



Funded Ph.D. position on the energetics of mammalian life history variation.

I am currently advertising one Ph.D. student opening in my lab (www.lanelab.ca) in the Department of Biology at the University of Saskatchewan. Ideally the student will begin September, 2016, but a January or April, 2017 start date may also be feasible. A full stipend (\$20k CAD/yr for 4 years) is guaranteed, but the successful student will be expected to apply for any funding for which they may be eligible (e.g., NSERC post-graduate scholarships for Canadian citizens, University of Saskatchewan scholarships for international applicants).

The Project: Energetics of life history variation in a wild hibernating mammal.

Energetic tradeoffs (e.g., among growth, maintenance and reproduction) form the basis of life history evolution theory. Until relatively recently, however, it has been difficult to measure relevant energetic traits in the wild. As a result, empirical tests of life history tradeoffs are relatively rare. For the proposed project, we are looking for a Ph.D. student interested in taking advantage of recent approaches/technology (e.g., field respirometry, doubly-labeled water, body composition analysis) to test and advance life history theory. The study system is a fully-censused, long-monitored, population of Columbian ground squirrels. Individuals of this species hibernate for 8-9 months of the year, meaning that all energy acquisition and allocation to reproduction occurs in a short 3-4 month active season. We have been collecting detailed life history data from all individuals in a population in the Rocky Mountains of Alberta since 2003. We have also collected pilot data on resting and field metabolic rates, body condition and body temperature profiles during hibernation. These datasets will provide the foundation, upon which the student will be able to build with new data collection, to address their research questions. We have also been collecting data from additional populations, across varying elevations in the Rockies, providing an ideal opportunity to investigate energetics across an ecologically important environmental gradient.



Relevant literature:

- Dobson, F.S., J.E. Lane, M. Low and J.O. Murie. In Press. Fitness implications of seasonal climate variation in Columbian ground squirrels. *Ecology and Evolution*. PDF available upon request.
- Fletcher, Q.E., J.R. Speakman, S. Boutin, J.E. Lane, A.G. McAdam, J.C. Gorrell, D.W. Coltman and M.M. Humphries. 2014. Daily energy expenditure during lactation is strongly selected in a free-living mammal. *Functional Ecology* 29: 195-208.

Lane, J.E., L.E.B. Kruuk, A. Charmantier, J.O. Murie and F.S. Dobson. 2012. Delayed phenology and reduced fitness associated with climate change in a wild hibernator. *Nature* 489: 554-557.

The successful applicant will have a GPA >80% (converted to the UofS' 1-100 scale) over the past two years of schooling and a degree in a relevant discipline (i.e., Ecology, Evolutionary Biology, Physiology, Environmental Biology). All fieldwork will occur in Alberta's Rocky Mountains and accommodation will be provided in the Biogeoscience Institute (University of Calgary; <http://wcm.ucalgary.ca/bgs/>). A passion for fieldwork is a must, as are strong scientific communication skills (both written and oral) and statistical proficiency (or a willingness to gain it). Evidence of scientific productivity (manuscripts published or in preparation, conference attendance and presentation) is also expected. This position is open to both Canadian and international students.

If you are interested in applying, please submit a cv (including names and contact details of references), a short (1 pg) description of research interests and an unofficial copy of your transcripts to jeffrey.lane@usask.ca. Applications will be evaluated as they're received. To ensure full consideration of your application, therefore, please submit asap. Any questions can be directed to Jeff Lane.

Thank you in advance for your interest in this position, however, only those selected for an interview will be contacted.

