Dr Emma Stone
BSc(Plym.), MSc(Manc.Met.), PhD(Bristol)

Honorary Research Fellow

Area of research

Evaluating and developing strategies to mitigate human-bat and human-carnvore conflict

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Summary

Research Interests

My research is focused on understanding the dynamic interrelations between ecosystems, society and poverty. I use a novel interdisciplinary approach to Global Environmental Change (GEC) research, combining social-ecological-geographical methods to predict and understand the impacts of urbanisation and agricultural expansion on biodiversity. Using bats as models I am assessing the impact of agricultural land use change (across gradients of intensity) on biodiversity in Malawi. I have recently completed a Leverhulme Trust funded research project assessing ecosystem service provision of bats in agro-forestry plantations and smallholder farms in Malawi as Co-I with Professor Gareth Jones, University of Bristol.

I am currently conducting ongoing long term research in Lilongwe city (Malawi) to assess the socio-cultural-economic drivers of human-wildlife-conflict (HWC), spatial and behavioural ecology of urban bats and carnivores, and impacts of urbanisation on biodiversity and human health. I am using bats and spotted hyaena's (*Crocuta crocuta*) as models to assess the impacts of urbanisation on biodiversity and the risks to human health from wildlife trade, consumption, and cultural use as a function of increasing urbanisation. I am conducting long-term ongoing research to understand the welfare and conservation implications of animal reintroductions and translocations using primates and carnivores as models. I coordinate a long-term primate reintroduction programme of rehabilitated yellow baboons (*Papio cynocephalus*) and vervet monkeys (*Chlorocebus pygerythrus*) into Kasungu National Park, and am preparing two publications from a five year data set to assess welfare success of these reintroductions. With funding from Panthera, I am assessing the welfare and spatial behaviour of reintroduced serval (*Letpailurus serval*) into Kasungu national Park, Malawi, using satellite tracking to be completed in 2019.

Memberships

IUCN Bat Specialist Committee Member

IUCN Hyaena specialist Committee Member

Member Southern Rangewide Strategy Committee for Cheetah and African wild dog

Malawi REDD+ Steering Committee Member

Malawi National Biodiversity Strategy Committee Member

Current post

I am currently Lecturer in Conservation Science at the Institue of Conservation Science, Bristol Zoological Society and Founder/Director of Conservation Research Africa (CRA) (www.conservationresearchafrica.org) a research charity based in Malawi where I manage a successful multidisciplinary research programme assessing the impacts of global environmental change (GEC) on wildlife and society.

I am also an Honorary Research Fellow at the University of Bristol and Cardiff University. I built and manage a Conservation Research Centre in Lilongwe City, and two field research centres in Malawi, through which I conduct a variaetiy of applied research in the two flagship programmes

www.africanbatconservation.org and **www.carnivoreresearchmalawi.org**.

Previous posts

Co-Investgator on Leverhulme Funded Research project to assess the ecosystem services provided by bats in Plantations in Malawi.

Co-Investigator on a NERC Responsive Mode grant using experimental approaches to determine the impacts of light pollution on bats and insects (**www.batsandlighting.co.uk**).

Co-Investigator on a Leverhulme Funded Grant to assess the ecosystem services of bats and build capacity for bat and biodiversity monitoring in Malawi (**www.africanbatconservation.org**).

Co-Investigator on a DEFRA funded project to develop and test strategies to mitigate the impact of Natterer's bats (*Myotis nattereri*) in churches (**www.batsandchurches.org.uk**) and investigating the impact of roost exclusions on the conservation biology of Soprano pipistrelles (*Pipistrellus pygmaeus*).

Biography

Previous experience

I have worked in conservation research for over 20 years. To date most of my research has been in Africa. After completing my undergraduate degree I worked for six years in Zambia as a Assistant Research Coordinator on the Biodiversity Project in Kafue National Park and Project Manager at Munda Wanga Wildlife Park. During this time I was involved in many different projects from field research and monitoring to welfare based rehabilitation, education and awareness projects. Whilst in Zambia I undertook research with a variety of species, as conducting a biodiversity survey meant I had to become familiar with most groups including, birds, butterflies, beetles, reptiles, amphibians, large and small mammals - including bats.

I have also worked on various short term projects, including an Education Display Coordinator for the Philippines Outreach project at Chester Zoo; a nine month project studying the impact of domestic cats on wildlife in Bristol funded by MTUK, and Assisting Ecologist studying African wild dogs in South Luangwa National Park.

Recently I have founded and manage Conservation Research Africa (CRA), a research charity based in Malawi where I manage a successful multidisciplinary research programme assessing the impacts of global environmental change (GEC) on wildlife and society.

Awards

2011 - Faculty of Science Commendation of Excellence for my PhD thesis (University of Bristol)

2010 - Vincent Weir Scientific National Award for my contribution to the conservation biology of UK bats through my PhD research

2009 – Acorn Ecology Prize – for best student paper at the Mammal Society Easter Conference

2005 - Environmental and Behavioural Biology Prize - best performance for MSc research

Activities / Findings

I have co-written and secured three post-doctoral research grants, including a NERC Responsive Mode Grant, DEFRA Research Call and a Leverhulme Trust Project Grant, and a number of charitable grants totalling in excess of £1.6 million. I have published high impact papers in cross cutting global themes in journals including PNAS (Durant, Stone, et al. 2016, IF 9.8, 13 citations), Current Biology (Stone et al. 2009, IF 8.9, >256 citations), Global Change Biology (Stone et al. 2012, IF 8.4, 102 citations) and Philosophical Transactions of the Royal Society B (Stone et al. 2015, IF 7, 16 citations).

Teaching

BSc Integrated Wildlife Conservation, University of the West of England

I lead the module in Animal Behaviour for Wildlife Conservation

BSc Zoological Management and Conservation South Gloucestershire and Stroud College

I lead the module in the Role of Animal Collections in Conservation

MSc in Ecology and Management of the Natural Environment University of Bristol

I teach conservation biology, bat survey techniques, wildlife mitigation and management

MSc in Biodiversity Surveying Nottingham Trent University
I teach bat biology, bat research methods, wildlife mitigation and conservation biology

Small Mammal Ecology and Survey Techniques The Mammal Society, UK
I conduct residential training courses in Small Mammal Ecology and Survey Techniques for participants of all ages and backgrounds

Bat Survey Techniques (AnaBat)
I conduct independent AnaBat bat acoustic surveying and identification training courses for Wildlife Trusts, Ecological Consultants and Universities

Student Supervision:I am supervising three University of Bristol postgraduate student projects: investigating the emergence behaviour of Plecotus auritus (MSc); the roosting ecology of lesser horseshoe bats in the UK (Internship); and and the impact of lighting on bats in Asia (MSc).

Keywords

- Global Environmental Change
- Conservation biology
- Human-wildlife conflict
- Landscape ecology
- Anthropogenic disturbance

Methodologies

- Field experimental research
- Radio tracking
- Acoustic surveys
- Camera trapping
- Sign surveys
- Transects
- Multilevel Modelling
- GIS
- Spatial Analysis.

Memberships

Organisations

School of Biological Sciences

Labs

- Bat Ecology and Bioacoustics
- Mammal Research Unit

Links

- Carnivore Research Project
- Charity through which I conduct my applied research
- African bat research project

Recent publications

- Wakefield, A, Broyles, M, Stone, EL, Harris, S & Jones, G, 2018, 'Quantifying the attractiveness of broad-spectrum street lights to aerial nocturnal insects'. *Journal of Applied Ecology*, vol 55., pp. 714-722
- Zeale, MR, Stone, EL, Zeale, E, Browne, WJ, Harris, S & Jones, G, 2018, 'Experimentally manipulating light spectra reveals the importance of dark corridors for commuting bats'. *Global Change Biology*, vol 24., pp. 5909-5918
- Zeale, MRK, Bennitt, E, Newson, SE, Packman, C, Browne, WJ, Harris, S, Jones, G & Stone, E, 2016, 'Mitigating the impact of Bats in historic churches: The response of Natterer's Bats *Myotis nattereri* to artificial roosts and deterrence'. *PLoS ONE*, vol 11.
- Wakefield, A, Broyles, MEJ, Stone, E, Jones, G & Harris, S, 2016, 'Experimentally comparing the attractiveness of domestic lights to insects: Do LEDs attract fewer insects than conventional light types?'. *Ecology and Evolution*, vol 6., pp. 8028-8036
- Zeale, MRK, Bennitt, E, Newson, SE, Packman, C, Browne, WJ, Harris, S, Jones, G & Stone, E, 2016, 'Erratum: Mitigating the Impact of Bats in Historic Churches: The Response of Natterer's Bats Myotis Nattereri to Artificial Roosts and Deterrence (PLoS ONE (2016) 11:1 (e0146782) DOI: 10.1371/journal.pone.0146782)'. *PLoS ONE*, vol 11.
- Stone, E, Wakefield, A, Harris, S & Jones, G, 2015, 'The impacts of new street light technologies: experimentally testing the effects on bats of changing from lowpressure sodium to white metal halide'. *Philosophical Transactions B: Biological Sciences*, vol 370.
- Stone, EL, Zeale, MRK, Newson, SE, Browne, WJ, Harris, S & Jones, G, 2015, 'Managing conflict between bats and humans: The response of soprano pipistrelles (pipistrellus pygmaeus) to exclusion from roosts in houses'. *PLoS ONE*, vol 10.
- Wakefield, A, Stone, E, Jones, G & Harris, S, 2015, 'Light-emitting diode street lights reduce last-ditch evasive manoeuvres by moths to bat echolocation calls'. *Royal Society Open Science*, vol 2.
- Stone, EL, Harris, S & Jones, G, 2015, 'Impacts of artificial lighting on bats: A review of challenges and solutions'. *Journal of mammalogy*.
- Stone, E, Jones, G & Harris, S, 2012, 'Conserving energy at a cost to biodiversity? Impacts of LED lighting on bats'. *Global Change Biology*, vol 18., pp. 2458-2465

View complete publications list in the University of Bristol publications system

Networks & contacts

- The Institute for Global Health & Infectious Diseases
- University of North Carolina (disease biology)
- Cardiff University (human bat conflict and parasites (Prof Cable/Prof Bruford)
- Southampton University (landscape genetics of bats
- Dr Razgour)
- Porto University (bat taxonomy
- Dr Rebelo)
- University of Lisboa (ecosystem services of bats
- Dr Palmeirim)
- University of Cape Town (bioacoustics of bats
- Prof Jacobs)
- Nottingham Trent University (human wildlife conflict of bats and carnivores
- Prof Yarnell); Department of National Parks and Wildlife (Malawi)
- Lilongwe Wildlife Trust.