National Bat Conference 2022
24-25 September 2022
Abstracts

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Saturday 24th September 2022

KEYNOTE: Of temples, cities, and hibernation: three Mexican bat stories - Keynote sponsored by Pettersson

Dr Rodrigo A Medellín, Instituto de Ecología, UNAM

This talk will provide an update on our recent work on carnivorous bats roosting in ancient Mayan temples, nectar bats using the landscape of Mexico City, and a look at a forgotten topic: hibernating bats in Mexico. The carnivorous woolly false vampire bat (*Chrotopterus auritus*) depends on forest to survive. We monitored their nightly activity patterns and social interactions in southern Mexico. 15 bats of three separate groups averaged 5 h outside the roost, travelled 12.14 km and had a home range of 238 ha. Time spent outside of the roost was dedicated mainly to foraging activities. We examined dynamic interactions between pairs of individuals. *C. auritus* avoid disturbed patches; over 97% of their activities occur in forest. We documented a minimum of 1,092 individual prey items of 115 species (103 new for the species), mostly nocturnal mammals and some birds. Mexico City is one of the largest urban centers in the world. In the inner city, we did not expect to find nectar bats, but we did. Four nectar-feeding bats (2 threatened) used four parks in the city. Our >200 captures show their ability to adapt to urban environments. Finally, until 1966, only 18 hibernacula were known in Mexico and only 5 species were known to hibernate here. Very little more work added 6 more. Over the past 3 years we have discovered more than 70 hibernacula and added 6 species to the list of bats that hibernate in the country. We also discovered that Pd, the fungus causing WNS, is expected to enter Mexico any time soon. Given the great bat diversity of Mexico and its conservation challenges, there is no shortage of research and conservation questions.

Barbastelles: the super-colony and the road

Dr Charlotte Packham, Norfolk Wildlife Trust/Wild Wings Ecology

The discovery of a barbastelle 'super-colony' in the East of England has provided a unique opportunity to establish a long-term research project investigating the ecology, behaviour and conservation of barbastelles at a range of scales, from roost feature to landscape/population level.

The first four years of the project have included high-resolution landscape-scale radio-tracking of barbastelles from the super-colony. This has revealed patterns of movement, connectedness, barriers, habitat partitioning and population organisation. We have also gained insights into barbastelle interactions with roads, including where these can form barriers or provide connectivity, the characteristics of used crossing points and responses to bat mitigation road crossing structures.

Having built-up an extensive dataset of barbastelle roosts, we have gained a deeper understanding of roosting behaviour and requirements at the feature, tree, woodland and landscape levels.

Year-round deployment of static detectors at woodlands throughout the super-colony area has revealed patterns of woodland use and activity through the seasons, with particularly interesting findings for winter, when it was previously assumed that barbastelles leave these areas.

Through our research we have refined radio-tracking methodology for bats, enabling high-resolution data collection at the landscape scale. This approach is of particular value for consultancy and research applications and has resulted in new discoveries about barbastelle ecology that have

implications for their conservation. We are working with landowners to inform habitat management and enhancements as well as seeking the designation of protected sites.

Menstrual health management facilities in field-based ecology

Nicola Kittlety, Sparsholt College

Menstruation is the foundation of all human life on earth, with 26% of the global population of menstrual age, yet there is a significant lack of study surrounding menstrual health and how it influences people who menstruate in working and academic situations, especially when regarding field-based activity. Menstrual health has lacked official definition and clear advisory policies (Hennegan et al. 2020) and has historically been subject to derogatory attitudes (Thompson, 2016) and treated as a highly stigmatised taboo, especially in workplaces (Johnston-Robledo et al, 2013).

This study aimed to examine what menstrual health management facilities were available to people who menstruate during field-based ecology and whether these were suitable, if the presence of these facilities is important and how the presence, or lack of, affects people who menstruate physically and emotionally. A questionnaire with both quantitative and qualitative questions was distributed via social media platforms and word of mouth, to collect the lived-in experiences of people who have menstruated during field-based ecological work and study and also included a section for any additional comments or recommendations.

Out of 206 responses, 66% confirmed that there is a clear lack of menstrual health management facilities and where available 68.4% found them unsuitable, 78.2% of respondents indicated that menstrual health management facilities are important to them and that a lack of menstrual health facilities has a negative effect on respondents, with testimonies admitting to feelings of anxiety, a lack of feeling respected and physical and emotional distress when menstruating in the field and 84.7% of respondents indicating that they have or would feel uncomfortable asking for menstrual health facilities if needed.

Modelling Continental-Scale Responses of European Bats to Climate and Land-Use Change

Penelope Fialas, University of Exeter

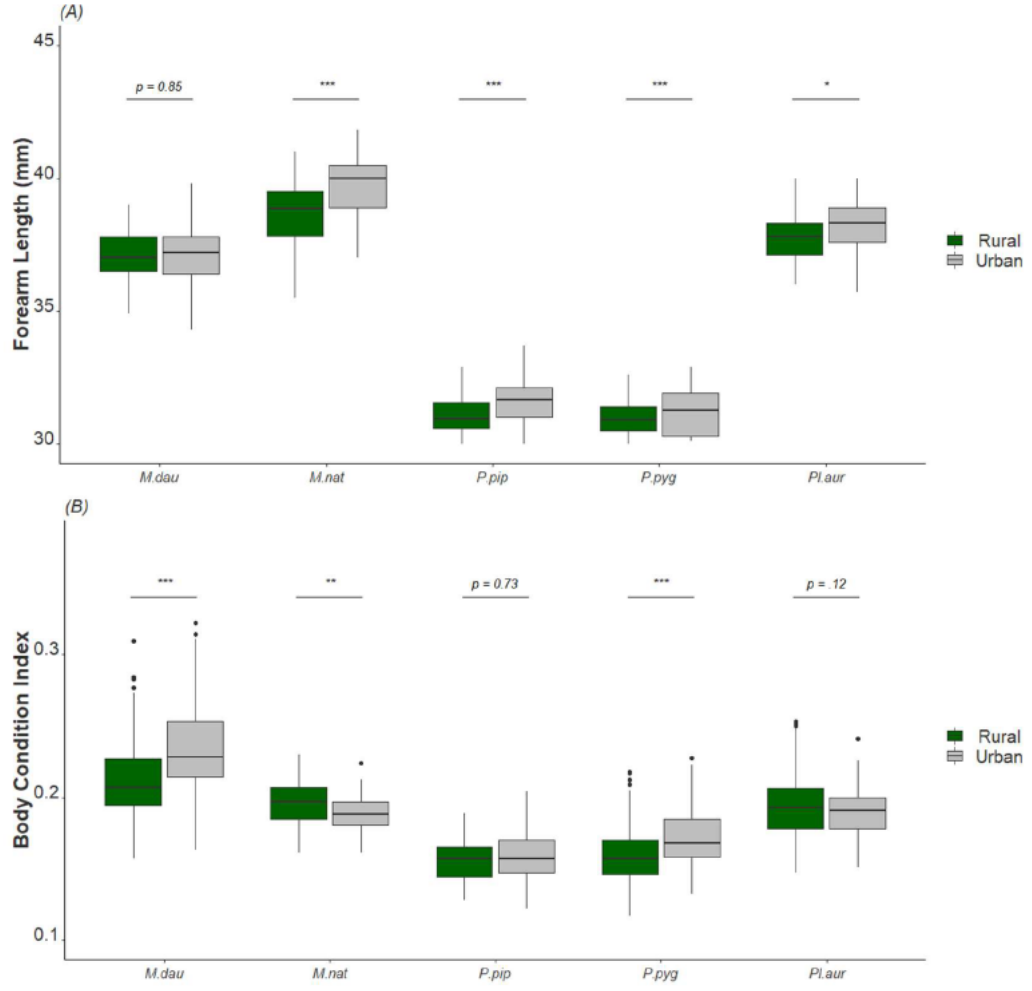
Authors: Penelope Fialas, Francisco Amorim, Luca Santini, Roberto Novella-Fernandez, Francisco Marquez, Hugo Rebelo, Danilo Russo, Orly Razgour

Climate change is a key and growing threat to biodiversity, influencing the geographic distribution of many species. However, less is known about the impact of climate change on functional diversity. Through our international collaborative network, we gathered location records and functional trait data for 37 European bat species. We used ensemble species distribution modelling, combining climatic and land cover data, to study changes in range suitability and patterns of functional diversity in European bats under climate change. Our models predict range shifts, with most species losing ranges from the southerner areas and gaining upwards in northern latitudes; however, predictions are species-dependant. Patterns of species diversity and community composition are predicted to change in response to climate and land-use change. Our results will be used to inform the development of a cross-European monitoring network to better understand bat responses to climate change at the continental scale.

Big City Bats: Species-specific effects of the urban matrix on size and fitness of bats (Chiroptera, Vespertilionidae)

Morgan Hughes, University of Wolverhampton & Scott Brown, University of Exeter

Little research exists regarding the effects of urbanisation on size and fitness in bats. We compared morphometric data from two West Midlands counties: Herefordshire (rural) and Birmingham and Black Country (urban). We examined size and fitness for five species of Vespertilionidae. We found that: 1) contrary to expectations, four of the five species were significantly larger in urban areas than rural, 2) rural individuals of gleaning species (Myotis nattereri and Plecotus auritus) tended to be fitter than their urban counterparts, 3) habitat was the strongest predictor of fitness in species with a documented affinity with water (Myotis daubentonii and Pipistrellus pygmaeus) and that 4) Pipistrellus pipistrellus was the species in which habitat was the weakest predictor of fitness. We also identified several species in which these differences are sex-specific. We discuss the potential drivers behind these surprising results and suggest that we re-evaluate our conservation priorities in urban areas.



Bat Migration over sea in relation to offshore wind developments.

Sander Lagerveld, Wageningen University & Research

No abstract

Sunday 25th September 2022

Earned Recognition: a New Approach to Bat Licensing?

Phil Bowater and Lucy Bellini, Natural England

No abstract

Bat Survey Guidelines- an update

Jan Collins, BCT

Jan Collins, BCT's Head of Biodiversity, will be speaking on progress with the fourth edition of the Bat Surveys of Professional Ecologists Good Practise Guidelines including the supporting research.

Bat Mitigation Guidelines: a sneaky peek

Paola Reason, RKS Biocensus

Revisions to the Bat Mitigation Guidelines have been a long time coming (18 years and counting!). The revised guidance:

- Extends the scope of the original guidance (largely roosts) to include impacts on foraging or commuting habitat, and disturbance of bats
- Provides a method of valuing bat populations and habitat features used by bats
- Provides specific guidance for assessing impacts on bats
- Provides guidance on mitigation for licensable and non-licensable works
- Provides guidance on monitoring effectiveness
- Provides signposts and links to published research and guidance
- Provides guidance on how to enhance development sites and to achieve net gains for bats.

Paola will provide some highlights and key messages from the guidelines, and an update on next steps.

Strangers in the Night: Shedding Light on Equatorial Guinea's Bat Fauna to Encourage Much-needed Bat Conservation Actions

Kate Barlow Award Winner 2021: Laura Torrent, National Sciences Museum of Granollers

Authors: Laura Torrent, Diogo F. Ferreira, Joxerra Aihartza, Inazio Garin, Esther Abeme Nguema Alene, Miguel Angel Fuentes, Luke L. Powell, Hugo Rebelo, Javier Juste

Equatorial Guinea, Central Africa, is in one of the most important Africa's hotspots of biodiversity. However, the most recent bat research published is dating from the 1990s and focused only on the insular species. Meanwhile the continental region has received no attention in scientific publications since the 1970s, with the description of 22 bat species. Almost three decades later, we did three expeditions since 2018 to specifically survey the bat fauna of the continental region. Furthermore, we reviewed an extensive museum collection from the region, compiled before the twenty-first century, and stored at the Doñana Biological Station (EBD-CSIC) in Spain.

We combined traditional taxonomy, based on morphological characters, with molecular analysis to provide the first checklist of all bat species from the continental region of Equatorial Guinea. For the identification of museum specimens, we measured 15 external and 16 craniodental traits and extracted new samples such as bacula. From biopsy samples we extracted and amplified mitochondrial gene Cytb, and the sequences were compared with homologous sequences available in GenBank to confirm cryptic species. In total, we confirmed the presence of 54 bat species for the continental region of Equatorial Guinea. Out of them, 31 are new records for the country; 30 species were confirmed thanks to data collected in 2018-2020 expeditions, and 24 species thanks to specimens deposited in the EBD-CSIC collection.

Furthermore, we follow the IUCN Red List categories and criteria to evaluate all the described species from the continental region. We have updated the distribution of rare and data-deficient species and present the first species list for the country. By improving the knowledge of bats species and its distribution in Equatorial Guinea, we can lay the foundations for local authorities to direct their efforts for the protection of its fauna and reinforce forest conservation.

Bat Conservations International's Mission to End Bat Extinctions Worldwide

Dr Amanda Adams, Bat Conservation International

An overview of BCI's work.

A Global Survey on Acoustic Bat Lures Highlights Ethical Concerns and Suggests Guidelines to Assist Future Research

Oli Aylen, University of New South Wales

Acoustic bat lures are devices capable of playing high frequency sound. These stem from research showing the behavioural responses of bats to acoustic stimuli. Through an online survey we aimed to inform best practice by accumulating user experiences. Lures have been used across 34 countries, but predominantly in the UK/EU/USA during bat community surveys. There is a lack of standardised deployment methods, with over half of users expressing ethical concerns surrounding their use. We recommend guidelines be published for ethical and standardised methods to deepen our understanding of these devices and their effect on bat species globally.

Bat Disease Surveillance in the UK: Engaging Conservation Volunteers & Bat Workers

Lisa Worledge, BCT

Surveillance for bat related pathogens (of consequence for human and/or bat health) can be facilitated in a cost-effective manner by collaborative action that engages with conservation organizations, volunteers, and bat workers.

Through consideration of different approaches for viral (rabies and SARS-CoV-2), fungal (Pseudogymnoascus destructans) and other pathogens (internal parasites) we'll explore how conservation, research, governmental, human health, and veterinary organizations work together, in both active and passive surveillance, to better understand bats and diseases in the UK.

We will highlight the central role that bat conservationists and volunteers can play, how they are engaged in disease work, their contribution, and the importance of their support in educating the public and promoting best practice. Bat conservation is inherently linked to the public's perception of bats. We all have a role to play in making sure that there is a clear understanding of the actual public health risks associated with diseases of bats.