



Project Impacts

NSRC-FUNDED RESEARCH FINAL REPORT

Winter Climate is Changing in the Northern Forest

PROJECT AWARD YEAR AND TITLE:
2016

*Winter Climate Change in the Northern Forest:
Scientific Synthesis and Practical Solutions*

PRINCIPAL INVESTIGATORS:

Alexandra Contosta

University of New Hampshire
alix.contosta@unh.edu

Sarah Garlick

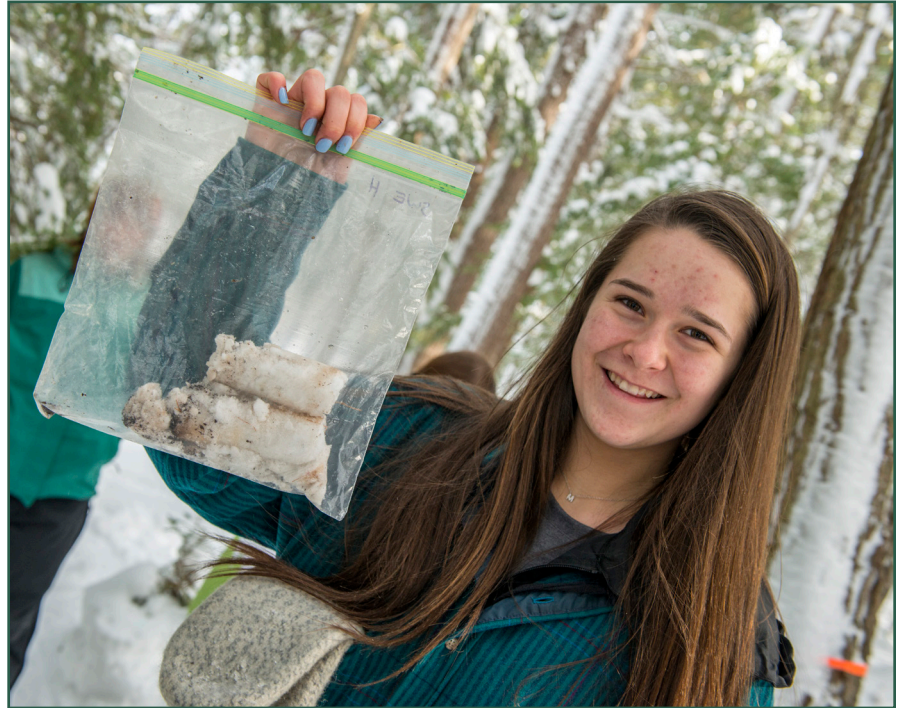
Hubbard Brook Research Foundation
sgarlick@hubbardbrookfoundation.org

Sarah Nelson

University of Maine
sarah.j.nelson@maine.edu

Nora Casson

University of Winnipeg
n.casson@uwinnipeg.ca



Winter is a key period for the ecology, economy, and culture of the Northern Forest. However, winter air temperature has been warming, and winter precipitation is falling as rain instead of snow more frequently than in the past, thus reducing seasonal snow cover. Winters are growing shorter, are ending earlier, and have lost many of the below-freezing temperatures and snow-covered conditions that support human activities and ecological processes.

To synthesize how a changing climate may impact the Northern Forest, NSRC researchers used 100 years of meteorological observations across the northeastern U.S. and eastern Canada to develop a suite of indicators that enable a cross-cutting understanding of 1) how winter temperatures and snow cover have been changing across the Northern Forest region of northeastern North America; and 2) how these shifts may impact both ecosystems and surrounding human communities.

Researchers used metrics to explicitly consider how changing winter temperature, precipitation, snowfall, and snow depth might impact forested ecosystems and surrounding communities. They grouped metrics into categories related to coldness, snowpack, or both to create indicators including snowmaking days, mosquito-kill days, extreme cold days, bare ground ice days and bare ground thaw days. The implications of changing temperature and precipitation are relevant for logging, recreation, human health, wildlife, and forest ecosystem processes. Findings were communicated with leaders of stakeholder groups throughout the region. Collaboration with the Hubbard Brook Research Foundation will continue to develop products and a broader outreach campaign.



Funding support for this project was provided by the Northeastern States Research Cooperative (NSRC), a partnership of Northern Forest states (New Hampshire, Vermont, Maine, and New York), in coordination with the USDA Forest Service, an equal opportunity provider.