DEPARTMENT OF FORESTRY · CANADA

Timber Talks

Prepared by V. H. Phelps, Forest Research Laboratory, 506 W. Burnside Road, Victoria, B.C.

WHAT VALUE IS ALPINE FIR ADVANCE GROWTH?

No. 34

The potential productivity of residual stands in cut-over white spruce-alpine fir forests in British Columbia is usually not considered high. This is mainly attributed to the high incidence of alpine fir and the susceptibility of this species to disease. Investigations with merchantable sized trees have suggested that an allowable cull factor of 24 percent for trees 11" dbh and over is reasonable. Re-stocking with desirable species is an integral part of forest management and in all such oriented programs, advance regeneration is an important consideration. A study was undertaken near Prince George, B. C. to assess the potential productivity of alpine fir regeneration (trees up to 6" dbh) in cut-over and undisturbed white spruce-alpine fir forests.

Trees were tallied and classed as being in good, medium or poor condition, on sample plots established on three different sites, in logged and uncut stands of white spruce-alpine fir. Tree condition was based on an evaluation of visible morphological features. Ten trees from each one-inch diameter class and from those less than 4.5 ft. in height were assigned a class 1 or 2 decadence rating. The former were those without visible suspect decay indicators; the latter had at least one suspect-indicator such as conks, broken tops, dead branch stubs or bole deformities. The trees ranging in age from 7 to 246 years and in size from 1 to 6" dbh were felled and sectioned for analysis.

Class 2 trees had more decay than those in class 1. The most reliable suspect indicators were Indian paint fungus conks, broken tops, dead branch stubs, scars and dead secondary leaders. Older trees and those having the larger diameters were the most susceptible to decay. Sixty-eight percent of trees whose age exceeded 160 years were infected but only 28 percent of those whose age was between 40 and 80 years; thirty-two percent of trees over 3" dbh were decayed and 6 percent of those of smaller size. The volume of decay was greater in uncut stands than in those that had been harvested, amounting to 6.7 percent of trees 3-6" dbh, in the former, and 2.6 percent in the latter. Trees, over 3" dbh, whose condition was considered poor had most rot but this was not always true for smaller size trees. Generally decay on the least productive site was less than on the more productive ones.

The variability of the incidence of decay indicates that within these residual stands there is potential for a considerable volume of merchantable alpine fir. Management practices to attain this wood include early removal of all residual trees over 6" dbh, removal of alpine fir having suspect indicators and whose diameter is between 3 and 6" dbh and the re-stocking of under-stocked portions of the stand.

REPORT: Decay in Advanced Alpine Fir Regeneration in British Columbia and its Bearing on Stand Management. I. In the Sub-Boreal Zone (Prince George District). R. B. Smith and H. M. Craig, Forest Research Laboratory.