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**Graduate position(s) on conservation, ecology, and physiology of wild bats in Canada.**

We are currently advertising up to three graduate student openings in the Department of Biology, at the University of Saskatchewan. Start dates of May or September, 2023 are possible. There is also the potential to be a part of one of the field research teams in the summer of 2023, prior to formally enrolling in the graduate program. Full stipends ($25,000k CAD/yr for 4 years (Ph.D.) or 2.5 years (M.Sc.)) are guaranteed for the first two positions, but the successful students will be expected to apply for stipend supports for which they may be eligible (e.g., NSERC post-graduate scholarships for Canadian citizens). Stipend support is not currently secured for the third position, but applicants with competitive applications will be put forward for internal support (e.g., TAships). Proposed suitability of each project for either a Ph.D. student or a M.Sc. student is indicated, but there is flexibility in expanding or narrowing each project to tailor to either degree program.

**Project 1 (Ph.D.): Conservation biology of endangered bats on the prairies.**

In 2022, the presence of white-nose syndrome (WNS) was confirmed in Saskatchewan. The catastrophic population declines of bats affected by WNS have led to three species in Canada being emergency listed as endangered (two of which are found in Saskatchewan). As WNS spreads across the prairies, conservation efforts for bat populations are likely to encounter new challenges. Agricultural intensification and landscape simplification can affect both the food resources (insects) and habitat quality (e.g., maternity roost sites) for bats. Pesticide exposure is also a looming threat, and has had well documented detrimental effects in ecologically similar birds (i.e., aerial insectivores). Our understanding of the ecology of bats in prairie landscapes also lags behind that for forested environments, making mitigation of these effects even more challenging. This project will directly address these challenges and research needs. Specifically, we are interested in meeting three core objectives:

1. Determine how agricultural intensification in the northern Great Plains affects foraging activity by, and body condition of, little brown bats; identify landscape features most likely to benefit bats through habitat enhancements and conservation initiatives.
2. Determine how variation in pesticide exposure influences body fat dynamics of little brown bats.
3. Evaluate the influence of post-hibernation body condition on the likelihood of reproduction in female little brown bats, and whether habitat augmentation can ameliorate the predicted detrimental consequences for poor-condition survivors.

This student will be co-supervised by Drs. Christy Morrissey (<https://christymorrissey.driftchamber.com/>) and Jeffrey Lane ([www.lanelab.ca](http://www.lanelab.ca)), and be an active participant in both wildlife biology research labs.

**Project 2 (Ph.D.): Habitat selection by endangered bats on the prairies.**

A further limitation in conserving and managing endangered bats on the prairies is our current lack of knowledge regarding critical (hibernacula) and important (maternity roost sites) habitat. In this project, the student will employ a suite of approaches (e.g., acoustic monitoring, radiotelemetry, and public engagement) to locate these habitats used by bats, and identify their habitat correlates/predictors (both natural and human-made). This project is best suited towards a student who has some expertise and interest in using GIS software (e.g., ArcGIS) and will overlap with the above project, both in field logistics and shared objectives. This student will work closely with colleagues in the Ministry of Environment, Saskatchewan (Dr. Iga Stasiak and Ms. Erin Swerdfeger) on this collaborative project.

**Project 3 (M.Sc. or Ph.D.): Ecological energetics and roosting ecology of endangered boreal bats.**

Bats are famous for their nocturnal habits, but populations at high latitudes receive little darkness during the peak of the summer, when energetic demands are high for reproductive females. How bats adjust their energetic physiology under these conditions is little known. For example, does their use of torpor (i.e., short term drops in body temperature and metabolic rate) differ under these conditions? How do extended hours of daylight influence circadian patterns in their metabolism? Additional focus may be given to examining aspects of their roosting behaviour that support the conservation of roosting habitat (i.e., roost switching). In this project, the student will work closely with Thomas Jung (Government of Yukon/University of Alberta) to investigate these questions in populations of endangered little brown bats across southern and central Yukon.

To support these projects, the students will have access to dedicated research infrastructure, including (as is necessary for each project): a mobile laboratory trailer (housing a quantitative magnetic resonance body composition analyzer and other energetic physiology equipment), autonomous bat detectors, necessary field equipment (e.g., mist nets, harp traps, radio tags and telemetry equipment, and handling equipment) and lab equipment/access for pesticide analyses. Preliminary acoustic data from Saskatchewan is also available from the previous three years, and bat banding data from the Yukon maternity roosts spans up to 20 years.

The successful applicants will have performed well during a degree in a relevant discipline (e.g., ecology, conservation biology, environmental science). Receiving internal support (scholarship or TAship requires a GPA > 80 % (converted to the UofS’ 1-100% scale)) over the past two years of schooling. Students who do not meet this threshold, but otherwise have a competitive application are still encouraged to apply. A passion for fieldwork, bats and wildlife conservation, as well as excellent scientific communication skills (both written and oral) and statistical proficiency (or a willingness to gain it) is necessary. Evidence of scientific productivity (manuscripts published or in preparation, conference attendance and presentations) is considered an asset, especially for students wishing to enroll in the Ph.D. program. This position is open to both Canadian and international students (although international students do pay a higher cost of tuition at the U of S). We believe equity, diversity, and inclusion strengthen the community and enhance excellence, innovation and creativity. We, therefore, encourage members of the underrepresented groups in STEM (e.g., women, Indigenous Peoples, persons with disabilities, members of visible minorities, and diverse sexual orientation and gender identities) to apply.

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 a copy of your transcripts to (unofficial or official) to [Jeffrey.lane@usask.ca](mailto: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 also be directed to the same email address.

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