



Project Impacts

NSRC-FUNDED RESEARCH FINAL REPORT

Developing Methods for Testing Weevil-Resistance in White Pine



PROJECT AWARD YEAR AND TITLE:

2007

A Proposal to Identify and Produce Weevil-Resistant White Pine

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The white pine weevil, a damaging pest of eastern white pine, especially when pine saplings grow vigorously in the open, prevents planting under conditions where pine would otherwise thrive. If genetic resistance to weevil attack could be demonstrated, then the silviculture and artificial regeneration of this valuable northeastern tree species could change radically for the better.

In 2008, NSRC researchers planted 64 clonally propagated strains of white pine, selected for superior growth and quality from New Brunswick, Canada, in a field study in Maine to test for genetic resistance to weevil attack. Researchers also developed field and laboratory procedures to capture weevil pupae in the wild and rear them to adults when they can then be released onto host trees to ensure that all trees in the field study are subject to equal rates of attack.

Unfortunately, during the 2008 and 2009 growing seasons, seedling debarking weevils and grass competition caused seedling mortality before insecticide and herbicide could be applied. Four of the 10 64-clone replicates were restored to full stocking by replacing dead trees in 2010. All trees in these surviving replicates were protected with brush blankets which removed weed competition and resulted in excellent recovery and growth. The tallest seedling reached slightly over one meter. Early in the 2011 growing season, most trees were reaching the stage when they are potentially susceptible to white pine weevil attack. Using methods learned in this study, researchers hope to challenge the pine saplings with white pine weevils in 2012 to test potential resistance among the pine strains.