

MASTER'S THESIS OPPORTUNITY: the effects of forest management on soil fungal communities and forest regeneration

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30 or 60 credit thesis

Brief background

Traditional clear-fell forestry has a marked effect on the biodiversity and function of boreal forest ecosystems. Subsequently, alternative management practices are now being considered to help mitigate these negative effects. Continuous cover forestry maintains a continuous canopy of uneven-aged trees and has been shown to maintain plant and invertebrate biodiversity, but whether this extends to soil fungal communities remains less clear. Since soil fungal communities play key roles in tree performance, it is important to determine the extent to which continuous cover forestry can maintain these communities, especially in the phase soon after harvesting that is key to ensure the establishment of seedlings needed for the next rotation.

Research questions

- 1) Are soil fungal communities in continuous cover forests more similar to unmanaged forest stands than clear-fells?
- 2) Do Norway spruce seedlings perform better in the soils of continuous cover forests versus clear-fells?

Clear-fell



Continuous cover forest



Unmanaged forest



Tasks

- Conduct fieldwork to collect soils from stands of each forest management practice
- Use collected soils to test for the effects of different soil fungal communities on the performance of Norway spruce seedlings in the greenhouse
- Measure Norway spruce seedling performance in stands of each forest management practice
- Gain knowledge of forest management and plant-microbial interactions

Outcomes

Shed light on whether continuous cover forestry can maintain similar soil fungal communities and seedling performance to that of unmanaged stands.