



Timber Talks



Department of Fisheries and Forestry

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Bark Beetles and Fungi

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Bark beetles and fungi are causal agents of considerable damage and loss within the forests. In some instances an association is apparent between the two that is indicative of an interdependence for their mutual existence. Spores of the fungi may be spread by adhering to the body of the beetle or by a specialized organ within one or both sexes of the insect which may accelerate the decomposition of wood cells thereby increasing the supply of nutrients required by the insect. Mortality of alpine fir in a subalpine forest near McGillivray Lake, B. C., from a beetle-fungus complex was investigated.

Evidence was found of four disease producing fungi in diseased wounds near western bark beetle entrance holes in living trees. One caused tissue decay of the cambium and inner bark, and the others caused decay and blue-staining of the sapwood. As previous work confirmed that some true bark beetles possessed a specialized organ for transporting fungus spores, adults were excavated from their galleries, killed, dehydrated, embedded in paraplast, sectioned and stained to determine if the specialized organ was present, and its nature and location. It was found to be an oral pouch, the inner walls of which were lined with minute spines, associated with the mandibles or chewing jaws of both males and females.

Specialized fungus transporting organs in both sexes of phloem feeding bark beetles is not common. The occurrence in both males and females of the western balsam bark beetle may be attributed to its life history. Males usually excavate entrance holes and after egg-laying, both males and females excavate feeding tunnels. It is postulated that the male inoculates the entrance tunnel, ensuring a supply of easily assimilated nutrients for the adults during the early gallery excavation period, and that both adults inoculate feeding and egg tunnels to provide an enriched food supply for subsequent larval populations and for themselves prior to seeking a new host.