Forest Ecology Research Group

MSc position in fire history reconstruction in the southern NWT

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 newly funded 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 1 MSc position available through Laurier's Forest Ecology Research Group (https://forestecology.ca). This position can be based in Waterloo, Ontario; Edmonton, Alberta; or Yellowknife, Hay River, or Fort Smith, Northwest Territories. Evaluation of applications will begin in early March and continue on a rolling basis until the position is filled.

This MSc position will support a field-based sampling effort and dendroecological reconstruction methods that will allow us to reconstruct fire history in the southern NWT. Early results suggest that low severity, short interval fires of 30-40 years have been very common. Understanding past fire history and linking this to ecosystem services of interest will be the focus of this MSc.

Funding includes a competitive stipend for a MSc student and funds for field assistants, travel expenses, field supplies, and conference travel. The ideal candidate will be interested in boreal forest ecology and have strong writing and organizational skills. Experience in dendroecology is an asset. Previous field experience is an asset as fieldwork will involve extended periods in remote field locations in the southern Northwest Territories. Eligible applicants must have a class 5 driver's license.

The student will enroll in the MSc in Integrative Biology in the Department of Biology at 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, the student would join the team as a paid research assistant for the summer of 2026 and enroll in the MSc program in September 2026. This position will involve close collaboration with the Government of the Northwest Territories and the Canadian Forest Service's Northern Forestry Centre.

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.