Post-Doctoral and Graduate Student Opportunities in Conservation Genomics

EcoGenomics is a national-scale collaborative research program based in Canada and focused on caribou conservation genomics. We are currently seeking post-doctoral fellows and graduate students to participate in a large-scale project funded by Genome Canada’s Genomic Applications Partnership Program and aiming at developing a national non-invasive monitoring approach for caribou.

Caribou is currently one of the most significant at risk species in Canada, attributable to its widespread distribution, its potential susceptibility to climate change, and its cultural and sustenance significance to Indigenous Peoples. Caribou population monitoring based on fecal pellet collection at feeding sites in winter has been proven as an effective sampling method for non-invasive long-term population monitoring. Host genetic information along with metagenomics data for diet and health indicators from fecal samples can gather a range of parameters needed to identify factors, including changing environmental conditions, affecting caribou populations across Canada. These positions will be supported by already generated data including a large number of whole-genome sequences of caribou representing populations of different evolutionary and demographic histories, targeted caribou-specific loci for Population Genomic surveys from a long-term database of samples (estimated at 40,000 across Canada) and metagenomics data (plant and microbiome). The large-scale national network supporting these positions, under the overall direction of Dr. Paul Wilson (Trent University) and Dr. Micheline Manseau (Environment & Climate Change Canada/Trent University), include partnerships with the Canadian Forest Service, Laval University and the University of Manitoba; the National Boreal Caribou Knowledge Consortium, Parks Canada, provincial and territorial jurisdictions; wildlife management boards; and industry.

The following positions and areas of research interest are being recruited:

**Post-doctoral fellow in conservation genomics (Dr. Wilson and Dr. Manseau, Trent University)** with advanced experience in landscape genetics/genomics to focus on areas such as factors affecting population structure and population demographic status, adaptive potential of different caribou ecotypes and populations. This work will inform management decisions including the identification of critical habitat and protected areas, permitting of industrial activities, landscape restoration efforts, translocation or captive rearing conservation efforts.

**Post-doctoral fellow in metagenomics (Dr. Christine Martineau, Canadian Forest Service and Dr. Arnaud Droit, Université Laval)** with experience in developing and applying a metabarcoding approach targeting multiple taxonomic marker genes to characterize the caribou diet and microbiome in fecal pellets and relate these results to population parameters and landscape attributes. Experience with the analysis of shotgun metagenomics dataset would be an asset. This work will contribute to best practices in the design of sampling schemes for diet and microbiome surveys across caribou ranges and provide new indicators to monitor the recovery of caribou populations.

**PhD students** are also being recruited for questions relating to of Landscape Genomics, Spatial Structure/Network analysis, Population modelling and Adaptive Genomics.

Applicants should submit a CV, a statement of research interests, and names and contact information for three references. The positions will be filled as soon as suitable candidates are found.

Please submit applications to:
Ryan Vieira
Research Program Manager, EcoGenomics, Trent University
1600 West Bank Drive, Peterborough, ON, K9J7B8
Email: ryanvieira@trentu.ca