CANADA

Timber Talks

Department of Fisheries and Forestry

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ARE YOUR DOUGLAS-FIR SEEDLINGS ENDANGERED? No. 51

In the coastal forests of British Columbia logging debris is usually broadcast burned. Tangible benefits are the reduction in hazard from fire and improvements to the site that are conducive to re-stocking with desirable tree species. Other conditions that result from burning are perhaps less well known and in some instances may be considered detrimental rather than beneficial. Observations of poor seedling survival on burned areas suggested a relationship between seedling mortality and slash-burning.

The examination of several clear-cut burned areas in S. E. British Columbia revealed that sporophores, receptacles on which spores are carried, of a root rot fungus were associated with recently killed or chlorotic planted Douglas-fir seedlings. The sporophores were 6 to 10 inches in diameter and supported up to one inch above the substrate by rhizoids or root-like structures. The number and development of the sporophores, found growing on duff, mineral soil or woody debris, varied on different sites. The fungus first colonized the woody debris and stump roots and then infected the live roots of seedlings. They were found consistently on all areas that were burned the previous year. At one location, which had been burned and planted in 1965, only 20 per cent of the seedlings had survived in 1966. Replanting of the same area in the spring and fall, 1967, resulted in 16 and 100 per unit survival, respectively, in November, which suggests an incubation period for the disease during the winter months.

The potential of this disease in N. America is unknown as there is no previous record of this association of fungus root-rot with the mortality of Douglas-fir seedlings planted on burned areas. Elsewhere seedlings of other tree species have been infected, particularly in regions where the soil is acid. The fungus survived longer where there was a lush growth of bracken fern, and seedling mortality was greatest in regions of high rainfall. Such conditions are common throughout coastal British Columbia and, if the disease should spread over extensive areas, the success of current programs of re-forestation could be endangered.

REPORT: Rhizina undulata, A New Pathogen of Douglas-fir Seedling in North America. James H. Ginns, Jr. Forest Research Laboratory, Victoria, B. C.