



2BILLION TREES

2 BILLION TREES SCIENCE

Research in Support of Tree Planting

NOTE 17

Tools to facilitate forest planting and seed transfer under climate change

LEAD RESEARCHER:

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CFS CENTER:

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PROJECT LOCATION:

National

Project Drivers

Some tree populations will be unable to keep up with the rapid rate of climate change. To help maintain the health and growth of forests, adaptation options must be considered - one being assisted migration. Assisted migration is the human-assisted movement of seeds from one location to another, more climatically suitable, location outside the species' usual habitat. This 2 Billion Trees (2BT) program funded research project will produce knowledge of assisted migration and seed sourcing under climate change.

Project Approach

The project team will partner with the Forest Gene Conservation Association (FGCA) to measure and analyze growth and mortality outcomes (at approximately 10 years of age) at five assisted migration trials in southern Ontario. These trials include a wide range of species, including several Carolinian hardwoods, that are of potential interest for assisted migration efforts in southern Canada. The team will also conduct a seed production feasibility study. Working once again with FGCA, this effort would aim to assess the logistical, operational, and financial requirements to migrate seed and stock (mostly from the United States) for the creation of climate-ready seed orchards (i.e., gardens for planting and harvesting seeds). These orchards will be accessible to Ontario-based organizations who require seeds for their planting activities. This work is particularly important given the practical realities of seed procurement challenges from the US.

Anticipated Outputs and Impacts

This work will produce knowledge that adds to the growing literature base on assisted migration and seed sourcing options. The project has already resulted in several publications, including publications on the outcomes from climate change trials in southern Ontario, addressing tree shifts under climate change, and projected tree migration patterns in North America under climate change. It will support 2BT program goals by enabling the planting of trees that will survive under environmental change, and consequently, continue to provide GHG reductions while maintaining diversity.