REPORT SX_ 78/01

INTERIM □

FINAL ✗

DATE 85-04-15

TITLE White Spuce Provenance Trial

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Report & distribution approved by: W.C. Williams (Signature) (for Regions - Silviculture Officer)

W.C. Williams (Typed)

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

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Approved:

Manager - ______________________ (Signature) (for Regions - Forestry Manager)

_________________ (Typed)
WHITE SPRUCE PROVENANCE TRIAL

Final Report

In April 1978 a request was received from J. Konishi (Silviculture, Victoria) for research assistance in the establishment of a small, informal white spruce provenance test. The trial was subsequently incorporated into planting project 93G8-45.

The objective was to test the survival and early growth of an eastern Canadian white spruce provenance and to compare it with that of a local interior white spruce provenance under local field conditions.

The eastern Canadian provenance was from Beachburg, (120 m elevation), situated between Algonquin National Park and the Quebec border northwest of Ottawa, which had been grown for one year and then transplanted onto the lower bench at Red Rock Nursery. After 5 years, 200 trees of comparable height were carefully lifted so as to leave a ball of soil round the roots. The stock was in excellent condition with slightly swollen vegetative buds.

The local provenance was from Hixon Creek, seedlot #1523 (875 m elevation). The stock had been grown as 2+1 at Surrey Nursery and then heeled in for a further year at Red Rock Nursery. Stock size and condition varied considerably with minor shoot tip necrosis being common.

The test site was located within the Naver II P.S.Y.U. and within seed zone 6010, south of Hudson Lake.
The site had been full-tree logged in 1975 and had supported a lodgepole pine - white spruce stand. Drag scarification was carried out in 1977 with an anchor and chain device. The site lies within the sub-boreal SBS(c) subzone at 900 m elevation, with moderate moisture and nutrient status. The test plot is located on an elevated, flat bench with moderate drainage and localized poorly drained microsites.

A survival assessment of all trees in June 1979 gave the following results:

Beachburg provenance: Survival was good 94%, however, many plants showed visible signs of stress, short needles and small cones. Practically all plants were chlorotic.

Local provenance: Survival was fair 84% with vigour and growth generally poor.

In the fall of 1984 a remeasurement was done. Visual observations indicated that the Beachburg provenance was superior in survival and growth.

<table>
<thead>
<tr>
<th></th>
<th>Av. ht. at Planting cm</th>
<th>1984 Growth cm</th>
<th>Total ht. cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beachburg</td>
<td>62.4</td>
<td>25.3</td>
<td>141.4</td>
</tr>
<tr>
<td>#1523</td>
<td>30.5</td>
<td>24.2</td>
<td>104.3</td>
</tr>
</tbody>
</table>

Basis: 44 trees/treatment
Conclusions:

After 7 years in the field there appears to be little provenance effect in growth, with the total height difference being attributed to the height difference at the time of planting. Likewise any difference in survival is probably due to initial stock quality.

This project will be deleted from our active project file, however, the map reserve will remain in effect.