

# MSc project opportunity

## The evolutionary ecology of an avian contact zone

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An MSc project (2012-2013) is offered in the Molecular Ecology and Evolution Programme of the Department of Genetics at the University of Pretoria, in collaboration with the Centre of Excellence in Birds as Keys to Biodiversity Conservation at the Percy FitzPatrick Institute of African Ornithology (UCT) and the Department of Biology, Lund University.

### Project description

The Karoo Lark *Calendulauda albescens* complex comprises of four largely allopatric species, all endemic to southern Africa. The only known contact zone is between Barlow's and Karoo Larks in the area between Port Nolloth and the Orange River. Our understanding of the complex as a whole, and the contact zone in particular, was informed substantially by genetic data (Ryan et al. 1998, *Ibis* 140: 605-619), but this was based solely on an analysis of the mitochondrial cytochrome *b* gene.

We propose to revisit this study system using a broader suite of markers (especially nuclear introns). At the same time, we plan to screen coastal and inland populations of each species for the genes underlying the close matching between plumage colour pattern and soil coloration. Coastal subspecies have pale, sandy brown plumage above, matching the coastal sands, whereas a few kilometres inland Barlow's and Karoo Larks are rich, rufous above to match the reddish inland soils. This analysis also might reveal the genes underpinning the species-specific differences in plumage streaking. Such genes might prove to be generally important in lark radiations. Finally, we shall revisit the apparent hybrid zone (Cohen 1999, unpublished Honours report) to see whether there is any evidence of movement in this zone. The previous study found a strong correlation between lark phenotypes and vegetation density and height. Given predictions of strong climate change effects in the Succulent Karoo biome, this species pair might prove to be an interesting indicator of climate change impacts in the region.

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Interested applicants with a BSc Honours qualification in an appropriate Biological Science can send a complete CV, the names of three references who can attest to their research skills and a full academic record to the address below. Please also include a motivation stating your key research interests and goals (max one page).

**Please apply no later than 15 November 2011.**

### Please contact:

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