

WEBINAR

Working Party 1.01.08

Ecology and Silviculture of Spruce

Join us on Zoom on May 28th, 2026

8AM MDT – 10AM EDT – 4PM CEST (60 min)

Link: <https://ualberta-ca.zoom.us/j/92197858091>

Aakriti Gautam

MSc Student
University of Alberta
Edmonton, Canada

Three-year growth responses of white spruce
and trembling aspen to pre-commercial
thinning (PCT) in boreal mixedwoods



Miray Andrianirinarimanana

PhD Candidate
Université du Québec en Abitibi-Témiscamingue
Québec, Canada

Twenty years after thinning: Aboveground carbon stock, growth
and deadwood dynamics in boreal black spruce forests



Alfred Deutgen

PhD Candidate
Skogforsk
Sweden

Balancing competition and complementarity:
Early management of spruce–birch mixtures in
southern Sweden



Aakriti Gautam, Brad Pinno and Robert Froese

Three-year growth responses of white spruce and trembling aspen to pre-commercial thinning (PCT) in boreal mixedwoods

Pre-commercial thinning (PCT) is used to enhance individual tree growth, improve stand merchantable productivity, and shorten rotation length, yet its early effects in boreal mixedwoods remain less understood. This study assessed the growth responses of 21-year-old white spruce and trembling aspen three years after PCT using increment cores to evaluate how quickly treatment effects appear. Both species showed an immediate response, with significantly higher basal area increment in thinned plots (spruce: $1.54 \times$ unthinned; aspen: $1.79 \times$ unthinned). Initial tree size strongly predicted post-treatment growth, whereas resource availability did not explain growth variation. These early responses provide evidence of short-term PCT effectiveness in mixedwood management.

Miray Andrianirinarimanana, Nelson Thiffault, Jean-François Boucher and Xavier Cavard

Twenty years after thinning: Aboveground carbon stock, growth and deadwood dynamics in boreal black spruce forests

Boreal forests store large amounts of carbon, yet the effects of silvicultural practices on long-term carbon dynamics remain uncertain. We evaluated the impact of moderate commercial thinning on aboveground carbon stocks in even-aged black spruce stands in northeastern Québec, Canada, 20 years after treatment. Total aboveground carbon stocks did not differ between thinned and unthinned stands. This stability was driven by a sustained growth release of residual trees, which compensated for biomass removal, without a long-term increase in tree mortality. However, thinning altered carbon distribution, increasing stocks in deadwood. These results suggest that moderate thinning can maintain stand-level carbon stocks while supporting timber production under similar boreal conditions.

Alfred Deutgen

Balancing competition and complementarity: Early management of spruce–birch mixtures in southern Sweden

In Sweden mixed conifer–birch forests are the most common mixture. The potential benefits of these mixtures lay in the balance between production, economic gain, increased resilience and ecological benefits. The aim of this study was to evaluate how naturally regenerated birch and different early tending, pre-commercial thinning (PCT), strategies affect early growth of planted Norway spruce, and to assess how two different spruce–birch mixture performs. By choosing an appropriate PCT strategy, increased growth and yield can be achieved. Competition from birch sprouting can be reduced while still retaining the structural and ecological benefits associated with mixed forests.