



MASTERS PROJECT IN FOREST ECOLOGY

Title: Susceptibility of protected black ash stands to potential regulation of spring lake water level, northern Quebec: a biodiversity conservation issue

Context and problematic: Extremes in spring flooding have become an issue in northern regions of Canada. Recent data suggest that flood frequency and magnitude may have increased in the last decades after a period of relatively low spring water level. For example, the 2019 floods in northeastern Ontario and northwestern Quebec is unprecedented. As a result, the lakeside residents of Lake Duparquet would like the governmental authorities to implement a mitigation strategy including regulation of the lake spring water level. The proposed changes will affect both high and low water levels. At the same time, old, rare and protected stands of black ash trees are growing on the floodplains of Lake Duparquet. These stands, reaching the northern distribution limit of the species, are unique with trees more than 250 year old. Lake Duparquet is also one of the rare unregulated water body in the region. The project aims at defining the potential consequences of a change in hydrological regime (low and high water level) on black ash stands located on the floodplain of Lake Duparquet. Fieldwork will take place in northern Quebec and will involve measuring attributes of black ash stands, looking at indicator vegetation and age structure. It will also involve using remote sensing tools for mapping. Could water level regulation lead to the contraction and slow disappearance of these stands or could they be able to maintain themselves and, if so, under which conditions?

MSc program: We invite expressions of interest from excellent students who will be eligible to enroll in the new Master in Environmental & Social Change program or the Master of Science in Bioscience, Technology and Public Policy program at The University of Winnipeg. The student could also enrol in the master's program in ecology at the Université du Québec en Abitibi-Témiscamingue (<https://www.uqat.ca/etudes/irf/maitrise-en-ecologie/>).

Admissibility requirements, qualifications and support: We seek a hard-working and dedicated colleague with a 4-year Bachelor degree (e.g., Environmental Sciences, Biology, Forest Sciences, Geography, or equivalent). The successful candidate will have a track record of academic excellence and strong English writing skills. Ability to speak French is considered an asset. The successful candidate will receive a guaranteed minimum of \$17,500/year in funding support for two years, plus support for direct costs of research and conference participation.

The successful candidate will work within a multidisciplinary team as the project involves multi-aspects associated with the development of a flood mitigation strategy: local governance, environmental law, engineering and ecology. The project involves researchers with complementary expertise: Dr Jacques Tardif (dendroecologist, University of Winnipeg), Dr Yves Bergeron (forest ecology, Université du Québec en Abitibi-Témiscamingue), Dr Mélanie Trudel (hydrological modeling, Université de Sherbrooke), Dr Stéphane Bernatchez (governance and dam management, Université de Sherbrooke) and Dr Catherine Choquette (environmental law and governance, Université de Sherbrooke) as well as organisms like OBVAJ and FERLD (<https://ferld.uqat.ca/>). This research project is funded, among others, by the Intersectorial Flood Network of Québec (RIISQ).

Serious expressions of interest are to be sent to Dr Jacques Tardif, former Canada Research Chair in Dendrochronology and Professor in Environmental Studies and Sciences / Biology (j.tardif@uwinnipeg.ca). Your email must include 1) a cover letter describing your research interests and your experience related to the position, 2) an updated CV, 3) your most recent transcripts (unofficial acceptable at this time) and 4) the contact details of 2 references



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