Forest Ecology Research Group

Postdoctoral position evaluating the impacts of short interval reburning on boreal forest resilience in NWT forests

2023 was the first time in recorded history that global temperatures exceeded 1.5C above pre-industrial averages. International climate change mitigation agreements aim to limit warming to this level, a goal that is already unachievable. The Canadian fire season associated with this temperature exceedance was one of shattered records; the urgency of preparing for and adapting to this best-case climate warming scenario and subsequent 2023-like fire seasons cannot be understated. The Northwest Territories (NWT) was one of the hardest hit parts of the country in 2023. 70% of the population was evacuated. Structures were lost in communities. Transportation corridors were closed, and communications were offline for considerable periods. There were also fire behavior surprises with implications for community and firefighter safety.

Recently burned areas have in the past slowed or stopped fire advance. This was not always the case in 2023, which created additional risk. This phenomenon was compounded by fuel buildup around communities created by a history of fire suppression that has led to longer fire-free intervals. To keep NWT communities safe, we require improved information about how fires burned on the landscape in the past, how this is changing, what that means for future forest composition and fire risk, and how adaptation of fire management decisions around communities can reduce risk. This project will address these gaps, supporting operational fire management decisions and community protection planning.

As part of this collaboration between the Government of the Northwest Territories and Wilfrid Laurier University and funded through Natural Resources Canada's Wildfire Resilient Futures Initiative, we have one postdoctoral researcher position available through Laurier's Forest Ecology Research Group (https://forestecology.ca). This position is based in Waterloo, Ontario or Yellowknife, Northwest Territories. Evaluation of applications will begin in early March and continue until the position is filled.

Job description:

This postdoctoral researcher will lead efforts aimed at evaluating the impacts of severe, short interval reburning that was so widespread in NWT in 2023. This work will support an evaluation of a range of attributes that support our understanding of changes in ecosystem function including post-fire forest and ground vegetation composition, carbon stocks, forest structure and combustion severity. These data will be collected in a way to support the harmonization with an existing network of sites across NWT that have experienced longer fire return intervals thereby facilitating an evaluation of threshold responses to short interval reburning.

Qualifications:
PhD in ecology, natural resource sciences, environmental science, or a related field
Evidence of publishing in peer reviewed literature
Experience with boreal plant identification and basic forestry methods
Experience with statistical modelling in the R environment
Experience working with community and government partners

Dr. Jennifer Baltzer will directly supervise the postdoctoral researcher, but they will also work closely with investigators and research partners across the project.

Funding includes a competitive stipend with annual increment, benefits, field supplies, conference and travel expenses, and conference travel. The ideal candidate will be interested in boreal forest ecology 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 southern Northwest Territories. Eligible applicants must have a class 5 driver's license.