

**MSc opportunity at the Centre for African Conservation Ecology,
Nelson Mandela University, Port Elizabeth, South Africa**

Title: Reconstructing historical baselines for the distribution and abundance of an apex predator, the lion (*Panthera leo*), in South Africa

Duration: 12 to 18 months

Starting date: January 2018

Supervisors: Sophie Monsarrat and Graham Kerley,

Overview Relevant baselines on the historical distribution and abundance of species are needed to support appropriate conservation targets for depleted species. In South Africa, over-hunting and loss of habitat largely altered the composition and distribution of the large mammal fauna, especially since the start of the colonial period. The apex predators were particularly vulnerable to these effects. Historically widespread in South Africa, the lion *Panthera leo* was exterminated in most parts of the country and is now restricted to isolated populations in protected areas. Because most of this impact occurred in the past 250-300 years, population trends cannot be captured by research studies based on recent ecological data alone. By extending the timeline usually considered in ecology, long-term archives can provide unique new insights into the population dynamics and changing status of species through time and represent a unique opportunity to better inform lion conservation and management. The objective of this project is to use long-term records to quantify the human impact on the distribution and abundance of lion in South Africa. This project will also serve as a model for developing techniques and approaches to address these challenges for other apex predators.

Members of the Centre for African Conservation Ecology have collected historical records of lion occurrences from palaeontological, archaeological and historical written sources of the 17th to 21st centuries. The student will analyse these data, and collate additional ecological and historical abundance data, to reconstruct the historical distribution and abundance of lions in South Africa. He/she will develop analytical approaches using empirical (i.e. data-based) and mechanistic (i.e. process-based) modelling tools to reconstruct these historical baselines.

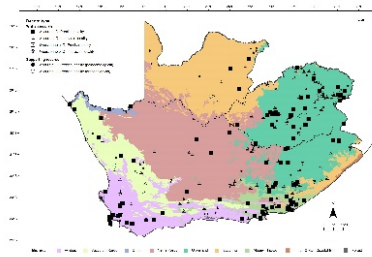
This is an interdisciplinary project at the interface between biological conservation and history. The results will have direct implications for the management and conservation of lions in South Africa. This is a desk-based project, without field work. The student will be integrated within a dynamic and supportive research team.

Required skills:

- A solid basis in ecology
- A high level of rigour and attention to detail
- Good capacity for integration into a research team

Preferred skills:

- Experience in GIS and/or R



Funding The student will have to secure his/her own bursary funding through grant applications (e.g. through the NMU Postgraduate Program, see <http://rcd.mandela.ac.za/Postgrad-Financial-Assistance>). Other costs will be covered by ACE.

To apply, please send a CV, including contact details of two referees, and a short motivation for why you wish to undertake this research to Sophie Monsarrat (sophiemonsarrat@gmail.com) and Graham Kerley (graham.kerley@mandela.ac.za), before 20th November 2017.