JUVENILE SPACING OF
WHITE SPRUCE AND LODGEPOLE PINE
STANDS IN THE MACKENZIE TIMBER
SUPPLY AREA

PROPOSED SX WORKING PLAN
JANUARY, 1985

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Ministry of Forests,
Prince George Regional Office,
1011 - 4th Avenue,
Prince George, B.C.

ATTENTION: Ms. Barb Herd.
Silviculture

January 10th 1985

Dear Madam,

RE: Proposed Juvenile Spacing Sx Trial

Attached is the proposed working plan for a juvenile spacing Sx trial in the Mackenzie T.S.A. Would you please forward copies to Messrs. Les Herring and John Revel for their approval. The district R/O Silviculture, Mr. Andy Pakrastins has already examined the working plan.

If there are any problems or further detail is required, please contact myself or Mr. Tom Jones at 997-3271 (Local 2589/2586).

Yours truly,
B.C. FOREST PRODUCTS LIMITED

J. Doug Kelly, R.P.F.
Assistant Forester.

JDK/1r
Attach.

c.c. Les Herring
John Revel.
PROPOSED JUVENILE SPACING Sx TRIAL

Introduction

In the Mackenzie Timber Supply Area, there has been only limited effort given to acquiring data on intensive forestry treatments. To date economic realities have limited silviculture budgeting to be directed into basic forestry programs. However, as regenerated stands approach stand tending size and funding becomes available, it would be extremely beneficial if growth and yield data was available on juvenile spacing at various stocking levels. This proposed spacing project and establishment of permanent sample plots will continue to provide growth and yield data for various sites through to the next rotation.

Objectives

1. To provide information required for making accurate forest management decisions in future juvenile spacing programs.

2. Establish permanent sample plots for use in growth and yield estimates. Level of accuracy for these plots is limited by the fact that the project is being completed on an operational scale.

3. Licensee and local contractors to gain juvenile spacing experience.

Methods

1. Treatments

Five treatment regimes have been selected for this study. They all involve the espacement of pine. They are:

(i) Juvenile Spacing to 200 trees per hectare, 4½ ha.
(ii) " " 400 " " 3 ha.
(iii) " " 800 " " 1½ ha.
(iv) " " 1600 " " 1½ ha.
(v) Control, no treatment 1½ ha.

Each of the above treatment regimes will be replicated three (3) times at each of the four (4) installations. The four installations represent differing stand origins, initial stocking densities, and site index.

2. Plot Layout and Design

The chosen installation location will be gridded out into twenty-four (24) 1/2 hectare blocks. The blocks, in order to qualify for treatment, must be representative of the overall stocking and site index of the installation area. To ensure this, plots will be undertaken to measure the uniformity and will indicate stocking density by diameter class. These 24 blocks will then be assigned a treatment by choosing them at random. The 200/ha treatments will require 3 of these 1/2 ha. blocks. The first block will be chosen at random and the two adjacent blocks will be assigned to complete the 1½ ha.
2. Plot Layout and Design Contd.

requirement. The 400/ha. treatments will require 2 blocks each. The first one will be chosen at random and an adjacent block assigned. The remaining 800, 1600, and control treatments will each require one-half hectare block per replication.

The end result will be a completely randomized experiment with a single factor design. The schematic enclosed is just one possible combination to illustrate the layout.

The five treatments are replicated three times at each installation. Within each replication two plots of 25 trees each will be established and it is the measurements of these plots that will be used to compile the treatment effects. The sample trees will be tagged and the breast height diameter outside bark will be tallied. The relative vigour and any defects will be noted.

Reporting and Future Treatments

October, 1985. Submission of an establishment report with:
stand tending reports, sample tree data, maps detailing locations of installations and sample plots, a brief description on operational procedures and recommendations for future treatments.

1986 - 1989. Periodic examinations will be completed to identify potential brush problems and to note if any mortality is occurring within the treatments. Brief summaries shall be forwarded after the completion of any field checks.

It is the intent of BCFP to examine the necessity for further brushing and weeding projects from an operational aspect. As such, a brushing project would only be completed if there is a cost/benefit of such a treatment.

1990. Measurement of sample tree diameters and increment samples of selected trees for the last ten year period will be completed. A report detailing the results of these measurements shall be forwarded to the Ministry by year end.

1995. Measurement of sample tree diameters and heights along with increment samples for the last five years. A report detailing results and recommendations on future treatments is to be assumed by interested parties within the Ministry of Forest or private industry.

Project Responsibilities

BCFP - Establishment, monitoring, measurements of sample trees up to 1995, and reporting.

MOF - Provide technical guidance, ensure adequate funding is available.

- To delegate responsibility for project after 1995.
## INSTALLATION DATA

<table>
<thead>
<tr>
<th>UNIT</th>
<th>HISTORY</th>
<th>SITE DESCRIPTION</th>
<th>TREATMENT PRIORITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Harvested 1968 Drag Scarif. 1970</td>
<td>Fine textured, moist silty sand</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Natural establishment following a fire average age 35 years PL (S_B)</td>
<td>Fine textured lacustrine moist silts</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Harvested - 1972 Drag Scarif. 1972 Planted 1975 - PL '211'</td>
<td>Coarse textured fluvials dry sands and gravels</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Harvested 1973 Drag Scarif. 1974</td>
<td>Fine textured till, moist site</td>
<td>3</td>
</tr>
</tbody>
</table>
Schematic design for juvenile spacing Sx trial

Stacking levels established at random:

Two twenty-five tree plots established at random:

3 tree buffer