



# Project Impacts

NSRC-FUNDED RESEARCH FINAL REPORT

## ***Historic Studies Generate New Findings about Northern Conifer Growth and Yield***

PROJECT AWARD YEAR AND TITLE:

**2009**

*Using Pioneering Growth and Yield Studies  
to Inform Management and Modeling*

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Archives from USDA Forest Service studies established between the 1920s and 1960s in the northern conifer (previously called eastern spruce-fir) forest type present an opportunity for addressing unanswered questions about long-term growth and yield of northern conifers. NSRC researchers reviewed and, where possible, re-measured experimental plots from historical studies on the now-closed Paul Smith and Finch-Pruyn Experimental Forests (EFs) in New York, the Gale River EF in New Hampshire, and commercial forestland in Maine. Data from ongoing long-term studies at the Penobscot EF in Maine were also used to answer new questions.

Researchers used archived and re-measurement data to generate new findings, inform contemporary forest management, and strengthen regional growth and yield computer modeling efforts. Other key outcomes included documentation of the history of Forest Service research in northern conifers, recommendations for records management, and a graduate student study on the effects of silvicultural treatment and wildlife browsing on northern conifer seedling regeneration.

The graduate study at the Penobscot EF revealed that the greatest densities of shade-tolerant conifer seedlings grew under shelterwood treatments and other treatments that left more overstory trees. Red spruce seedlings were by far the most browsed conifer species by hare and other rodents. Northern white-cedar was the second most browsed species because of high deer populations, followed by white pine, eastern hemlock, and least browsed balsam fir. As seedling and sapling height increased, browsing was less likely to occur. Accordingly, a gradual removal of overstory trees may help to establish and release slower growing conifers.

