



M.Sc. opportunity in forest ecology and modelling

Title: Effect of intra-stand spatial structure on succession dynamics in a mixed boreal forest

Context and project overview: Understanding the succession dynamics of a forest following a major disturbance, such as a fire or harvest, is essential for developing management plans that maintain the forest's biodiversity and ecosystem functions. In the mixed boreal forests of northwest Québec, this succession follows well-known general patterns, but multiple outcomes are possible depending on stand and landscape-level factors. This project aims to determine to which extent the spatial organization of the different species and age classes at the stand level (i.e. one or a few hectares) affects the long-term composition and productivity of the stand.

This project will use the data from permanent census plots at the Lake Duparquet Research and Teaching Forest (FERLD). The student will simulate stand dynamics with the SORTIE-ND forest model, with initial conditions matching empirical stand structure, and compare the composition and structure of the simulation outputs with that of census plots measured at different times since fire.

Location: The student will be based at the Institut de recherche sur les forêts (IRF) at the Rouyn-Noranda campus of the Université du Québec en Abitibi-Témiscamingue, under the supervision of Philippe Marchand. The IRF offers a dynamic research environment, with 10 faculty members and over 60 graduate students working on a variety of topics with direct applications to sustainable forest management. IRF students also benefit from resources and professional development opportunities offered through the Québec Center for Forest Research (www.cef-cfr.ca).

Financial support: A scholarship of 18 000 \$ per year for two years is provided.

Required profile: A good or excellent academic record, an interest in ecology and forestry research, and experience with (or interest in) computer programming for simulations or statistical analyses.

Start date: Fall 2019

To apply: Send a curriculum vitae, a cover letter, an academic transcript and the contact information for two references to Philippe Marchand (philippe.marchand@uqat.ca). The position will be open until filled, with priority given to applications received before **March 8, 2019**.

Philippe Marchand, Ph. D.

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