

PhD position, Aberdeen, UK: *Niche Evolution in a Warming World*

Institution: Aberdeen University

Dept/School/Faculty: School of Biological Sciences

PhD Supervisor: Dr L Lancaster

**Application Deadline: Friday, January 16, 2015 Funding Availability: Competition
Funded PhD Project (European/UK Students Only)**

Supervisors: Dr Lesley Lancaster, Professor Michael Ritchie (St Andrews) and Professor

Jorgen Ripa (Lund)

For more details and application, please visit:

www.findaphd.com/search/ProjectDetails.aspx?PJID=58671&LID

Many

organisms are currently responding to climate change with dramatic shifts in

their geographic ranges and ecological niches. However, the mechanisms underlying

these biotic consequences of rapidly changing climates remain poorly

understood. It is critical to improve our understanding in this area of

research, as many pests and disease-carrying species are currently expanding

under global climate change, while other, less rapidly evolving species face

extinction. In this PhD project, the student will investigate a number of

hypothetical evolutionary trajectories that could underlie or constrain rapid

niche shifts occurring during climate-induced range expansions. This represents

an exciting opportunity to contribute to scientific understanding of evolution under environmental change and to develop knowledge to inform conservation and management. Specifically, the project will investigate how shifts in a species's resource use traits, climate tolerances, and dispersal abilities contribute to niche evolution, and will seek to characterise evolutionary trade-offs among these traits that may constrain a species's ability to adapt to a rapidly-changing world. There will be ample opportunity for the student to propose and test their own hypotheses for niche evolution mechanisms, incorporating additional processes and effects such as mating system evolution, indirect genetic effects, epigenetics, etc., following the research interests of the student.

The PhD project offers opportunity to learn a variety of important methods in evolutionary biology, including experimental evolution/quantitative genetics in lab-based organisms (using seed beetles, a currently evolving global crop pest), individual-based modelling approaches, and offers opportunities for field ecology approaches in northeast Scotland, to allow the student to become familiar with evolutionary and ecological dynamics in wild, evolving insect systems.

Funding Notes:

This project is eligible for the EASTBIO Doctoral Training Partnership:

<http://www.eastscotbioldtp.ac.uk/> .

This opportunity is only open to UK nationals (or EU students who have been resident in the UK for at least three years immediately prior to the programme start date) due to restrictions imposed by the funding body.

References:

1. Bebber, D.P. et al. (2013) Crop pests and pathogens move polewards in a warming world. *Nature Climate Change* 3: 985-988.
2. Ackerly, D.D. et al. (2006) Niche evolution and adaptive radiation: Testing the order of trait divergence.
3. Tuda, M. et al. (2006) Evolutionary diversification of the bean beetle *Callosobruchus* (Coleoptera: Bruchidae): traits associated with stored-product pest status. *Molecular Ecology* 15: 3541-3551.