Natural Resources Canada
Ressources naturelles Canada

Research Connections: Cumulative Effects

Improving tree establishment in reclaimed ecosystems

Note 15

Lead Researcher: Tod Ramsfield **Project Type:** Cumulative Effects and Caribou **Project Status:** Active (2021–2022)

Need/Drivers

There is a pressing need for the oil industry to improve their reclamation success. Following resource extraction, companies in Alberta are required to reclaim the land according to Alberta regulatory standards. However, failures of aspen establishment caused one company, Imperial Oil, to seek assistance in 2015 to improve aspen establishment. The restoration of aspen on the landscape has important implications for reducing landscape fragmentation that has occurred because of industrial development. In addition, reduced landscape fragmentation is strongly linked with the recovery of woodland caribou habitat. This project continues work that was initiated at the request of Imperial Oil to develop methods to improve aspen establishment at their Cold Lake operation area, which has experienced difficulties with aspen regeneration on reclaimed sites.

Approach

This project utilizes root associated fungi that were collected from aspen seedlings at the Imperial Oil lease location in 2015 to determine if they can facilitate improved aspen establishment. Based on our greenhouse study, the fungi proved capable of improving aspen growth. In 2018, a field trial at the Imperial Oil lease location was initiated. A total of 360 aspen, which were inoculated with various root associated fungi, were planted and are now being assessed for their growth and survival. The same fungi are also being tested in the Biotron at Western University to determine if they can improve aspen growth under simulated future climate conditions.

Anticipated Impacts

This project aims to increase the probability of successful reclamation by improving aspen establishment. This project will help accelerate caribou habitat recovery, provide new tools to improve the rate and predictability of forest recovery, and restore the functioning of the ecosystem following resource exploration and development. The project was initiated as an applied study to improve aspen growth and establishment, but the research has expanded to include fundamental studies in collaboration with the University of Western Ontario.

Planting site taken in spring 2019, a year after planting.

Planting site in September 2021, three years after planting.

Project Location

Imperial Oil Cold Lake Operational Area, Alberta

CFS Team Members

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