



Ph. D. offer: Legacy of Pre-Fire Silvicultural Treatments on Post-Fire Forest Regeneration

Project description: In 2023, wildfires in Québec's boreal forests reached unprecedented levels, largely affecting managed stands. In boreal ecosystems, fire is a primary natural disturbance, and many tree species have evolved reproductive strategies that depend on it. However, in recently burned areas, the stands most affected were often those previously subject to silvicultural interventions such as planting, removal of broadleaf trees, thinning to stimulate growth, or salvage logging after fire. These human modifications can profoundly alter the natural dynamics of forest recovery. Yet, how such pre- and post-fire silvicultural actions influence the capacity of forests to regenerate naturally remains poorly understood.

This doctoral project will investigate how the legacy of pre-fire silvicultural treatments shapes seedling regeneration dynamics after wildfire in Québec's boreal forests. The candidate will examine how these legacies affect tree establishment, mortality, understory development, and sapling productivity, with a particular focus on key species such as black spruce (*Picea mariana*) and jack pine (*Pinus banksiana*). Fieldwork will be conducted in the Nord-du-Québec region, in a network of burned plots established to monitor regeneration dynamics and abiotic conditions (e.g., soil moisture, temperature, microsite availability). Special attention will be given to the ecophysiology of seedlings — including growth, survival, and physiological responses to post-fire conditions — to better understand the mechanisms that determine regeneration success. Regeneration will be followed over time, allowing the project to capture both short- and mid-term dynamics of seedling establishment and survival.

Candidate Profile: We are looking for a person with a background in forestry, biology, natural products chemistry, ecology, plant physiology, or a related field. A strong interest in plant physiology and integrative approaches to ecology is essential, as these fields are at the core of our work. We particularly value a positive, persevering attitude, combined with natural kindness, in a collaborative work environment. Creativity, scientific curiosity, and the ability to conduct projects independently are also important. The supervision fosters autonomy, curiosity, and co-construction, and interested candidates will have the opportunity to develop skills in plant biochemistry, modeling, imaging analysis, or ecophysiology, depending on their profile. This project is carried out in an open, collaborative, and life-respecting research approach. The research team places great emphasis on inclusivity, well-being, and equity in training paths. Individuals from diverse backgrounds, including Indigenous peoples, racialized individuals, LGBTQIA+ individuals, and people with disabilities, are warmly encouraged to apply.

Location, Supervision, and Research Environment: The selected candidate will be based at the Forest Research Institute (IRF) of the Université du Québec en Abitibi-Témiscamingue (UQAT), Rouyn-Noranda campus. Supervision will be provided by **Valentina Buttò (IRF-UQAT)**, specialist in functional ecology and forest modeling, and **Annie Desrochers (UQAT)**, specialist in silviculture and ecophysiology. The supervision fosters autonomy, curiosity, and collaborative project co-construction. The candidate will enroll in the doctoral program *Doctorat en écologie et aménagement des écosystèmes forestiers (1579)* at UQAT (see program details here: [link](#)). UQAT is a French-speaking university; however, non-French speakers will have access to free French classes if they wish to learn the language. They will also be supported by the supervisors and university staff to ensure the best conditions for academic and personal success. IRF-UQAT offers highly personalized supervision, fostering a close-knit, supportive environment that maximizes student success.

Project Start Date: from Winter 2026 (January – April)

Required Documents: To express your interest, please send a CV, a cover letter, copies of your transcripts (which can be unofficial), and the contact details of two referees to Valentina Buttò (valentina.butto@uqat.ca) and Annie Desrochers (annie.desrochers@uqat.ca)



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