

Bat Conservation Trust

National Bat Conference

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Conference abstracts 2007

The status of *Nathusius' pipistrelle* in the UK

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Records of *Nathusius' pipistrelle* (*Pipistrellus nathusii*) have been infrequent in the UK since the first record was identified as occurring in 1940 in Whalsey in the Shetland Islands. However, records of the species have almost trebled since the last review by Russ *et al.* (2001). There are now 171 records of individuals examined 'in the hand' and bat detector records from a further 154 localities in Britain and Ireland. Although these records are distributed throughout all months of the year there are clear peaks in spring and autumn indicating migratory movements into and out of the British Isles in autumn and spring respectively. Five maternity colonies and four mating roosts have been identified demonstrating that there is a resident breeding population. The data supports the suggestion that the UK lies in a transitional region with migratory individuals returning from the north-east of the species' range supplementing the resident bats during winter. The possibility that the species may be expanding its range is discussed and a brief introduction to the online resource "Nathusius' pipistrelle in Great Britain & Ireland" (<http://www.nathusius.org.uk>) is given.

The population ecology of Daubenton's bat (*Myotis daubentonii*)

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Over recent years we have been investigating the behavioural and ecological basis of population structure in Daubenton's bat by combining field-based studies with molecular genetics. In particular, we are interested in the changes in population structure and behaviour that result from a change in habitat quality with altitude. This talk will be an overview of current knowledge about Daubenton's bats, based on our own work and that carried out by other researchers in Europe. Daubenton's bat is sexually segregated along an altitudinal gradient, with females being found only at intermediate and low elevations, where the habitat can supply the needs of pregnancy and lactation. A minority of dominant males share roosts with and monopolise the breeding females at intermediate elevations, and father disproportionately more offspring than the larger group living upstream, perhaps by mating before the nursery colonies disperse. The males living at higher elevations have lower body condition indices despite foraging for longer within larger home ranges. These apparently less fit individuals may mate only during autumn swarming. At the lowest elevations nursery roosts are almost exclusively female, raising the question: "what mating strategy is operating if the males do not appear to roost with and monopolise the females? We are addressing this and other questions by extending our genetic analysis of population structure and paternity to the lowest elevations and by using PIT tags, and automated PIT tag loggers at roost entrances, to look in more detail at roosting associations in summer colonies and swarming sites.

Research on bats in traditional stone buildings

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Surveys have been undertaken by E3 Ecology from April to October to assess bat use of traditional farm buildings in the north east of England that are proposed for redevelopment. Typically these are of stone construction with a cut timber roof and slate covering, built in the 19th century and are often little used as a result of changes in agriculture and the size of modern machinery. Analysis of the survey results suggests important changes in typical bat use through the year and the presence and detectability of field signs. Mid summer surveys (June/July) may greatly underestimate the range and numbers of bat species that use the buildings through the year, and this could account for past differences in the assessment of the value of such structures. The greatest range of species, numbers of bats and social activity was generally recorded in the late summer/autumn, and field signs such as droppings and moth wings were more evident at this time and into early winter. It is suggested that for non-maternity sites, careful survey in November for field signs and their precautionary interpretation may better reflect peak bat activity than emergence surveys in May/June. Analysis of reports submitted to Natural England by a range of consultants provide some support for this interpretation. Consideration is given to an approach for the assessment of the conservation value of the varied assemblages of species that have been found and the weight that should be given to the conservation of this biodiversity through the planning process.

Some findings from the Bat Mitigation Conference

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The Bat Mitigation Conference was held over two days in April of this year. The chief aim was to bring together the wealth of knowledge that exists among UK bat workers about mitigation approaches currently being used. Importantly, experiences were recorded of which approaches had been successful, and equally noteworthy, which had failed. This exchange of information will form the basis for identifying good practice in mitigation. Gaps in knowledge were also highlighted and research priorities identified to address these where appropriate.

The main body of the conference took the form of a series of workshops. Each workshop had a facilitator and a notetaker but was very much guided by the delegates, with experiences being discussed, and where possible, consensus reached. On day one, seven subject areas were covered. At the end of the day, delegates chose four topics for the workshops held on the second day. In addition, a question and answer plenary session was held with a panel of representatives of the building industry (an engineer, chartered surveyor and an architect) present to take questions. This presentation will discuss some of the key points that came out of the lighting, wind turbine, non-dwelling and bat house workshops. It will then consider what is already happening to take this matter forward and where we go from here.

Bat conservation – the challenges facing bats

Amy Coyte, Chief Executive, Bat Conservation Trust; acoyte@bats.org.uk

Bat conservation has always faced big challenges and 2007 has proved to be no exception. Major changes in wildlife legislation have come at the same time as influential reviews of the status of species, habitats and approaches to the stewardship of biodiversity. This presentation sets BCT's work in the context of current and future challenges. We share our most recent achievements and analyse the risks and opportunities we face when working collectively to enhance populations for future generations to enjoy.

'Bats don't read books'

Rebecca Collins, Collins Environmental Consultancy Ltd.; rebecca.collins@cec-ltd.org.uk

Bats have other ideas to those of us humans! There are many batworkers out there who have a catalogue of experiences of the vagaries of bats, but there are also many who don't! The books may say that a bat species will react in a certain way in a certain situation, but that doesn't mean that they will!! There are many in both the voluntary and professional fields that are blissfully unaware of what bats can get up to. What we need to do is to enlighten these folks by sharing our experience of 'misbehaving' bats. Bat work relies very much on what we already know and sometimes it is easy to forget that there is still a lot that we don't know. If you don't expect the unexpected the bats are likely to lose out. If a structure is too quickly discounted as unsuitable for bats, a roost of bats may be endangered and once the roost is destroyed there is no going back.

Bat rehabilitation – the RSPCA's perspective

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The RSPCA has been rehabilitating wild animals for many years. We have moved a long way from Inspectors having a collection of aviaries and pens in their back yards; we now have four purpose built wildlife centres, admitting over 13,000 animals a year.

Along with the development of these centres has been the development of our methods. This includes the preparation of species protocols, so that our centres can provide a consistent approach to wild animal rehabilitation. We are also conducting research, assessing the methods that we use to rehabilitate wildlife and trying to understand how our care regimes affect the survival of the animals we release.

To this end, we have produced a bat protocol, which was made available at the BCT's Bat Care Workshop, held this year at our Mallydams Wood Wildlife Centre. Stapeley Grange Wildlife Centre in Cheshire has also built a bat flight in order to assess bats before release and to investigate how they can adapt to life in the wild. Last year, eight pipistrelles were radio tracked after their release from the flight to determine their survival.

Vampires and devil birds: different species – similar problems

Edward Mayer, London's Swifts; mail@londons-swifts.org.uk; www.londons-swifts.org.uk

This talk showed that it's not just bats that are threatened by changes in our buildings.

New building materials and techniques and the way we now ventilate our buildings has sealed them against ingress. New and renovated buildings are devoid of the species that used to share our accommodation. Bats, swifts, swallows and house martins, as well as house sparrows and starlings, all are affected.

Swifts are even more threatened than the other species. If they find an old nest site is no longer there, and cannot very quickly find a new one, they fail to breed at all.

The speaker's conclusion, backed by statistics, is that a sharp decline in Swifts in the UK is already underway and will lead to local extinction. Within the next 50 years the Swift will become a rare bird here unless we set about creating new nest places for it now and also protect existing nest sites. Action can be taken and the speaker set out some positive examples, while making a plea for EC-lead intervention to create Swift nest places in new buildings.

Bats and gaps in hedges

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Linear features such as hedges play an important role in the landscape for commuting and foraging bats. It has been traditionally thought that gaps in hedges can prevent movement of bats and inhibit their ability to fully access the landscape. Quotes have been cited that a gap as small as 10m may be enough to prevent bats from commuting and feeding along hedges or the surrounding landscape. Over the past two years observations have taken place to assess the effects of gaps in hedges on bats due to development or as a result of changing land management or agricultural neglect. The field observations appear to show a pattern is emerging of how location of the gap in proximity to roosting areas is an important consideration in assessing the significance of the effect on bats. It has been observed that gaps (of various sizes) close to the roosting source have less significance than gaps (of varying sizes) greater distances from the roosting source. The field observation has recorded seven species of bats using the gaps for both feeding and commuting. This work is set to continue for a further five years and in this time hopes to record the effects on a greater number of bat species in the UK.

Bats as indicator species

Kate E. Jones, Zoological Society of London; kate.jones@ioz.ac.uk

Biodiversity is being lost at an unprecedented rate in human history as the world population continues to grow and use a greater share of global resources. We urgently need to evaluate the effect of human development on our biodiversity and the benefits we obtain from ecosystems (e.g., clean water, flood and disease control, climate stability). However, basic information on how species abundances and distributions change in response to development are lacking for most areas and species. Bats show the potential to be useful biodiversity monitoring indicator species as they are distributed globally, use a wide range of landscapes and play an important role in ecosystem functioning (controlling insect populations, pollination and dispersing seeds) and their population declines reflect changes in climate, water quality and agricultural practices. Here I present progress on using bats as indicator species in different policy initiatives and outline methods and protocols needed to develop a global bat monitoring system.

Bat study and protection in the Natura 2000 site "Nietoperek"

Tomasz Kokurewicz, Wrocław University of Environmental and Life Sciences; kokur@ozi.ar.wroc.pl

The Central Sector of Międzyrzecz Fortified Front, built during World War II to protect Germany from the invasion from the east, is composed of 35 above-ground bunkers connected by underground railway tunnels of total length of 32 km. The largest number of bats hibernating in "Nietoperek" bat reserve, 36,906 individuals of 10 species, was observed in January 2007. Since 1985 the constant increase of bat number (average rate: 586 individuals/year), caused by immigration of mouse-eared and Natterer's bats to this relatively new hibernation site, is observed. The longest migration distances of bats to "Nietoperek" are: 257 km (*M. daubentonii*), 242.1 km (*M. brandtii*) and 226.7 km (*M. myotis*). The total geographical area of migration of *M. myotis* from eastern part of Germany to "Nietoperek" (17,053 km²), calculated by use of recent data, was larger than previously recorded by Harmata & Haensel (1996). This result indicates that the importance of "Nietoperek" is increasing and that a protection of this relatively small area has a big impact on the survival of bat populations on Central-European lowlands. In 2007 the Natura 2000 site (area: 7,377.37 ha) was finally established in "Nietoperek", but its proper management requires international attention and co-operation.

Lighting and ecosystems: industry trends and attitudes

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Since the invention of fire some millions of years ago mankind has explored the use of light to extend his functionality beyond the hours of daylight. This has often been at the expense of the environment but it is in only comparatively recent times that both the level of impact and consciousness of the potential harm have come to be realised. This paper will look at the current state of knowledge within the lighting industry regarding these issues and cross reference them to the aims and objectives that the exterior lighting professional is trying to achieve in his projects. The paper will touch on some of the existing and future technologies available in the industry and will conclude with a look at how environmental campaigners can work with industry professionals to generate world class lighting projects under the banner, "the right amount of light, where wanted and when wanted".

Bat population data – what they mean for bats

Karen Haysom, Director of Conservation, Bat Conservation Trust; khaysom@bats.org.uk

The National Bat Monitoring Programme is the longest-running multi-species monitoring programme for mammals in the UK and operates as a partnership between BCT and the Joint Nature Conservation Committee (JNCC). Statistically robust population trends are produced currently for 11 of the UK's 17 resident bat species. These trends are derived from data collected by a large network of volunteer surveyors who count bats at summer maternity roosts, in winter hibernation sites or using bat detectors in the field. This paper presents the latest results from the surveys and sets the programme in the context of BCT's conservation work and national and European biodiversity reporting obligations. We consider the wider applications of bat population data and new developments in the programme designed to expand NBMP capacity to inform policy and engage recruits to bat conservation.

Implications of changes to the Habitats Regulations on bat conservation

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A recent judgement from the European Court ruled that the Conservation (Natural Habitats &c.) Regulations 1994 did not accurately transpose the EU Habitats and Species Directive. The UK had to amend the legislation which was implemented on 21 August 2007. Some key changes for bat conservation are highlighted.

Surveillance: The government must ensure that bats are monitored (including incidental capture and killing) (though the level required was not specified).

Capturing, killing, injuring or disturbing: There has been some effort to bring both sets of conservation legislation in line with one another but there may still be confusion.

Disturbance has been defined so that it's ecologically relevant.

Possession and trade: The circumstances in which bats (or parts) can be kept have changed.

Loss of defences: A licence is required to exclude bats from dwelling houses. The loss of the incidental result defence will impact land management most. Conservation agencies emphasise the need to consider ways to do work so that impacts on bats are avoided. Applying good practice will be crucial.

Licensing: Batworkers entering a known roost still need to be licensed. It is an offence to breach the conditions of any licence.

The Purbeck Bat Project

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The greater horseshoe bat (*R. ferrumequinum*) Biodiversity Action Plan (BAP) states that future research and monitoring should assess the importance of sites used by small numbers of bats and investigate the rate of loss of minor sites and their importance to the population structure. All studies to date have largely focussed on the diet and foraging areas of greater horseshoe bat maternity colonies. In order to investigate the importance of these 'minor roosts' this study has focused on the ecology of greater horseshoe bats that have not been part of a main maternity colony for the last three years. Habitat surveys, radio-tracking and faecal analysis has been carried out on the Isle of Purbeck, Dorset in order to measure the patterns of habitat use, foraging behaviour, prey selection, roost use and selection of hibernacula. By comparing patterns of behaviour with work already carried out at maternity colonies in the South West of England this study aims to further develop and implement a strategy for the conservation of this species. As the Dorset colony of greater horseshoe bats is at the eastern edge of this species' range in the UK, this project could provide some important information on possible factors that are restricting their expansion further east.

How many lesser horseshoe bats are there?

Jean Matthews, Mammal Ecologist, Countryside Council for Wales; J.Matthews@ccw.gov.uk

In 1993, the population of the lesser horseshoe bat *Rhinolophus hipposideros* in Wales was estimated to be 7,000, with a similar number in England. A programme of standardised roost counts was initiated to model population trends. Analyses undertaken by the National Bat Monitoring Programme indicate that the UK lesser horseshoe bat population has been increasing at least in the last few years and The Tracking Mammals Project & UK BAP estimated the population at 18,000 split evenly between England and Wales.

The most recent counts in Wales suggest that this is an underestimate. There are various possible explanations for the increase in numbers, such as greater survey effort leading to the discovery of previously unrecorded, but long-standing colonies; increased survival due to a series of milder winters; greater legal protection and more conservation effort. Can we conclude that the population is increasing and is secure?