



# 2BILLION TREES

## 2 BILLION TREES SCIENCE

### Research in Support of Tree Planting

NOTE 19

## Accessible and enhanced tree-ring database and information for reporting on Canada's forests

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#### PROJECT LOCATION:

National

#### Project Drivers

To evaluate the impacts of changing environments on tree growth and forest productivity, the Canadian Forest Service (CFS) developed a national tree-ring database (TRenD), which is hosted on the CFS TreeSource platform. CFS-TRenD is an amalgamation of tree-ring data collected by CFS researchers, the National Forest Inventory, and partner organizations. Since the beginning of its development, CFS-TRenD has had substantial impact, generating new science to improve our understanding of tree growth responses to climate variability across Canada. This new research project, in-part funded under the 2 Billion Trees (2BT) program, will make enhancements to the database.

#### Project Approach

During the development of CFS-TRenD, the project team identified key data gaps and new opportunities for improvement. The first proposed change to CFS-TRenD is data enhancements. A continuous integration of new tree-ring data is required to reliably detect on-going tree growth changes and lay the groundwork for making projections of future growth. The team is working towards collecting more samples, with a goal of attaining at least 60,000 samples in the database over the next three years. The second proposed change is enhanced open access to data. The team receives numerous requests for data from CFS-TRenD through the TreeSource platform and have identified a need to improve the data sharing experience. The team aims to streamline data management processes so they can more efficiently disseminate data to those who request it. They will also improve the web interface for data requests.

## Anticipated Outputs and Impacts

CFS-TRenD can provide insights about the capacity of Canada's forests to sequester carbon and achieve climate change mitigation goals, thus supporting key objectives of the 2 Billion Trees program. The project will generate an enhanced tree-ring database widely accessible for analyses to better understand, predict, and project tree growth and forest productivity responses to climate change and forest disturbances. This information can be used to identify where trees are highly vulnerable to the stress of environmental change, where biodiversity might be compromised, and where ecosystems services, including carbon sequestration capacity, are prone to major changes. This information can also provide forest managers with guidance on best reforestation practices as the climate changes.

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