PhD Opportunity
Durham Doctoral Studentship

Climate impacts on terrestrial nomadic and resident birds of the Australian interior

Supervised by Professor Stephen Willis (Durham), Professor Richard Fuller (University of Queensland, Australia)

Background: Australia experienced during 2010-11 rainfall of a scale and intensity that was unprecedented in recorded history, driven by the strongest La Niňa weather pattern since 1917. This resulted in a period of ecological boom and presented a research opportunity to study the impacts following such climatic events on the natural ecosystems of the interior. Since then, we have collected data, through extensive field surveys, on the terrestrial nomadic bird species of the interior, and now have an extensive dataset of bird abundance in the period following these rainfall events and through subsequent wet-dry cycles. We intend to continue monitoring these areas as part of this PhD to explore the longer-term fluctuations in nomadic and resident species in response to inter-annual climatic changes.

Aims: The project will collect data on bird abundances, continuing our previous monitoring, and to analyse these combined data to understand the role of climate and other factors in determining the distribution of terrestrial birds of the interior of Australia. Mobile and nomadic species are usually poorly protected within static protected area networks and the movements of such species are poorly understood. Here we intend to develop a better understanding of their ecology and hence how best to protect them against current and future threats.

Methodology: We will continue monitoring a series of long-distance (1000km+) transects across the interior of SE and central Australia, using line and point censuses. We will repeat these transects for three further years. The student will be involved in data collection and subsequent analyses. We will also deploy acoustic recording equipment to monitor changing bird activity over the seasons. The resultant occurrence and abundance datasets will be related to remote sensed climatic and vegetation data. We will create dynamic models to simulate the movement patterns of birds across the Australian interior and use these to inform conservation planning. We will also explore the potential of climate change to alter the occurrence of these species and will identify key sites to protect such species in the future.

Timetable of Activities: In year 1, the student will collate datasets and undertake preliminary analyses on data already collected (8 years). The student will also deploy automated recorders and help organize, and partake in, a first survey expedition. In year 2, they will organise a second survey and will continue analyses of the vocalisation and transect data. They will develop and validate simple movement models to simulate the changing distributions of nomadic species. In year 3, they will analyse the inter-annual variability of the interior species and use population/movement models to inform the current and future conservation of species.

Novelty: This work takes advantage of a unique series of climatic fluctuations and an associated bird abundance datasets. It will use cutting-edge analytical methods to develop real-world solutions to conservation issues. We are in a unique position to undertake the work, which builds on ongoing projects These newly collected datasets of bird distributions in a rarely studied system provide a unique opportunity to further our understanding of these systems.

Training Received: The student will receive training in several key disciplines in conservation biology, including field census techniques, analytical and modelling techniques. They will join the Conservation Ecology Group at Durham (www.conservationecology.org), a dynamic team including a large cohort of postgraduate students. They will also spend time at the University of Queensland.

Maintenance Payment to successful student: £14,700 (approx.) p.a. plus tuition fee for 3.5 years (see http://www.dur.ac.uk/science.faculty/postgraduatefunding/ for further details).

Application Process: This project is in competition with others for funding, and is **aimed at national and international students**. Success will depend on the quality of applications received, relative to those for competing projects. If you are interested in applying, in the first instance contact Prof Willis (s.g.willis@durham.ac.uk) asap (by 15th December at the very latest), with a CV and a covering letter, detailing your reasons for applying for the project. The best applicants will be contacted and encouraged to apply online via www.durham.ac.uk/postgraduate/apply attaching their CV, covering letter, 2 academic references, and evidence of previous academic qualifications. This scheme may also require additional information to be uploaded, which Prof Willis will advise upon.

CLOSING DATE FOR APPLICANTS: 15th December 2019 via the Durham postgraduate webpage. The post is also advertised on findaphd.com.