Efficacy Testing of Velpar-L for Brushing and Weeding in Spruce Plantations

Officer i/c: L. Hanlon
Location: Gold Hill
Region/District: Nelson/Kootenay Lake
Project Terminated.
Efficacy of Manual Treatment Timing on Sitka Alder in Immature Engelmann Spruce

Report prepared by:  

P. Krav/L. Hanlon  (Signature)  (Typed)

Report & Distribution approved by:  

R. B. McNaughton  (Signature)  (Typed)  (for Regions - Silviculture Officer)

(a) Wide Distribution  
(b) Limited  
   (i) Internal - Branch only  
   (ii) External - Designated  
   (iii) Ministry only

COPIES TO

Kootenay Lake District  
Nelson Region  
Silviculture Branch

Approved:  

Manager - R.B.M. McNaughton  (Signature)  (for Regions - Forestry Manager)  

D. L. Oswald  (Typed)
Efficacy of Manual Treatment Timing on Sitka Alder in Immature Engelmann Spruce

Officer i/c: L. Hanlon
Location: Gold Hill
Region/District: Nelson/Kootenay Lake
Objectives:
1. To determine optimum manual treatment timing for controlling Sitka alder, cottonwood and willow.
2. To monitor the effect of manual treatment timing on immature Engelmann spruce.
Progress: Working Plan prepared.
Project established 1986.
Next Scheduled Assessment: Fall 1986
Report Distribution: Silviculture Branch
Nelson Region
Kootenay Lake District
Incomplete.
Efficacy of Manual Treatment Timing on Sitka Alder in Immature Engelmann Spruce

WORKING PLAN (Modified)

I. LOCATION
Gold Hill Face, Lardeau River, 90 km N of Kaslo, BCG Opening 82K.035-33, UTM 11:4944:55805

II. OBJECTIVES
1. To determine optimum manual treatment timing for controlling Sitka alder, cottonwoods and willow.
2. To monitor the effect of manual treatment timing on immature Engelmann spruce.

III. LAYOUT
Four manual treatment units will be established along with one control treatment. The treatments will be applied between May 1986 and September 1986 at roughly one month intervals. Treatment details are shown in the following table:

<table>
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<tr>
<th>Treatment Date</th>
<th>Unit</th>
<th>Size</th>
<th>ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late May</td>
<td>A</td>
<td>irregular</td>
<td>0.19</td>
</tr>
<tr>
<td>Early August</td>
<td>B</td>
<td>50m x 50m</td>
<td>0.25</td>
</tr>
<tr>
<td>Control</td>
<td>C</td>
<td>50m x 50m</td>
<td>0.25</td>
</tr>
<tr>
<td>Late June</td>
<td>D</td>
<td>50m x 50m</td>
<td>0.25</td>
</tr>
<tr>
<td>Early September</td>
<td>E</td>
<td>50m x 50m</td>
<td>0.25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>1.19</td>
</tr>
</tbody>
</table>

IV. PHOTO POINTS
Photo points will be established in the NW and SE corner of each treatment unit and photos will be taken periodically.

V. TARGET SPECIES
1. alder (*Alnus sinuata*) 2-2.5m; 80%
2. cottonwoods (*Populus trichocarpa*) 4-6m; 10-15%
3. willow (*Salix sp.*) 2-3.5m; 5-10%

Comments: Approximately 10,000 stems per hectare of brush.
VI. CROP TREES

Engelmann spruce (*Picea engelmannii*)

VII. MONITORING

The treatments will be monitored according to Ministry of Forests SX-0 trial guidelines, using twenty circular 10m² plots per treatment unit. Assessments will be conducted after 1, 2, and 5 growing seasons.

VIII. ESTABLISHMENT

The treatments will be conducted between May, 1986 and September 1986 at approximately 30-35 day intervals. All target species to be removed using chainsaw or brush saw.

IX. REPORTING

An interim report will be completed by January, 1987, with the final report due January, 1991. Data collating and report writing will be undertaken by the Regional Research Officer.

X. SITE PARAMETERS

AREA: 1.0 ha

SOILS: LFH: disturbed
Texture: Sil SL
C.F. %: 15-20
Depth to Impermeable: 3m

ASPECT: East
SLOPE: 20 - 40%
SLOPE POSITION: Mid - Upper
ELEVATION: 945 - 1006 m
B.G.C. ZONE: IC Ha2
B.G.C. ASSOCIATION: 1: Pseudotsuga-Orchilla
EDATOE: 3-4/C

REGENERATION: Unsuccessful Douglas-fir plantation with ingrowth of hemlock, cedar, white pine, and Engleman spruce. Approximately 1,000 well-spaced stems per hectare (total density: 3,500 sph).

OVERSTORY RESIDUALS/SNAGS: Less than 10 per ha: 10-15 m high

SLASH: + 40% (moderate)

MACHINE TRAFFICABILITY: Poor
HYDROLOGY: Well drained. Check for location of active drainage channels after spring runoff.

WILDLIFE/FISHERIES/RECREATION VALUES: There are no fisheries or wildlife values directly affected by this trial. Recreation activities in the immediate area are hunting, 4-wheel driving and snowmobiling.

SETTLEMENTS: Meadow Creek

GOLD HILL
BRUSHING TRIAL

SCALE 1:1600

SOUTH

TREATMENT:

BLOCK "A" MAY 23RD, 1986
BLOCK "B" AUGUST 12, 1986
BLOCK "C" CONTROL
BLOCK "D" JUNE 25, 1986
BLOCK "E" SEPT. 8TH, 1986
COMPLETE REMOVAL OF SALIX, POPULUS, ALNUS SP.
WITH BRUSH SAWS.

\#1, \#2 PHOTOPOINTS

ROAD

PHOTO POINT

TIMBER EDGE

METAL POST.
Map of SX Efficiency of Manual Treatment Timing on Sitka Spruce

Outlined Area: 2.0 hectares
Forest Region: Nelson
District: Kootenay Lake

MANAGEMENT UNIT | TIMBER SUPPLY AREA | Pulpwood Agreement | Cascades
---|---|---|---
Type | Number | 13 | East
Number | Block | B | West
Block | Sub-B | | |

GOLD HILL
BRUSHING TRIAL
Scale 1:20,000

R. 40

[Map showing Gold Hill Brushing Trial with grid references and map details]
Efficacy of Manual Treatment Timing on Sitka Alder in Immature Engelmann Spruce

Officer i/c: L. Hanlon
Location: Gold Hill
Region/District: Nelson/Kootenay Lake
Objectives:
1. To determine optimum manual treatment timing for controlling Sitka alder, cottonwood and willow.
2. To monitor the effect of manual treatment timing on immature Engelmann spruce.

Progress:
Treatments done 1986.
First Assessment Fall 1986.
No spruce response detectible after first growing season. Brush regrowth currently reflects the length of time after cutting.

Next Scheduled Assessment: Fall 1987
Report Distribution: Silviculture Branch
Nelson Region
Kootenay Lake District

Incomplete.
Efficacy of Manual Treatment Timing
on Sitka Alder in Immature Engelmann Spruce

Interim Report April, 1987

I. LOCATION

Gold Hill Face, Lardeau River, 90 km N of Kaslo BCG Opening 82K.035-33
UTM 11:4944:55805

II. OBJECTIVES

1. To determine optimum manual treatment timing for controlling Sitka
   alder, cottonwoods and willow.

2. To monitor the effect of manual treatment timing on immature
   Engelmann spruce.

III. TRIAL DESIGN AND ESTABLISHMENT

Four manual brushing treatments were carried out between May and
September 1986. A control unit was also established. Competing
vegetation (Sitka alder, cottonwood and willow) was removed using
chainsaws or brushsaws as close to ground level as possible. Details
of the treatments are as follows:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Treatment Date</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>May 23, 1986</td>
<td>.19</td>
</tr>
<tr>
<td>B</td>
<td>August 12, 1986</td>
<td>.25</td>
</tr>
<tr>
<td>C</td>
<td>Control</td>
<td>.25</td>
</tr>
<tr>
<td>D</td>
<td>June 25, 1986</td>
<td>.25</td>
</tr>
<tr>
<td>E</td>
<td>September 8, 1986</td>
<td>.25</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1.19</td>
</tr>
</tbody>
</table>

IV. PHOTO POINTS

Photo points were established in the NW and SE corners of each unit
using 1/2" angle iron posts about 1 metre in height. Photos were
taken prior to treatment and post treatment photos will be established
in 1987.
V. MONITORING

Pre-treatment plots (20 per unit) were established using SX "O" guidelines in May of 1986. These 10m² assessment plots were systematically laid out to include one spruce crop tree and the two predetermined target species (Sitka alder and willow). These plots were remeasured in late September-October 1986 after all treatments were completed.

Further assessments will be done in September 1987 and 1990.

VI. RESULTS

Assessed one growing season after treatment. (Refer to the following tables):

TABLE 1

Sitka Alder Response to Treatments (October, 1986)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Ht. (cm)</th>
<th>% cover</th>
<th>% cover</th>
<th>% cover reduction</th>
<th>sprouts after trtmnt</th>
<th>stems with sprouts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S'86</td>
<td>F'86</td>
<td>S'86</td>
<td>F'86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>273.3b</td>
<td>293.2a</td>
<td>31.1a</td>
<td>33.7a</td>
<td>+2.6</td>
<td>-</td>
</tr>
<tr>
<td>May 23, 1986</td>
<td>300.3ab</td>
<td>28.2b</td>
<td>31.8a</td>
<td>9.2b</td>
<td>21.6</td>
<td>10.4a</td>
</tr>
<tr>
<td>June 25, 1986</td>
<td>303.0ab</td>
<td>8.6b</td>
<td>41.0a</td>
<td>5.8bc</td>
<td>35.2</td>
<td>15.6a</td>
</tr>
<tr>
<td>Aug. 12, 1986</td>
<td>322.6a</td>
<td>10.5b</td>
<td>46.5a</td>
<td>0.4c</td>
<td>46.1</td>
<td>0.8b</td>
</tr>
<tr>
<td>Sep. 8, 1986</td>
<td>304.2b</td>
<td>0.0b</td>
<td>42.6a</td>
<td>0.0c</td>
<td>42.6</td>
<td>0.0b</td>
</tr>
</tbody>
</table>

TABLE 2

Willow Response to Treatments (October, 1986)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Ht. (cm)</th>
<th>% cover</th>
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<td>S'86</td>
<td>F'86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>337.8a</td>
<td>362.5a</td>
<td>12.8ab</td>
<td>12.8a</td>
<td>0.0</td>
<td>-</td>
</tr>
<tr>
<td>May 23, 1986</td>
<td>329.3a</td>
<td>77.5b</td>
<td>11.8ab</td>
<td>14.1a</td>
<td>+2.3</td>
<td>14.0a</td>
</tr>
<tr>
<td>June 25, 1986</td>
<td>332.1a</td>
<td>45.4b</td>
<td>9.1b</td>
<td>6.7b</td>
<td>2.4</td>
<td>8.1b</td>
</tr>
<tr>
<td>Aug. 12, 1986</td>
<td>362.5a</td>
<td>1.0c</td>
<td>14.4ab</td>
<td>0.3c</td>
<td>14.1</td>
<td>1.2c</td>
</tr>
<tr>
<td>Sep. 8, 1986</td>
<td>383.4a</td>
<td>0.0c</td>
<td>17.2a</td>
<td>0.3c</td>
<td>16.9</td>
<td>0.0c</td>
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- LFH: disturbed
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- C.F. %: 15-20
- Depth to Impermeable: 3m
ASPECT: East
SLOPE: 20 - 40%
SLOPE POSITION: Mid - Upper
ELEVATION: 945 - 1006 m
B.G.C. ZONE: 1C Ha 2
B.G.C. ASSOCIATION: 1: Paxistima-Orthilla
EDATOPE: 3-4/C

REGENERATION: Unsuccessful Douglas-fir plantation with ingrowth of hemlock, cedar, white pine, and Englemann spruce. Approximately 1,000 well-spaced stems per hectare (total density: 3,500 sph).

OVERSTORY RESIDUALS/SNAGS: Less than 10 per ha: 10-15 m high
SLASH: ± 40% (moderate)
MACHINE TRAFFICABILITY: Poor
HYDROLOGY: Well drained. Check for location of active drainage channels after spring runoff.

WILDLIFE/FISHERIES/RECREATION VALUES: There are no fisheries or wildlife values directly affected by this trial. Recreation activities in the immediate area are hunting, 4-wheel driving and snowmobiling.

SETTLEMENTS: Meadow Creek

Map Of Sx Efficiency of Manual Treatment Timing on Sitka Alder

Outlined Area 2.0 hectares ±

Forest Region Nelson

DistriGR Zone East North Reg. Compl. L

Land District

U.T.M. Grid 11 4944 56 803 40 004

MANAGEMENT UNIT TIMBER SUPPLY AREA Pulpwood Agreement Cascades

Type Number Block 13
Block Sub-B

Gold Hill
Brushing Trial
Scale 1:20,000