EVALUATION OF THE EFFECTS OF CATTLE AND/OR

UNUTILIZED DOMESTIC GRASSES ON SPRUCE SEEDLINGS

SX 86707 G

1990 ASSESSMENT
EVALUATION OF THE EFFECTS OF CATTLE AND/OR UNUTILIZED
DOMESTIC GRASSES ON SPRUCE SEEDLINGS

SX 86707 G

Prepared by

Steve Amonson

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Dan Hanson
Evaluation of the Effects of Cattle and/or Unutilized Domestic Grasses on Spruce Seedlings

TRIAL REMEASUREMENT: September 19, 1990

Objective: 1) To determine the grazing effects on seedlings and/or the effect of domestic grasses on seedlings if no grazing takes place.
2) To investigate seedling survival and growth on different site preparation treatments coupled with effects of cattle and/or unutilized domestic grasses.

Location: Mile 91 Road, Inga Lake, Block A

Discussion and Observations: A remeasurement of the established plots was done on September 19, 1990. Cattle were introduced earlier this summer so there didn't appear to have grass pressing damage; however, a high percentage of the seedlings had basal scarring. It is possible that all the scarring took place in this grazing season, or there could have been some damage missed in the 1989 assessments. There were 50 cow/calf pair grazing the area between May 27, 1990 to September 15, 1990.

To Summarize:

1) Fencing was improved to enable the rancher to keep his stock in on the trial area. The cattle were out earlier and for a longer period of time which almost eliminated the grass pressing problem.

2) Plowed areas seem to have much less cattle damage likely for the reason that the deep trenches enabled the cattle to graze the area without trampling the seedlings.

3) Trees in fenced area are doing very well with 100% survival. Losses in unfenced area would indicate the likely cause of death was due to trampling especially considering high numbers of the sample trees have encountered basal scarring.

4) A high percentage of the sample trees marked "poor" will likely be lost in the winter of 1990 judging by how poor of shape they are in after the 1990 grazing season.

5) A breakdown of the survival, No. of trees damaged, and average seedling heights are in the following tables.
Inga Lake Cattle Grazing Trial (94Al2b-8)

Line A (20 Plots)

**only tallied original marked trees

<table>
<thead>
<tr>
<th></th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Dead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>38</td>
<td>24</td>
<td>26</td>
<td>17</td>
</tr>
<tr>
<td>%</td>
<td>36</td>
<td>23</td>
<td>25</td>
<td>16</td>
</tr>
</tbody>
</table>

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- 84% of trees "alive"
- 59% of trees in good or fair condition
- 45 trees of the 105 trees "appeared" to be damaged by the cattle either by trampling, scarring the stems, or knocking debris onto the seedlings.
- 43% Affected/Damaged
- Average Tree Height 34.9 cm

Line B (2 Plots)

<table>
<thead>
<tr>
<th></th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Dead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>%</td>
<td>45</td>
<td>45</td>
<td>10</td>
<td>0</td>
</tr>
</tbody>
</table>

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- 100% of trees "alive"
- 90% of trees in good or fair condition
- 5 trees of the 11 trees showed cattle damage
- 45% Affected/Damaged
- Average Tree Height 35.0 cm
Inga Lake Cattle Grazing Trial (94Al2b-8)

Comparison Plots (6 Plots)

<table>
<thead>
<tr>
<th>Plot Description</th>
<th>Plot</th>
<th># Trees</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Dead</th>
<th>Alive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fenced/Natural</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Fenced/Disced &amp; Dragged</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Fenced/Plowed</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Unfenced/Plowed</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Unfenced/Disced &amp; Dragged</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Unfenced/Natural</td>
<td>6</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>100%</td>
</tr>
</tbody>
</table>

a) Plots one, two, and three had no "apparent" damage to seedlings.

*The average seedling height was 42.0 cm.

b) Plot four had no "apparent" damage to seedlings.

c) Plot five had three trees out of the six suffering from "apparent" cattle damage. (50%)

d) Plot six had three trees out of the seven suffering from "apparent" cattle damage. (43%)

*The average seedling height on trees from plots four, five, and six was 37.5 cm.
EVALUATION OF THE EFFECTS OF CATTLE AND/OR UNUTILIZED
DOMESTIC GRASSES ON SPRUCE AND PINE SEEDLINGS

Prepared by

Steve Ammonson

Prepared by

Dan Hanson
Evaluation of the Effects of Cattle and/or Unutilized Domestic Grasses on Spruce and Pine Seedlings

TRIAL REMEASUREMENT: September 20, 1990

Objective: 1) To determine the grazing effects on seedling and/or the effect of domestic grasses on seedlings if no grazing takes place.
2) To investigate seedling survival and growth depending on tree species coupled with effects of cattle and/or unutilized domestic grasses.

Location: Mile 95, Kilometre 4, FRDA #14

Discussion and Observations: A remeasurement of the established plots were done on September 20, 1990. Due to cattle number and a dry summer, the grasses were grazed heavy and therefore the seedlings' stems were being quite heavily scarred. It is possible that all the scarring took place in the 1990 grazing season or some of the scarring could have been missed on the 1989 assessments. There were 31 heifers turned out between July 5, 1990 to August 20, 1990. There were also 105 cows on between June 1, 1990 and July 5, 1990.

To Summarize:

1) A dry season could possibly have been harder on seedling survival due to the cattle having to move around the area more aggressively to feed.

2) Spruce areas tended to have better survival than the Lodgepole Pine areas, but the Pine seedlot did not perform well and so some of the mortality could have been from another cause other than cattle damage.

3) The Lodgepole Pine survival line is very close to a watering hole which is heavily used so this area might not be a representative spot to judge the entire Pine area.

4) A breakdown of the survival, No. of trees damaged, and average seedling heights are in the following tables.
Halfway River Road (km 4)
Cattle Grazing Trial

**Spruce**

<table>
<thead>
<tr>
<th># Trees</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Dead</th>
<th>Survival</th>
<th>Cattle Damage</th>
<th>Average Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>39</td>
<td>32</td>
<td>21</td>
<td>8</td>
<td>92%</td>
<td>36%</td>
<td>30.7 cm</td>
</tr>
</tbody>
</table>

**Pine**

<table>
<thead>
<tr>
<th># Trees</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Dead</th>
<th>Survival</th>
<th>Cattle Damage</th>
<th>Average Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>99</td>
<td>32</td>
<td>34</td>
<td>14</td>
<td>19</td>
<td>81%</td>
<td>49%</td>
<td>30.0 cm</td>
</tr>
</tbody>
</table>

(Pine Only) *Note: The dead trees were not recorded as cattle damage because they could have died from other causes, but if the dead are calculated with the damaged trees, it would make up 70% of the survival line. That only leaves 30% of the trees to make healthy, mature trees if no more trees are affected in future years.*