

## **12-month postdoctoral position on forest dynamics modeling at UCLouvain, Belgium**

### **Synopsis**

As part of a co-funded FRQ (Fonds de Recherche du Québec) – FNRS (Fonds National de la Recherche Scientifique, Fédération Wallonie-Bruxelles) project '*Forest in an uncertain context: comparison of contrasting risk management strategies at the local and regional levels*', we offer a 12-month (extendable up to 12 additional months) postdoctoral position focusing on forest dynamics modeling.

### **Context and project description**

Under the increasing uncertainties of forest management conditions, this project aims to test the hypothesis that managing diversity and functional redundancy at landscape-level maximizes the resilience and multifunctionality of forests. This hypothesis will be confronted, in particular, to an adaptation strategy using a limited number of genotypes, chosen according to some expected climate changes. Based on local and regional simulations, the research project will evaluate the response of two forest regions (in Quebec and Wallonia) to these distinct strategies for adapting to climate change, taking into account the uncertainties in climate projections and in modeling the response of forests to global changes.

The postdoctoral candidate will be in charge of the modeling at stand-scale, using the HETEROFOR model developed at UCLouvain. This model describes the individual growth of trees using a process-based and spatially-explicit approach. It is part of the CAPSIS modeling platform, and has been calibrated for the main deciduous and coniferous tree species of Walloon forests.

More specifically, the successful candidate will contribute to:

- the parametrization of HETEROFOR for a pool of North American tree species present in Quebec;
- the establishment of climatic and silvicultural scenarios;
- stand level simulations based on climate projections and different strategies for adapting to global changes;
- the analysis of the simulation results at different spatial scales.

He/she will work in close collaboration with the Canadian team (C. Messier, UQAM/UQO) in charge of the modeling at landscape scale, using the LANDIS II model.

### **Candidate profile**

- proved experience in modeling, preferably in the field of forest dynamics;
- strong background in statistics and data analysis, and experience with common statistical softwares such as SAS or R;
- background in forest science, forest ecology, soil science, environmental science, or related fields;
- ability to work in a team and independently;
- ability to communicate/report clearly in English, both orally and in writing. Some knowledge of French or willingness to learn French language is expected;
- experience in publishing in scientific journals.

**Conditions of eligibility and application**

To be eligible, the candidate must fulfill the following two conditions: (i) he/she must be in an 'International mobility situation', which means he/she has not resided or carried out his/her main activity (employment, studies, etc.) in Belgium for more than 24 months during the last 3 years immediately preceding the first period of postdoctoral stay; (ii) in addition, the candidate cannot have defended his/her PhD thesis for more than 6 years before the start of the scholarship.

Your application will consist of a letter of motivation, a CV, academic transcripts, and contact details of at least two academic references. Please send your application by email with the subject "FRQ-FNRS postdoctoral position" by October 12, 2020 the latest to Mathieu Jonard (mathieu.jonard@uclouvain.be) and Quentin Ponette (quentin.ponette@uclouvain.be).

Based on this, a short list of candidates will be retained for an interview by visio-conference between 19<sup>th</sup> and 23<sup>th</sup> October. The successful candidate is expected to start working in November, 2020.

**Working environment**

The candidate will be based at the University of Louvain (UCLouvain, Louvain-la-Neuve, Belgium). He will be hosted at the Earth and Life Institute, that comprises more than 300 scientists working on the understanding and management of natural and anthropized systems, at various spatial and temporal scales. Within the Pole 'Environmental Sciences' of this institute, the candidate will be attached to a team working on the biogeochemistry of forest ecosystems.

The post-doctoral researcher will strongly interact with the other partners of the project. During the post-doc, he/she will make several research stays in the Canadian team in Montréal – Saint-Jérôme, as well as in the team in charge of the CAPSIS modeling platform in Montpellier.