

MSc positions in ant phylogenetic diversity and biogeographic linkages across the Mozambique Channel

Dr. M. Alex Smith
Biodiversity Institute of Ontario
Department of Integrative Biology
University of Guelph

Positions for MSc students are available to work on assessing the phylogenetic diversity and biogeographic linkages for ant species across the Mozambique Channel.

The specific objectives of research in this project are to:

1. Generate and evaluate hypotheses of biotic diversification and biogeography using ants across the southwest Indian Ocean islands (SWIO) islands, and assess their relationships to the fauna of mainland Africa using mitochondrial and nuclear gene sequence data.
2. This project targets six genera from three ant subfamilies, Cerapachyinae, Myrmicinae and Pseudomyrmecinae, for detailed species-level revisions and phylogenetic analyses. These taxa are groups of considerable ecological and phylogenetic interest.
3. Some question to be asked include: (1) How many colonization events occurred from Africa to the SWIO islands for each genus? (2) What was the role, if any, of the Comoros islands as stepping stones? (3) Was there any backward movement from Madagascar to the African mainland or to other SWIO islands? (4) What was the timeframe for these dispersal events? (5) Are patterns of ant community change with elevation comparable to an ongoing project in Costa Rica?

The specimens collected from the Seychelles, Tanzania and Mozambique will be permanently archived in the California Academy of Sciences where technicians will ensure that the ant specimens are shipped to Guelph. Here it will be the responsibility of the student filling this position to extract DNA, sequence and manage and analyse the data for these specimens in the BOLD datasystem (www.barcodinglife.org).

An undergraduate background with courses and/or research experience in evolution, genetics, ecology, and basic molecular techniques is preferred. Motivated students with a keen interest in understanding the phylogenetics and biogeography of this interesting group of organisms would be ideal.

This funded position will permit a student to take advantage of opportunities and research interests in the lab, but it is expected that the successful applicant will develop novel research hypotheses and approaches to testing these hypotheses. For more information, contact Dr. Alex Smith at salex@uoguelph.ca or visit the website (www.uoguelph.ca/~salex).

Interested students should submit a resume, unofficial transcript, a statement of research interests and arrange for three letters of reference to be sent by e-mail to: Dr. Alex Smith (salex@uoguelph.ca) Expected start date will be May, 2010 and September, 2010. While all qualified candidates are encouraged to apply, Canadian citizens and permanent residents of Canada will be given priority.