid digestion that bats must undertake. A common pipistrelle can eat three thousand midges in a single evening! Bat droppings do not pose a health risk.
- 4.10 A way of enhancing the roosting opportunities for bats within the churchyard would be to erect bat boxes. These could be erected on trees, preferably in groups of three. There are various types of box; the simplest is a wooden construction very much like a bird box (details provided) while Schwegler boxes are made from woodcrete and require less maintenance (available from Jacobi, Jayne & Co.).
- 4.11 If any work is undertaken on the tower that would block up any access points, gaps need to be left to allow bats access whilst still excluding birds, such as pigeons and jackdaws. It is possible that access for bats could be improved by creating more suitable gaps to those that are currently available. It would also allow smaller birds that become trapped in the tower to escape. If structural work to the church, such as the roof, is required English Nature or the local bat group must be consulted so that minimal disturbance to the bats occurs, whilst still completing the necessary work and retaining the roost.
- 4.12 It is recommended that external lighting be kept to a minimum. The lights that are currently installed are not directional so are lighting more than those areas, such as the path to the main door, for which they have been put in place. Minimal wattage bulbs should be used and some form of cowling put in place to direct the light to those areas where they are needed and away from those areas where they are not, i.e. skywards. Some species of bat, such as long-eared and horseshoe, are very sensitive to light pollution often becoming isolated from important feeding or roost areas due to excessive lighting. Movement sensitive are recommended set to a low sensitivity and with a short lighting interval, as these are less invasive.
- 4.13 The practice of leaving areas of grassland to grow long increases the insect diversity within the churchyard, which is beneficial to all creatures that eat insects. Areas such as these are extremely important, and if they can be incorporated into the management of the churchyard will greatly increase the wildlife diversity. The appetite of a common pipistrelle requires good areas of foraging habitat within reach of its roost! The limitation of the use

of insecticides within the churchyard would also assist the biodiversity and foraging potential. If any planting is to take place night scented plants could be included, again to enhance insect diversity (see leaflet). The erection of insect blocks around the churchyard will enhance insect diversity and thus a potential bat food source as well as insects that will benefit the flora of the churchyard. 'Green corridors', such as hedge lines are important for both foraging and for providing cover for commuting. The planting of native hedgerows is an easy way of producing this 'facility', which will be utilised by all wildlife. Another benefit of a hedgerow is that it creates a sheltered area, which will encourage insects to gather, which will in turn attract their predators.

5.0 Summary

- 5.1 The church is used as a roost for long-eared bats, common pipistrelle bats and lesser horseshoe bats. The pipistrelles are roosting in the roof areas of the building whilst the other two bat species are utilising the tower. The churchyard and neighbouring trees are used as foraging habitat for these bats.
- 5.2 There is potential to enhance the foraging and roosting potential of the church and churchyard. Sympathetic management, planting and the erection of insect blocks within the churchyard, to increase insect biodiversity, will boost feeding potential. The erection of bat boxes within the churchyard will increase roosting potential as will the modification of access into the tower. Modification of the external lighting to reduce its impact on the local environment would also benefit bats.
- 5.3 Bats are protected under the Wildlife and Countryside Act 1981 (as amended), the Conservation (Natural Habitats &c.) Regulations 1994, the Countryside & Rights of Way Act 2000, as well as the Bern and Bonn Conventions. **If a bat is discovered during any building renovation all work should cease and English Nature or a local bat worker contacted and the situation assessed before work can proceed.**