Forest Ecology Research Group

Graduate positions available with the Forest Ecology Research Group

There are two funded PhD positions available through Wilfrid Laurier University's Forest Ecology Research Group (https://forestecology.ca) as part of a new collaboration with the Yukon Government, Wildlife Conservation Society Canada, and the Canadian Forest Service. Candidates will join dynamic collaborations focused on the resilience of Yukon forests following wildfire and biotic disturbance. Details of each position follows:

PhD 1: Recovery of caribou lichen biomass post-fire

Field Locations: Central Yukon

Details: Caribou lichen is essential winter and summer forage comprising up to 75% of caribou diet. Wildfire consumes most or all lichen biomass and subsequent recovery is slow. We demonstrated in the NWT that it typically takes 50-75 years for lichen to recover following fire. This creates a challenge for land use decision-making – current conservation guidance for another woodland caribou ecotype (Boreal caribou) suggests that at least 65% of the landscape must remain undisturbed to support Boreal caribou populations. With increasing fire activity and long habitat recovery times, conflicts between caribou conservation and development goals are increasing. Estimates of caribou lichen recovery following disturbance are thus important for understanding habitat recovery to an "undisturbed state". The successful candidate will lead the collection of lichen biomass data and development of associated allometries and statistical models of lichen biomass recovery necessary to achieve this goal. The successful applicant will also work closely with team members to support the translation of these models to ecological forecasting tools.

Funding includes a competitive stipend for one PhD student and funds for field assistants, travel expenses, field supplies, and conference travel. The ideal candidate will be well versed in boreal plant and lichen identification and have strong writing and organizational skills. The ability to lead and implement field-sampling logistics is important. Fieldwork will involve extended periods in remote field locations in the Yukon Territory.

PhD 2: Evaluating forest stand resilience using dendroecological methods

Field Location: Central Yukon

Details: This project will employ dendroecological approaches to evaluate disturbance history of a new network of sites across the Central Yukon's "fire belt". This will involve dendroecological determination of the timing of the most recent stand replacing fire as well as the frequency of low severity fires. These data will anchor many other parts of the program so there will be substantial opportunity for collaboration. A second major focus of this position will be on the determination of vulnerability of aspen trees to aspen running canker, a novel fungal pathogen that is leading to widespread aspen mortality in Alaska and the Yukon. Following recent fires, we are observing frequent conversion of spruce-dominated forests to aspen dominance; the emergent aspen running canker, in conjunction with other pests and climate pressures could result in changes to these recent forest recovery trajectories that could benefit conifers and allow lichen biomass recovery. The successful candidate will have the opportunity to explore determinants of stand vulnerability to aspen running canker to facilitate forecasting of the impact of this new pathogen.

Funding includes a competitive stipend for the graduate student and funds for field assistants, travel expenses, and field supplies. The ideal candidate will have experience in tree growth and/or tree ring

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studies. Further, the candidate should have strong writing and organizational skills. The ability to lead and implement field-sampling logistics is important. Fieldwork will involve extended periods in remote field locations in the Yukon.

Students will enroll in the graduate program of the Department of Biology at the Wilfrid Laurier University in Waterloo, ON (https://students.wlu.ca/programs/science/biology/index.html) in Dr. Jennifer Baltzer's research group (https://forestecology.ca). Ideally, students would take part in field campaigns during summer 2024 and enroll in the graduate program for the Fall 2024 semester.

Interested students should contact me directly (jbaltzer@wlu.ca) with a resume, transcript (unofficial is fine) and, if possible, a piece of your own written work. In your cover letter, please indicate your motivation for pursuing this position and highlight any barriers, career interruptions, or other life events that may have modified your path.