



2015 PhD Opportunity

Examining leopard population dynamics in the greater Maputaland region using camera-trap data and spatial capture-recapture models

The study: The PhD study forms part of a long-term research program to monitor leopard populations in northern KwaZulu-Natal, South Africa, to inform effective adaptive management of the species (Balme et al 2009, 2010). Since 2005, camera-trap surveys have been undertaken at regular intervals in several protected areas across the province. We will extend these surveys in 2015 to southern Mozambique and Swaziland to track regional leopard population trends. This study will therefore use historical and new camera-trap data (plus an existing 10-year telemetry dataset) to determine the factors affecting leopard population density and gauge the impacts of local conservation interventions. It will also explore the use of camera-trap data in assessing other aspects of leopard behaviour and demography (e.g. resource selection – Royle et al 2013a; connectivity – Royle et al 2013b; life history traits – Gardner et al 2010) using the rapidly evolving science of spatial capture-recapture.

Academic institution: The position is offered by the Department of Biological Sciences at the University of Cape Town (<http://www.biologicalsciences.uct.ac.za/>), South Africa, in collaboration with the Panthera (www.panthera.org).

Requirements: A Masters-level degree with an excellent academic record (which ideally includes some existing publications) in a relevant discipline of ecology. Strong quantitative skills and proficient in R and GIS. Not essential but applicants should ideally have experience with camera trapping and spatial capture-recapture. The project includes sites which are very remote with little support. Applicants must therefore be able to operate independently in the field.

Offer: Tuition fees will be covered by the University of Cape Town. The successful applicant will also receive a project-specific bursary of \$6000 per annum for a maximum of 3 years. Qualifying students may also apply for other postgraduate bursaries (e.g. NRF). The full project costs are covered by Panthera.

Application procedure: Prospective students can apply by writing to Dr Guy Balme (gbalme@panthera.org) and Prof Justin O’Riain (justin.oriain@uct.ac.za). Applicants should provide CVs, academic records and the names of two academic references. Deadline for applications is the 30 November 2014.

Bibliography:

Balme GA, Hunter LTB, Slotow R. 2009. Impact of conservation interventions on the dynamics and persistence of a persecuted leopard population. *Biol. Cons.* 142: 2681-2690.

Balme GA, Hunter LTB, Slotow R. 2010. Edge effects and the impact of non-protected areas in carnivore conservation: leopards in the Phinda-Mkhuze Complex, South Africa. *Anim. Cons.* 13: 315-323.

Royle JA, Chandler RB, Sun CC, Fuller AK. 2013a. Integrating resource selection information with spatial capture–recapture. *Methods Ecol. Evol.* 4: 520-530.

Royle JA, Chandler RB, Gazenski KD, Graves TA. 2013b. Spatial capture-recapture models for jointly estimating population density and landscape connectivity. *Ecol.* 94: 287-294.

Gardner B, Reppucci J, Lucherini M, Royle JA. 2010. Spatially explicit inference for open populations: estimating demographic parameters from camera-trap studies. *Ecol.* 91: 3376-3383.