



Timber Talks



Department of Fisheries and Forestry

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ARE SALVAGED LOGS VALUABLE?

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Losses from fire, logging residue, insects and diseases in forests may be substantially reduced by salvaging the affected trees. The salvage operation must be economically feasible and this is dependent upon the quantity and quality of the removed material. Rate of deterioration, either from primary or secondary causes, is related to tree species, time of death, characteristic preference of wood damaging insects and the prevalence of conditions that favor the incidence of disease. Fungi associated with the decay of Douglas fir was determined, and the effect of felling date and log characteristics on the rate of fungal deterioration was investigated on Vancouver Island.

Twenty Douglas fir, 60 years of age and ranging from 8 to 20" d.b.h., were felled and cut into 32' logs each month between August 1961 and May 1962. Two, four and six years after the felling dates, five trees, each containing two or three 32' logs, were cut into 8' sections. At the points of dissection, measurements were made of log diameter, depth of sapwood and level of suspension above ground, and records made of conditions of the bark, presence of decay fruiting bodies and attacks by ambrosia beetles, bark beetles, wood borers and termites. Discs were removed from the sections and the extent and type of decay determined. Fungi were isolated and identified by diagnostic keys or other methods. Decay, sapwood and total volumes were calculated by Smalian's formula.

Decay amounted to 10, 28 and 47 per cent of the total log volumes 2, 4 and 6 years after felling. White rots constituted the largest volume of decay and as a group did not show a correlation with the date of felling. Individually, they varied substantially with differences in the felling date. Brown cubical sap rots occurred much more frequently in logs felled between September and January, resulting in a greater total decay volume in that period. Although volume loss was small, brown cubical rot was present in the heartwood of 31 per cent of the log ends after two years and in 66 per cent after 6 years. Decay increased with increasing percentage of sapwood and with increasing level of suspension of logs above ground. Percentage of decay was highest in small logs because the percentage of total volume affected by a particular depth of decay in small logs is greater than in large ones. Base logs were usually less decayed than the second 32' logs, attributable to the larger proportion of sapwood in the latter. Sap rots generally circumvented the logs uniformly although brown cubical sap rots developed best on the upper surface.

Thirty fungi were isolated and identified, but most damage was from four or five. Some increased in importance with time and others decreased. Increase in fungal infection, particularly by those causing brown cubical rot, coincided with an increase in ambrosia beetle attack and suggested that beetle holes favored decay deterioration by increasing the number of entrance holes for fungal spores or, possibly, by providing increased aeration; a similar stimulatory effect from bark beetle attack was not evident. Knowledge of the variability in the amount of sound wood in logs and its dependence upon years since felling, log diameter, percentage sapwood and time of felling can do much to facilitate decisions on the salvability of logs left in the woods.