



High-Resolution Digital Soil Mapping

The research team gathered light detection and ranging (LiDAR) soil data from provincial governments for the Eagle Hills area near Kamloops in British Columbia and for eastern Nova Scotia. With this information, the team evaluated the use of airborne LiDAR data for producing high-resolution digital soil maps.

PROJECT TITLE

High-resolution digital soil mapping for managed forests using airborne LiDAR data

ORGANIZATION

Dalhousie University

CONTACT

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START DATE

1 April 2018

END DATE

31 March 2020

COLLABORATORS

Simon Fraser University (M. Schmidt),
BC Ministry of Forests, Lands, Natural
Resource Operations and Rural Development
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Department (K. Keys and I. MacInnis); Port
Hawkesbury Paper (J. Taylor)

The objective of this project was to evaluate the LiDAR data for both dry, interior forests such as those in Eagle-Hills as well as for Acadian forests such as those in eastern Nova Scotia. To properly evaluate the usefulness of the LiDAR soil data, the team had to:

- Derive a suite of LiDAR-based variables to predict soil types and attributes
- Develop a collection of location-based soil observations for each region
- Produce a suite of digital soil maps of key forest soil attributes for each region using machine-learning technology
- Validate all map products

By project end, the team had created a detailed inventory of the associated environmental data, assessed its quality, and created high resolution digital soil maps of soil attributes for the two regions.

This project produced the critical data needed to understand forest soils on a spatial scale. Having access to accurate characterization and mapping of soils can improve the future of forest management and planning in both British Columbia and Nova Scotia. The knowledge this project created can help inform and develop similar techniques for other regions of Canada.

