TITLE: Ploughing as a Method of Site Preparation on Northern Vancouver Island

OFFICER I/C: F.C. Nuszdorfer

LOCATION: Malcom Island

REGION/DISTRICT: Port McNeill Forest District

OBJECTIVE: To simulate windthrow by site disturbance to increase site productivity.  
Two species: western hemlock and amabilis fir.  
Two treatments: scarified and unscarified.


Results: Hemlock. Height increment of the scarified trees was greater for all growing seasons than for the unscarified. By the third and fourth growing seasons, height increment was almost 100% greater in the scarified area.

Amabilis fir. Height increment by the second growing season was greater for the scarified seedlings than for the unscarified. Height increment for the third growing season was more than 100% greater for the scarified site.

NEXT SCHEDULED ASSESSMENT/TREATMENT: N/A

REPORT DISTRIBUTION: Research and Silviculture staff in Ministry and forest companies.
TITLE  Ploughing as a Method of Site Preparation on Northern Vancouver Island

OFFICER I/C:  F.C. Nuszdorfer

LOCATION  Port McNeill (TFL 25)

REGION/DISTRICT:  Port McNeill Forest District

OBJECTIVE:  To simulate windthrow by site disturbance to increase site productivity on burned and unburned areas.  Comparison of 4 treatments:  unburned, unscarified; unburned, scarified; burned, unscarified; burned, scarified.


Results:  After two growing seasons mean height increment was greatest for the burned, scarified treatment and least for the unburned, unscarified treatment. Height increment for the burned, scarified treatment between 1983 and 1985 was almost 100% greater than the increment for the unburned, unscarified treatment.

NEXT SCHEDULED ASSESSMENT/TREATMENT  N/A

REPORT DISTRIBUTION:  Research and Silviculture staff, in Ministry and forest companies.
Growth of 200 western hemlock seedlings on four plots established north of Port McNeill in 1981 was measured this year. The greatest incremental increase over last year's measurement occurred in the area that was burned and plowed (11.9 cm). This was followed by the area that was only burned (11.1 cm). The area that was unburned and plowed has the third greatest increase (8.2 cm), while the unburned and unplowed area had the smallest increase (5.5 cm). Statistical analysis of these data will be presented in a detailed report in 1983.

Site treatment was also carried out on Malcolm Island early in 1982. A control area was established and monitoring of survival and height growth of 170 planted western hemlock and amabilis fir was initiated in the fall of 1982.

Plans are to continue monitoring height growth of seedlings in both areas and to carry out a foliar analysis in 1983. In addition, the invasion of salal into the treated areas should be evaluated since poor seedling performance often seems to be related to intensity of salal competition.
Title: Ploughing as a method of site improvement in northern Vancouver Island

Introduction: In northern Vancouver Island there are extensive areas of decadent old growth of western hemlock and western redcedar. Regeneration on these ecosystems is often poor and there is little record of planting of western hemlock on them. In contrast, ecosystems on similar topographic positions and with similar soil characteristics that have been disturbed by windthrow of the previous forest regenerate more rapidly and are much more productive. The soils of these windthrown ecosystems have a lower bulk density and increased incorporation of organic matter than those of the undisturbed ecosystems.

It is possible to simulate windthrow on these undisturbed ecosystems with a backhoe. The effectiveness of this method in improving survival and growth of planted western hemlock must be evaluated.

Objective: To monitor growth of western hemlock after planting it on areas that have been disturbed by backhoeing; and to determine foliar nutrient changes.

Methods: An area that has been disturbed by a backhoe and planted to western hemlock in the spring of 1981 will be compared to an adjacent one in the same block that has not been treated but has also been planted. In both areas sixty trees will be permanently marked for sampling for height growth. In addition, nine trees from each area will be destructively sampled and analysed for major and minor nutrient elements.

Height growth and foliage sampling will be done annually for three years and then at 5, 10, and 20 years.

For the first sample survival will be determined on the basis of 400 trees. After this it will be based on the permanently marked sample trees.

Duration: Intensive for three years, minor monitoring to 20 years.

Budget: First Year

1. Researcher salary two weeks 1000
2. Technician salary two weeks 800
3. Travel Port Hardy/Vancouver 400
4. Vehicle lease 250

Total 2450