FOREST RESEARCH BRANCH

PROGRESS REPORT

MATANE RIVER CUTTING EXPERIMENT

(Project Q-67)

by

R.J. Hatcher

Quebec District
February 1964

Oxf.: 56: 221.9: 228.82

64-Q-9

MATANE RIVER CUTTING EXPERIMENT

by R.J. Hatcher[1/]

INTRODUCTION

Work began on this project in 1955 when a one per cent systematic line plot sampling was carried out. Company logging operations began in the study area in 1956 and ended in 1957. The project has been dormant ever since.

This report presents: 1) a review of the project up to 1962, 2) the results of the 1962 remeasurement, and 3) a recommendation to close the project.

Review of Project up to 1962

1955, Project Plan submitted and approved. Purpose: "To develop a method of patch cutting in second-growth balsam fir"; to realize maximum production but not necessarily sustained yield. Method: classify area into 7 cutting classes (subjectively) and cut only those stands judged ready for harvest. Area covered by 10-chain grid of 1/10-acre plots; mapping done as plot work proceeded. Area divided into 5 compartments, one to be cut each year.

1956, Line plot sampling and mapping completed. First compartment cut-over and plots in this area remeasured. Reports: by R.G. Ray, July 1956; by N. Cleyndert, November 1956.

1957, Second compartment cutover, some individual tree marking introduced, line plots remeasured. Reports: by R.G. Ray, June 1957 and published by CPPA Woodlands Section (Index No. 1697 (F-21).

1958, Report on 1957 logging by N. Cleyndert (January 1958) Company ceases logging operations.

1/ Research Officer, Forest Research Branch, Department of Forestry of Canada, Box 35, Sillery, P.Q.

1959,

1960, Project dormant.

1961, Project assigned to R.J. Hatcher.

1962, Forest purchased by Provincial Government. Line plots cutover in 1956 and 1957 remeasured. No forest activity foreseen, roads deteriorating.

Results of 1962 Measurement

Forty-six tenth-acre square line plots from compartments A & B were remeasured in September 1962. Fewer plots than expected were remeasured because large areas of cutting classes 5 and 6 were not cut. Conversely, cutting occurred in several places in immature forest of classes 3 and 4. The 1957 compilation presented summaries for Compts. A & B separately but gave only combined results from cutting classes 5 & 6. It was thought that any differences between cutting classes would be of more significance than differences between compartments and thus for 1962 results the plots from the two compartments were compiled together, but separately for cutting classes.

The 1962 stocked quadrat regeneration survey reveals that conifer stocking on the cutover area is satisfactory (Table 1) and only slightly less than the advance growth present in uncut stands. A greater stocking of white birch is noted in cutover than in uncut forest.

If a varying abundance of cedar indicates varying site, then there would appear to be a site difference as well as a cutting class difference between classes 5 and 6 (Table 2). The greater abundance of cedar in cutting class 6 would suggest a wetter site. This cedar differential does not appear, nor is it mentioned, in previous reports.

The level of conifer growing stock in immature class 4 has hardly changed in 5-6 years while mortality, which would thus equal growth, was 233 cubic feet per acre, all fir. In general, class 4 stands along the edge of the cutover have remained relatively windfirm.

In uncut stands of classes 5 and 6, conifer mortality has been substantial (Table 3). Unlike class 4, a lot of this mortality is due to blowdown along the boundary of the cutover area, although most of the forest in classes 5 and 6 is now overmature and breaking up.

Recommendations

The remeasurement of 1962 did not bring to light any unforeseen events occasioned by the adoption of a patch clear cutting system. The sparse data support the general belief that regeneration of fir is satisfactory after clear cutting mature fir stands on almost any site, and that blowdown losses may be substantial along the periphery of the cut patches, particularly where the uncut forest is mature or overmature.

After an examination of all documents pertaining to this project, I recommend that it be closed for the following reasons:

1) Logging operations are not likely to resume in the area for several years and when they do it is far from certain that the remaining three compartments could be experimentally logged. Even if it were possible to resume logging, the remaining forest would have to be resurveyed because of changes in the cutting class boundaries.

2) The original broad objectives of the project clearly indicate that the experiment was more in forest management rather than in silviculture.

3) The method of operation was changed after the first year's operation from patch clear cutting to a combination of clear cutting plus individual tree marking which added an unforeseen variable to the study.

4) Changes in the definitions of the cutting classes were made after the first year's operation and part of the mapping was revised. The application of these classes on the ground was subjective and difficult.

5) The logging was not conducted according to plan. Large areas of mature timber were not logged and several immature stands were clear cut.

6) Sampling (1% systematic) was of insufficient intensity to provide reliable mean values in view of the heterogeneity of site, age structure and cutting class.

Table 1. Summary of Stocked Quadrat Survey of 1962, Compartments A and B Combined

Condition	Cutting Class	Per Cent Stocked Quadrats								
		Spruce		Balsam Fir		White Birch		All Species*		
		< 0.6" d.b.h.	0.6" to 3.5" d.b.h.	< 0.6" d.b.h.	0.6" to 3.5" d.b.h.	< 0.6" d.b.h.	0.6" to 3.5" d.b.h.	< 0.6" d.b.h.	0.6" to 3.5" d.b.h.	Total
Cutover	5	6	0	64	15	26	7	64	19	83
	6	6	0	62	20	21	9	66	31	97
Uncut	4	3	0	63	24	10	3	60	27	87
	5	5	0	80	20	15	0	80	20	100
	6	7	0	59	22	3	0	59	23	82

* Includes eastern white cedar, yellow birch, trembling aspen, red maple, sugar maple.

Table 2. Summary of Growing Stock 1962, Compartments A & B Combined

Condition	Cutting Class	No.of Plots	Volume per Acre, Cubic Feet One Inch DBH and Over, by Species				
			Spruce	Fir	Cedar	White Birch	Total *
Cutover	5	10	0	275	128	282	689
	6	14	42	277	958	218	1,497
Uncut	4	11	171	1,837	114	167	2,290
	5	2	121	1,896	360	249	2,626
	6	9	173	1,057	617	239	2,151

* Includes small amounts of other hardwoods.

Table 3. Summary of Mortality Since Logging, Compartments A & B Combined

Condition	Cutting Class	Mortality Volume Per Acre, Cubic Feet One Inch D.B.H. and Over, by Species				
		Spruce	Fir	Cedar	White Birch	Total
Cutover	5	0	159	6	12	177
	6	23	54	172	16	265
Uncut	4	0	233	0	0	233
	5	0	642	0	50	69
	6	60	433	22	53	568