

The 'Bats and Green Roofs Project'

The 'Bats and Green Roofs Project' was initiated by Huma Pearce in May 2010. The aim of the project is to understand whether green roofs provide habitat for bats within urban areas and determine whether they can offer a compensatory measure for habitat losses associated with development as well as a conservation measure for these species in otherwise low quality urban environments.

Green roofs have been found to provide living space for plants and animals including a number of threatened or rare invertebrate (Jones, 2002; Brenneisen, 2005; Kadas, 2006; Gong, unpublished) and bird species (Burgess, 2004; Gedge & Kadas, 2005; Baumann, 2006; Lee, 2009) but there is a complete lack of data available on their value to mammals. Bats provide a suitable mammal group for investigation because they are mobile flying animals that travel large distances and are therefore more likely to encounter green roofs compared to other terrestrial mammals. They also occur in a variety of habitats including cities (Mickleburgh, 1988; Briggs, Bullock & Tovey, 2007).

All UK bats have suffered significant population declines over the last 60 years and remain vulnerable to pressures associated with landscape change, agricultural intensification, development and habitat fragmentation (Mickleburgh, 1987; Guest, Jones & Tovey, 2002). It is hypothesised that since all UK bat species are insectivorous and that green roofs can support high insect biomass (Kadas, 2006), they may offer a conservation measure for bats by mitigating against the effects of development and providing alternative suitable bat commuting and/or foraging habitats within the built environment.

Surveys were completed during summer 2010 at a total of 30 roof site. The basic methodology involved surveying an extensive green roof and conventional non-vegetated roof for a period of one week using automated bat detectors. These detectors are able to pick up and record high frequency calls that bats emit during their nocturnal commuting flights and when they are locating and capturing prey. The data collected can then be

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analysed to determine the species of bat flying over the roof and whether the bat was commuting or foraging.

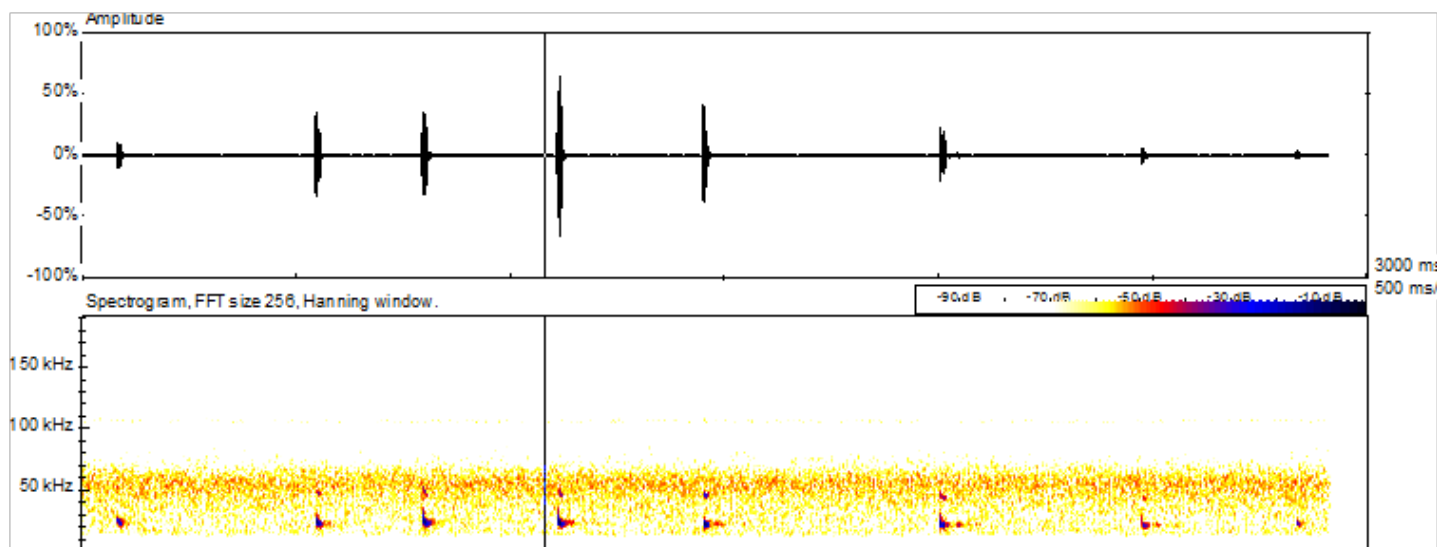
A paper has been produced on the 2010 survey and has been submitted for publication. Full details of the survey will be available on www.mostlybats.org over the next few months.

2011 marks the second phase of the study where in addition to undertaking bat detector surveys at roof sites, surveys of night time flying insects are also being completed. The green roof at the Bere Architects headquarters is being used as a case study site to investigate whether there are changes in bat activity over roof sites during the bat activity season and if so, whether this is influenced by the availability of insect prey. Automated bat detector surveys will be carried out at the roof for one week each month between May and

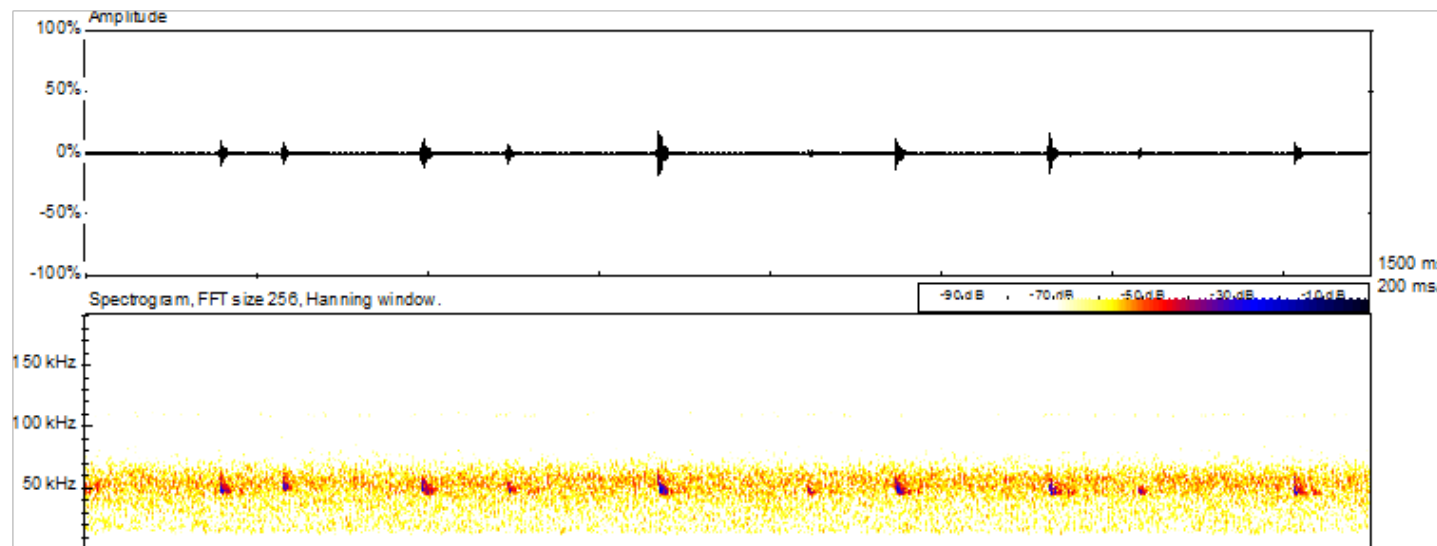
September to monitor changes in bat activity. Night time flying insect surveys will also be completed for 2 nights each month, using Malaise and vane traps, to assess changes in night flying insect diversity and abundance. Bat detector surveys were completed at Bere Architects headquarters between the 9th and 16th May 2011. A total of 13 common pipistrelle *Pipistrellus pipistrellus* bat passes and one Leisler's bat *Nyctalus leisleri* pass were recorded over the roof. The June survey is currently underway and includes the first round of surveys to investigate night flying insect diversity and abundance. Huma has been collaborating with the Bat Conservation Trust and it is hoped that the data collected from these studies will be used to inform new guidance on 'Landscaping for bats'.

Huma works as a freelance ecologist and has a specialist interest in bats. In addition to the 'Bats and Green Roof Project', she also works as a Ecological

Leisler's bat passing over the roof



Common pipistrelle passing over the roof



Consultant and has a part-time post at the Institute of Zoology, London working as a Research Assistant on the Fruit Bat Roost Mapping Project.

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