

Effects of fire and timber harvesting on soil temperature and subsurface water

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Theme: Hydrology and Microclimate

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Participants

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Background

Information on the effects of fire and timber harvest on soil temperature and subsurface water in the boreal forest is generally lacking. We propose to evaluate these effects at the EMEND project site.

Objectives

1) To determine the effects of fire and different levels of timber harvesting in coniferous stands, on soil temperature and subsurface water. 2) To establish relationships between precipitation and subsurface water on treed areas and on cutovers, and between plant growth variables and seasonal subsurface water and temperature conditions.

Key Results

Soil water content pooled over the 15 and 30 cm depths increased significantly with decreasing canopy retention. Within the control and clear-cut treatments, soil water content increased significantly with depth.

Summer maximum and winter minimum temperatures pooled over the surface and 15 cm depth increased significantly with decreasing canopy retention. In the control and clear-cut treatments, maximum summer temperatures at the surface were significantly greater than those below.