PhD studentship in Evolutionary Ecology at the University of Oxford

ADMIXTURE, GENETIC DIVERSITY AND THE EVOLUTIONARY DYNAMICS OF COLONIZATION

Project Description

Species introduced to locations outside of their native range provide outstanding opportunities to study ecological and evolutionary processes. For example, introduced populations frequently encounter novel environments, which enable us to address the genetic and non-genetic factors that promote rapid evolution of adaptation.

At first sight, rapid adaptation to non-native environments may seem paradoxical since a response to selection should be constrained by the loss of genetic diversity typically associated with population bottlenecks. Admixture - the mixing of genotypes from different source populations - could be a solution to this paradox by increasing genetic and phenotypic diversity, reducing inbreeding depression, and thus enhancing the opportunity for evolution. Admixture could therefore cause rapid divergence of introduced populations from their ancestral source. Yet, to what extent admixture occurs in introduced species and the consequences thereof remain poorly understood.

Using a system of > 25 populations of the wall lizard (*Podarcis muralis*) that have been introduced north of their native distribution, and their source populations in southern Europe, this project will test: (i) for differences in genetic diversity between native (source) and introduced populations; (ii) how these patterns are affected by the number of founders, their origin(s), and admixture of distinct genotypic lineages; and (iii) to what extent admixture - in combination with natural and sexual selection - contributes to phenotypic divergence between native and introduced populations.

Further details

This DPhil project provides exciting opportunities to develop a research career in evolutionary ecology by combining field, molecular, and experimental approaches to study the origin and evolution of phenotypic variation in a non-native lizard. We are looking for a highly motivated student with a strong background in evolutionary or molecular ecology. The project is funded by grants to Tobias Uller (http://www.zoo.ox.ac.uk/egi/people/faculty/tobias_uller.htm) from the British Ecological Society and the National Geographic Society. The successful candidate will join an expanding and dynamic research group focusing on the processes underlying the origin and evolution of phenotypic adaptations to novel environments, based in the Edward Grey Institute within the Department of Zoology, University of Oxford.

To apply please use the online application system at: http://www.ox.ac.uk/admissions/postgraduate_courses/apply/. Please remember to quote the studentship reference code DTG5. Any queries regarding the application procedure please contact graduate.office@zoo.ox.ac.uk. For informal discussion regarding the project please contact Dr Tobias Uller, tobias.uller@zoo.ox.ac.uk or Dr Judith Mank, judith.mank@zoo.ox.ac.uk. The closing date is Friday 21st January 2011. **NOTE:** eligibility information can be found at: http://www.bbsrc.ac.uk/funding/studentships/studentship_eligibility.pdf http://www.nerc.ac.uk/funding/studentships/studentship_eligibility.pdf