Canadian Centennial Scholarship Fund

Sandra Angers-Blondin

Awarded the Blakes Scholarship 2015-2016

PhD Atmospheric and Environmental Sciences, University of Edinburgh

A passionate commitment to the natural world since childhood led Sandra to study biology at Quebec's prestigious Laval University for her first degree. In her second year, Sandra worked as a field assistant on a research project in Northern Quebec. Sandra was hooked, she fell in love with the Arctic. The professor supervising the research became her mentor and ultimately her Masters supervisor.

While completing her Masters, Sandra continued to spend her summers in the Arctic where she collaborated with several other students, exposing her to a variety of research related to vegetation change in the Arctic. Two summers were spent at Kuujjuarapik, an Inuit village in Northern Québec, where she performed research on expansion dynamics of crowberry shrubs.

A change of universities to the University of Edinburgh has created the perfect scenario for Sandra. The move has allowed her to be supervised by a young scientist who shares her research interests, and who took Sandra on as one of her first PhD students. It is also satisfying her fascination, gained during a backpacking trip many years earlier, with the Scottish landscape.

Sandra's research however remains focused on Northern Canada, a region of environmental, cultural and economic importance facing potentially drastic transformations. Arctic warming is altering tundra vegetation and as temperatures increase, plants grow taller and faster enabling them to colonise places where they could not previously survive. Shrub species are especially responsive to Arctic warming and have been increasing in abundance over the last half-century. Understanding the drivers of their expansion is of paramount importance, as shrubs are involved in complex vegetation-atmosphere feedbacks that could promote further warming. However, shrub expansion patterns are neither uniform across sites nor consistent between species, making it difficult to predict the extent to which this phenomenon will transform the landscape. Sandra's research aims to better understand the processes underlying vegetation change by disentangling and quantifying the relative influence of climate and plant-plant interactions on shrub growth in the Canadian Arctic.

Sandra spent last summer in the Yukon and Northern Québec at four different sites gathering stem samples which she will analyse on her return to Scotland. In order to view the growth rings and in turn link their width to yearly climates, Sandra will work at the Edinburgh Botanical Gardens, using specialised equipment not available at the University. Sandra expects her findings to contribute to increasing the accuracy of predictive models of future vegetation change.

Sandra is passionate about northern ecosystems and is keen to understand them through a career in research. On receiving her award Sandra said: "This award will allow me to undertake fieldwork in the Canadian Arctic to shed light on ecosystem changes that are likely to transform polar regions. It is comforting and inspiring to feel the support of the community behind the award, and the associated prestige will no doubt be invaluable in my academic career." She is also an avid and very talented photographer. You can view a collection of Sandra's beautiful Canadian landscapes via the CCSF website.

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