



Ph. D. Opportunity: Microclimate Effects at the Northern Range Limit of Red Maple

Ph. D. in Sciences biologiques (UdeM) or Doctorat en écologie et aménagement forestier (UQAT)



Project context

This Ph. D. is part of the **Marginal Populations** project, a collaborative research initiative seeking to identify the **local and regional drivers** that constrain the northward expansion of temperate tree species in a changing climate. The project involves a network of **academic, governmental, and industry partners** across Québec.

Ph. D. project description

At their northern range limit, **marginal populations** of temperate tree species may play a key role in **future climate-driven range shifts**. Despite increasingly favorable regional climates, their expansion remains constrained by **local factors**, particularly **microclimatic variation**. For instance, **late spring frosts** can severely affect seedling survival and reproductive success in these populations. Such often overlooked constraints may help explain why temperate species like **red maple** continue to struggle to advance into the boreal forest despite overall warming.

This Ph. D. project aims to **quantify how microclimatic variability and spring frost events influence the phenology and regeneration of red maple**, and to assess how these processes may **limit its northward expansion** into the boreal forest.

Fieldwork will be conducted in plots that are part of our **monitoring network** of marginal red maple populations in the **boreal forest**. Installed in spring 2024, **temperature sensors** and **cameras** continuously record local microclimatic conditions and vegetation phenology. Analysis of these data will help understand **how fine-scale temperature dynamics shape phenological responses and seedling survival** at the species' northern limit.

Supervision and internships

The Ph. D. will be supervised by Marie-Hélène Brice (Université de Montréal – IRBV, Montreal Botanical Garden), Valentina Buttò (UQAT), and Benjamin Marquis (TÉLUQ). The project is conducted in collaboration with the Ministère des Ressources naturelles et des Forêts (MRNF), where research internships will be encouraged to strengthen connections between research and forest management practice.

Required skills

- Master's degree in biology, ecology, environmental sciences, or a related field
- Strong interest in phenology, ecophysiology, and climate change
- Good skills and/or strong motivation to develop skills in data analysis and programming
- Interest in fieldwork
- Valid driver's license



Conditions

- Start date: Winter 2026 (January) or Summer 2026 (May)
- Funding: \$24,000 CAD/year for 4 years
- Location: Montreal (UdeM – IRBV/Montreal Botanical Garden) or Rouyn-Noranda (UQAT), with seasonal field travel

Interested? Please send your application by email to marie-helene.brice@umontreal.ca, valentina.butto@uqat.ca, benjamin.marquis@teluq.ca including: (1) a cover letter describing your research background, your interests and your qualifications; (2) your CV; (3) a copy of your most recent transcript; and (4) contact details for 2 references.

For more information, do not hesitate to contact us.

Applications will be accepted until the position is filled.

UQAT: HIGHER LEARNING ON A HUMAN SCALE

Study in the heart of Quebec's great outdoors

Set in a region where wilderness, lakes, and forest stimulate creativity and foster talent, UQAT is different by nature.

With 22,000 lakes and endless miles of boreal forest, Abitibi-Témiscamingue is a dynamic place full of creative people, new ideas, and bold projects. [See what our students have to say!](#)

Denowned professors with time for you

The professors at UQAT are recognized experts in their fields who epitomize quality teaching. And with a ratio of one professor or lecturer to every twelve students, UQAT offers a personalized educational environment where you will fit right in. Knowing you can always count on your professors to be available - now that's a real advantage.

A world of high-calibre research

Research activities at UQAT are producing remarkable results in a range of scientific fields. According to the 2024 independent firm RESEARCH Infosource Inc., UQAT ranks first in terms of research intensity per professor among Canadian Undergraduate universities.

With more than \$24 million in research per year and state-of-the-art laboratories, UQAT is an exceptional environment for graduate students. Many of our students have achieved excellence in their chosen fields and many of our professors have been recognized for the quality of their research and their innovative spirit. [Find out more](#)

STUDENT FOR A DAY

One visit is enough to know that UQAT is a first-class institution. The Student for a Day program is the best way to learn more about UQAT, visit the campus that interests you, and meet professors and students.

We'll tailor the visit to your needs and interests!

[Find out more](#)

