Two PhD students wanted
to work on an Australian Research Council funded project on
disease ecology and genomics in parrots

We seek two outstanding, highly motivated PhD candidates to work on the ARC Discovery project ‘Genomic diversity, tolerance and ecology of wildlife disease’ with Professors Andy Bennett and Soren Alexandersen (Deakin and GCEID), Dr Matt Berg (Deakin) and Professor Scott Edwards (Harvard).

The students will be based at Deakin University, Geelong (near Melbourne, Australia) in a research group in the Centre for Integrative Ecology (CIE) and the Geelong Centre for Emerging Infectious Diseases (GCEID) with opportunities for travel to Scott Edward’s lab at Harvard USA. The research project will commence in January 2018 and students need to start by July 2018, preferably earlier.

Emerging infectious diseases are among the most significant threats to conservation, agriculture and public health worldwide. One such disease is caused by the Beak and Feather Disease Virus (BFDV), a single stranded DNA virus which is spreading globally and is poorly understood in wild populations despite being a listed as a ‘key threatening process to biodiversity’ by the Australian Federal Government. BFDV infects primarily parrots, which are amongst the most highly threatened bird taxa globally. We will study the virus in the crimson rosella (*Platycercus elegans*) an emerging model system for studying population divergence and disease ecology, using a number of established field sites in south-eastern Australia. The primary aims of the research are to study the influences of tolerance, genomic diversity, and candidate genes on BFDV dynamics in rosellas, by combining genomic, pathological and ecological approaches. Both PhD’s are expected to conduct field work and lab work, but have different emphases.

**PhD-1** This will be focussed on molecular analyses, genomics and associated bioinformatics of both the host and the virus but will also involve field work (to assist with sample collection). The main objectives of this project is to test the role of genetic diversity and genotype rarity in infection, infer the roles of selection and candidate genes, and conduct phylogenetic analyses. The project will be based in Deakin’s CIE, with additional training provided by GCEID and at Harvard University.

**PhD-2** This will focus on field ecology and pathology/immunology, with training provided in the CIE and GCEID. The objectives are to investigate the pathological and fitness effects of BFDV infection in rosellas, and to combine these data with quantification of infection levels to evaluate the contributions of resistance and tolerance mechanisms to infection dynamics in this system.
Recent publications by our other PhD students on *P. elegans* include:

- Ribot *et al.* (2012) Learned vocal variation is associated with abrupt cryptic genetic change in a parrot species complex. *Plos One* e50484

For further information on the research group, see:
Deakin’s Centre for Integrative Ecology: cie-deakin.com/
- Prof Scott Edwards, Harvard University: edwards.oeb.harvard.edu/

**Who should apply?** The projects would suit students with strong interests in avian evolution and ecology, genomics, and/or disease ecology. Prerequisites for the positions include: Masters or First Class Honours (or equivalent in a relevant field); excellent written communication skills; high levels of enthusiasm, motivation and ability to work effectively as part of an interdisciplinary team; willingness to work long hours under arduous field conditions; and a driver’s licence (for field work). Experience in field work with birds and/or molecular methods such as PCR, sequencing or bioinformatics would be desirable. Selection will be based on academic merit and previous experience.

**Why apply?** The projects offer exciting opportunities in the burgeoning fields of genomics and disease ecology with extensive training in state-of-the-art methods. The projects will be based in the Centre for Integrative Ecology at Deakin University’s Geelong Waurn Ponds campus in Victoria, working with a vibrant and growing research team of ornithologists, ecologists and pathologists that are part of the CIE and GCEID. The groups have weekly seminars, weekly discussion groups, fortnightly lab meetings, and annual PhD student 3 days conference. Students are strongly encouraged to attend national and international conferences. Students receive at least $3,000 for conference attendance (and are assisted in applying for other travel grants) and for PhD-1 there are additional funds to visit the Harvard lab. Deakin hosts one of the largest ornithological research groups in the southern hemisphere, and receives high ratings in the Excellence in Research for Australia evaluations, for example the highest possible scores of 5 in Zoology, 5 in Environmental Science and Management, and 4 in Evolutionary Biology. Excellent facilities are available for the two projects including modern lab and offices, computer and statistical support, field equipment and 4WD/mobile laboratories for field work.

**Application deadline is 1 February 2018.**
For further information or to apply, email: Dr Mathew Berg (mathew.berg@deakin.edu.au) or Prof Andy Bennett (andy.bennett@deakin.edu.au). To apply please send a brief statement of your interest in the project, a detailed CV (including all undergraduate grades and list of any publications) and contact details for two referees.

**Stipend:** AUD 26,682 per annum tax exempt for 3 years
(tuition fee waivers are potentially available for overseas students)