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CLEAR CUTTING ALTERNATE STRIPS AND SCARIFYING IN WHITE SPRUCE-ASPEN STANDS TO INDUCE WHITE SPRUCE REGENERATION MANITOBA AND SASKATCHEWAN

PROJECT MS-216

by
V. S. Kolabinski

**FOREST RESEARCH LABORATORY
WINNIPEG, MANITOBA
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INTRODUCTION

In 1960 the Department of Forestry in co-operation with the Saskatchewan government began a study to determine whether clear cutting in strips and mechanical seedbed preparation in white spruce - trembling aspen stands will induce enough spruce to regenerate to form potentially merchantable stands.

Between 1960 and 1964 three areas were selected for study. This report has been prepared to give a brief history of work done on each and to outline work for 1965.

For details concerning the scope, methods of assessing results, scarification preliminary results etc., the reader is referred to the project plan for MS-216 and progress reports 64-MS-15, 63-MS-16, and MS-216-1962.

Area 1: This area was established in 1960. It is 40 acres in size and is located in Sec. 1, Twp. 21, Rge. 19, W.P.M. on the Riding Mountain Forest Experimental Area. The area was divided into 2-chain-wide strips; alternate strips were marked for cutting.

During the summer of 1961 hardwoods on the strips to be clear cut were girdled. Seedbed treatment took place in the fall. Approximately 1/2 of each strip to be clear cut was scarified with a D-6 tractor using a straight blade. Logging operations took place during the winter of 1961-62 under the supervision of the Department of Forestry.

In the summer of 1962, 630 randomly located milacre quadrats (213 in cut and scarified areas, 217 in cut unscarified areas, and 200 in the uncut areas) were established to assess regeneration.

A continuous tally was made on a 1/2-chain-wide strip run down the middle of each uncut strip to obtain stand data.

In August of 1962 five permanent observation transects (each 2 feet wide) were established across cut-over scarified strips to study germination and survival of white spruce seedlings on specific seedbeds. Transects were mapped to show various seedbed types and seedling locations. Yearly examinations have been carried out, recording new germinants and seedling survival.

During the logging operations on the area, slash was piled and burned. This left somewhat circular ash seedbeds varying in size from about 5 to 10 feet in diameter. In the summer of 1962, twenty-four representative burned seedbeds (14 on scarified ground and 10 on unscarified ground) were selected to follow germination and survival of white spruce seedlings on ash seedbeds. Plots were examined in the fall of 1963 and again in the fall of 1964. Burns on the unscarified ground support no seedlings and have become heavily invaded by shrubs and grasses. Burns in the scarified ground are stocked and are relatively free of shrubs and grasses.

Maps were prepared showing the layout of the cut-over and uncut strips and the location of all plots.

The permanent observation transects and plots on burns will be examined in 1965.

Area 2: This area was established by the Saskatchewan Department of Natural Resources in 1960. It is about 10 acres in size and is located in Sec. 29, Twp. 67, Rge. 24, W. 2 Mer. in the Prince Albert Region.

The area was logged during the winter of 1960-61. In the summer of 1961 hardwoods remaining on the cut-over strips were girdled by the Dept. of Forestry. In August of 1962 the Saskatchewan government in accordance with instructions in the project plan scarified the cut-over strips. A TD-14 tractor equipped with a Saskatchewan fire-line plow was used.

In July of 1963 the Department of Forestry mapped the area and established a total of 615 randomly located milacre quadrats (213 in cut and scarified areas, 196 in cut-over unscarified areas and 200 in uncut areas) to assess regeneration. Five 1/5-acre plots were established in the uncut strips to supply stand data.

In May of 1963 small experimental plantations were set out on the area under the supervision of the Saskatchewan Department of Natural Resources. A total of 572 white spruce seedlings (2-2 stock from the Big River Nursery) were planted. One hundred and ninety two seedlings were set out on a cut-over scarified strip, 190 on a cut-over unscarified strip and 190 on an uncut strip. Growth and survival are being studied.

Area 3: This area was selected for study in the summer of 1963. It is

approximately 45 acres in size and is located in Sec. 2, Twp. 51, Rge. 7, W2. Mer. in the Hudson Bay Region.

The area was logged during the winter of 1963-64 and scarified in August of 1964. Logging and scarification were done under the supervision of the Saskatchewan government.

In 1965 the Department of Forestry plans to establish a total of 600 permanent milacre quadrats (200 in cut-over scarified areas, 200 in cut-over unscarified areas and 200 in uncut areas) to assess regeneration. At the same time 1/5-acre plots will be established in the uncut strips to supply stand data.