

PROJECT PROFILE

WL 16

CATTLE DAMAGED SITE

Project Overview

Flash Forest partnered with a private landowner on an Interior Douglas-fir BEC zone near Kamloops, which experienced a high-severity burn followed by two consecutive dry summers and a high amount of cattle damage.

Site Details

Species:	Douglas-fir, Lodgepole pine, Hybrid spruce, Western larch
Size:	29.8 Hectares
Target Seedlings:	41,720
Burn Age:	2021
Planted:	May, 2022
Biogeoclimatic Zone:	Dry Cool Interior Douglas Fir Zone
Land Preparation:	None

Flagged Transect Summary (Permanent Plot)

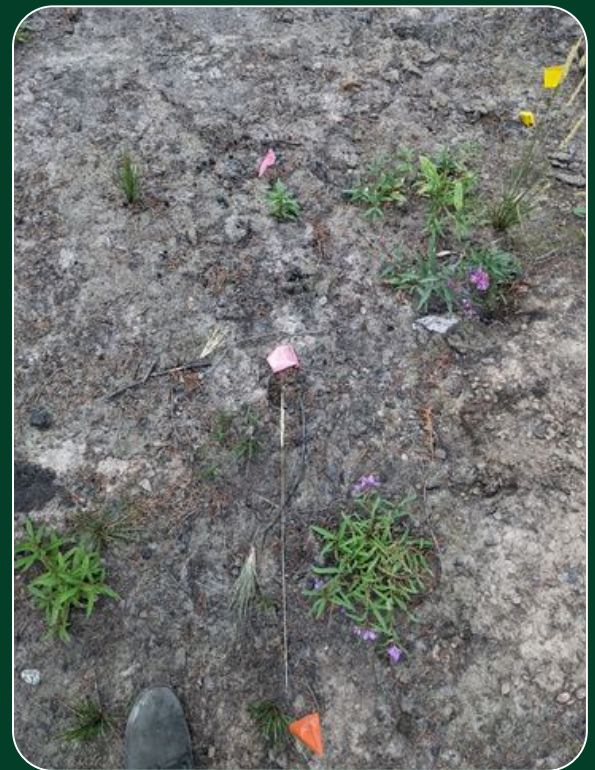


Permanent (flagged) plot distribution across the block. Flagged pod rows across the burned, south-facing block.

In the first year, seven plots of flagged rows were distributed across WL1601 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 the planted species. We used a sampling density of roughly 1 plot / 3 hectares for this site.

Circular Plot Summary (Temporary Plot)

In the second year, zero circular plots were distributed at this site due to the impact of grazing cattle. Our team learned that livestock were allowed to access this site shortly after it was planted, and when the team returned in the fall, many of the permanent plot flags and seedlings had been damaged by trampling. This compromised the data, and after conversations with the landowner it was determined that no further plots (including permanent circular plots) should be established until the cattle issue is addressed.



Trampling damage at a flagged plot after livestock accessed the site.

Findings: Permanent Plot Assessments at Year 1 & Year 2

This data summary is distinct from most sites because no circular plots (temporary) were established here. To calculate seedling counts, the team counted seedlings at undisturbed flagged transects and estimated total seedlings based on those survival rates.

For example, if the flagged rows showed 7% of seedlings surviving, we assumed that held true for the rest of the site.



Seedling assessed at 3 months



Seedling assessed at 6 months

Site	WL 16
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Size (ha)	29.8
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Target Seedlings Per Hectare (SPH)	1,400
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Target Seedlings per Circular Plot	8
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Flag-Transect Assessment	Seedlings (entire site)
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Summer 2022	46,447
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Fall 2022	22,106
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Fall 2023	27,507
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Average Stems Per Hectare	923
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Species Mix (Year 1 permanent plots)

Douglas Fir

Hybrid Spruce

Western Larch

Lodgepole Pine

89.5%

4%

2.5%

4%



TAKEAWAYS

- 01 Permanent plots showed low-to-average germination rates in the first 3 months.
- 02 South exposure and hot conditions at the site resulted in lower germination in the first three months. Notably, the pods that did germinate at this site were some of the largest and fastest growing of any sites planted, likely due to insolation.
- 03 Between the mid-summer and late fall assessment in year 1, 52% of early germinants died. It is impossible to determine which died as a result of environmental conditions and which were due to livestock, though every attempt was made to remove cattle-impacted stands from the data set.
- 04 Fortunately, there was no additional mortality between fall 2022 and fall 2023. Surprisingly, a 20% increase in seedlings occurred in the second year, indicating that many pods waited until weather conditions were ideal for germination.
- 05 The flag-transect estimates indicated that the site was slightly understocked by the end of year 2. This was partially due to cattle damage, and Flash Forest responded by planting additional seedlings at other sites in 2023 to honor tree commitments to clients.
- 06 Any sites with cattle or livestock grazing will be excluded from future operations unless fenced.
- 07 This site was also too dry and hot for commercial operations and would be deprioritized for drone planting in the future.