2020 Project Summaries
Boreal Ecosystem Recovery & Assessment
An NSERC Collaborative Research & Development Program

Vegetation Team: Trajectory Models Predict Site and Landscape Patterns

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Project Summary

Recovery rates of seismic lines vary substantially across the region due to several stand and environmental factors (e.g., ecosite, age, soil moisture). A major challenge is understanding trajectories of recovery and defining the stage at which we consider a seismic line to be "recovered". Some prior work has used a 3 m vegetation height as a benchmark for seismic line regeneration, as it can be quickly and easily applied in the field or via remote sensing data, is higher than most shrubs thus indicating tree recruitment, and is already used in forestry standards for wildlife. Although growth rates of trees are well known for these forests and in clear cuts, there are no studies of growth rates on seismic lines where the forest gap size differs from larger openings associated with clear cuts. Even when trees establish on lines, there is evidence that different characteristics of seismic lines affect their growth rates. Here we predict, in a spatially-explicit manner, density and growth rates of trees on seismic lines within the Lower Athabasca region using site factors to model tree abundance and recovery dynamics. Such information can be used to prioritize future seismic line restoration efforts.

Management Implications and Lessons Learned

The objective of this project is to provide government and industry with a set of models, maps, and tools to quickly and easily assess locations in northeastern Alberta where leave-for-natural regeneration strategies are suitable and where reclamation efforts are most needed.

Publication(s)

Filicetti, A. T., and Nielsen, S.E. (in prep). Landscape patterns of tree density and growth on linear disturbances.