

PROJECT PROFILE

LO

Project Overview

Partnered with a Northern Alberta forest products partner. The area is almost exclusively south-facing. The site consisted of sparse, heavily burned, white spruce-dominant upland forest.

Site Details

Species:	White Spruce, Jack Pine
Size:	19.01 Hectares
Target Seedlings:	26,614
Burn Age:	2021
Planted:	June, 2022
Biogeoclimatic Zone:	Lower Boreal Highlands
Land Preparation:	None



Flagged Transect Summary (Permanent Plot)



Permanent (flagged) plot distribution across the block.



A flagged permanent plot under assessment.

In the first year, ten plots of flagged rows were distributed across LO with pods planted directly adjacent to flags. These permanent plots allowed us to assess early germination rates in a south-facing block, as well as test the performance of embedded vs dropped pods and the relative success of White Spruce vs Jack Pine. We used a sampling density of roughly 1 plot / 2 hectares for this site.

Circular Plot Summary (Temporary Plot)



Circular plot distribution across the block.



Flagged seedlings in the regenerating understory.

In the second year, eight circular plots were distributed at LO. These circular plots have an area of 55 m² with seedlings counted within the circle area. Before planting, the silviculture team also assessed natural regeneration and excluded sites with high regen from planting efforts to eliminate naturals from our seedling count. The only species assessed were White Spruce and Jack Pine, as those were the species the company planted. No assessment of deciduous trees was conducted, though deciduous tree growth was anecdotally observed.

Findings: Temporary Plot Assessments at Year 2

Site	LO
Size (ha)	19.01
Target Seedlings Per Hectare (SPH)	1,400
Target Seedlings per Circular Plot	8
Plot #	Seedlings Counted
1	2
2	1
3	14
4	2
5	15+
6	15+
7	15+
8	1
Seedling Count for Entire Site	>27,029
Average Stems Per Hectare	>1,422

Species Mix (Year 1 permanent plots)	
Jack Pine	White Spruce
10%	90%



Seedling assessed at 3 months



Seedling assessed at 15 months

Counts shown as "15+" were capped at 15 seedlings per plot; site totals are therefore reported as minimums (>).



TAKEAWAYS

01

Permanent plots showed moderately strong germination rates in the first 3 months. If these were used to predict average germinants across the entire site it would amount to 2,425 per hectare.

03

Fortunately, there was no additional mortality between fall 2022 and fall 2023.

05

There was variability between the temporary plots, ranging from 1 to more than 15 seedlings per plot, mostly attributable to microsite differences in shade, sunlight, slope direction, and soil type.

02

South exposure and hot conditions at the site resulted in early germinant mortality. Between the mid-summer and late fall assessment in year 1, 51% of early germinants died.

04

The temporary plots indicated that the site was sufficiently stocked by the end of year 2. This is due to Flash Forest's pods and likely some natural regeneration.

06

Microsite differences have been accounted for in our machine learning model, which will be used to adjust planting densities within a block to ensure more even distribution in future planting.