

4 PhD positions in Behavioural and Physiological Ecology at Macquarie University, Sydney, Australia

We are pleased to announce multiple opportunities available for a start from mid to late 2017

1: Adapting to a foreign climate: the reproductive ecology of the house sparrow in Australia

The house sparrow (*Passer domesticus*) was introduced into Australia in the 1860's and has since become well established across a broad range of climates in both countries. This project will take advantage of this 'experimental' introduction to focus on behavioural and physiological adaptations to different climates through a field-based comparative approach. This research will complement our existing work on related questions in endemic Australian species and will provide insight into the capacity of avian species to adapt to changing climates. This project will involve periods of field-work in Broken Hill, Armidale and Hobart in Australia, along with a range of behavioural, molecular and physiological assays. The project will involve collaboration with other groups in Australia and the US.

2: The challenge of growing in a hot climate (in the zebra finch)

In recent years we have characterised the very hot conditions in which zebra finches are raised (with nests often reaching temperatures over 40 degrees Celsius, as well as identifying adverse effects of these conditions on embryonic development, offspring growth, and adult sperm. This project is supported by an ARC funded project and will investigate the adaptations that this iconic and well-studied species has to deal with the extreme climate in which it lives. The project will take a variety of approaches including behavioural work, and assays of metabolism and physiology, and combine fieldwork and laboratory work. The project will be run in collaboration with Dr Christine Cooper (Curtin University, Western Australia), Prof. Pierre Deviche (Arizona State University, US), and Prof. Pat Monaghan (Glasgow, UK).

3: Social structuring and life-history in free-ranging domestic sheep

In this project we will examine the importance of social structure and collective intelligence to life-history trade-offs and productivity in domestic sheep in the rangelands of Australia. The project will use tools from social network theory and spatial ecology to characterise individual and group behaviour and investigate their effect on individual quality and productivity (lambs and wool) in this challenging, but economically important part of Australia. The project will be based at Fowlers Gap (near Broken Hill in the arid zone) and require field work and well-developed analytical skills. This work will be run in collaboration with partners in the pastoral industry and be jointly supervised by Dr Stephan Leu (also at Macquarie University).

4: Parasite transmission dynamics in an Australian lizard

This project will investigate the relationship between host spatial and social behaviour and bacterial transmission. It combines social network theory, spatial ecology and wildlife epidemiology to determine how different bacterial strains are transmitted through the population and how individual behaviour and consequently population social structure changes as a function of infection status. The project combines the analysis of a very comprehensive (already collected) dataset with scope for the student to develop his/her own ideas and conduct fieldwork. The student should be interested in social networks and disease modelling and have strong analytical skills. This project will be jointly supervised by Dr Stephan Leu and A/Prof Martin Whiting (both at Macquarie University). We also have strong relationships with disease modelling colleagues in the US.

Application

The Department of Biological Sciences at Macquarie University is a vibrant environment which offers excellent support to postgraduate students. A Macquarie University Excellence in Research Scholarship has already been assigned to one of these projects, but there are other scholarship opportunities available to suitably competitive candidates. International candidates are welcome to apply for any of the projects listed above.

The 2014 MQRES full-time stipend rate is \$26,682 pa tax exempt for 3 years (indexed annually). In addition to external grant support for projects, there is additional internal funding (up to \$17,000) available to cover direct research expenses and conference travel.

Applicants should ideally have a research-based MSc in a related discipline (with a minimum 50% research component), and additional relevant research experience, qualifications, and details of awards or prizes. For projects 1, 2, and 4 an ability to work in remote and harsh conditions as well as experience in capturing and handling animals is desirable. A driving licence is required for all projects.

Applications should include 1) your CV, 2) a brief statement of your reasons for applying (max. 500 words) and the project you are applying to work on, 3) contact details of two academic referees, 4) your nationality (for scholarship eligibility purposes). Applications should be submitted electronically as a single PDF file.

Applications for these positions (and any initial enquiries) should be emailed by **7th April 2017** to: simon.griffith@mq.edu.au

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