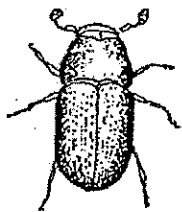


# MOUNTAIN PINE BEETLE IN SOUTHERN ALBERTA AND SASKATCHEWAN

The mountain pine beetle (*Dendroctonus ponderosae* Hopk.) is the most serious insect enemy of mature pine forests in Western Canada because of its capability to kill large size trees within a few weeks after attack. During the past 4-6 years, populations of this insect have been expanding rapidly in British Columbia, and were discovered for the first time in Southwestern Alberta in 1977. Since then the beetle has spread northward and eastward, killing large numbers of the native lodgepole pine in Waterton Lakes National Park, areas of the Bow-Crow Forest, including the Porcupine Hills, and in 1980 was found widely distributed throughout the Cypress Hills. Additional reports have since indicated that the beetle may now be widely distributed throughout the southern prairie zone of Alberta, and possibly southwestern Saskatchewan. Numerous planted pine trees in park and other landscaped areas in Lethbridge were attacked and killed in 1979 and 1980. Other evidence of the beetle's presence was found in Cardston, Claresholm, Medicine Hat and Brooks, indicating unexpected long-range dispersal by wind-assisted flight and/or accidental transport of the beetles in logs or firewood.



Adult Beetle

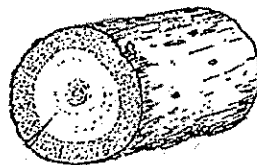


Larval Stage

In its natural forest habitat the beetle prefers the native pine species, including lodgepole, ponderosa, western white, limber and whitebark pines, but in the prairie zone the widely planted European Scots pine has proven to be very susceptible. Most mortality thus far has included trees older than 20-25 years and with stem diameters greater than 6-8 cm. Although records are

unknown, jack pine may also be susceptible.

The mountain pine beetle attacks trees in mid- to late- summer by chewing through the bark and forming galleries or tunnels under the bark, along which eggs are laid. Shortly after the eggs hatch into small white grub-like larvae which feed in the bark away from the main adult gallery. Death of the tree results from the girdling action of the larvae and from a special group of blue stain fungi, the spores of which are carried into the tree by the adult beetles. The fungi quickly invade the living cells of the bark and sapwood, clogging up the tree's translocation system and the tree dies.

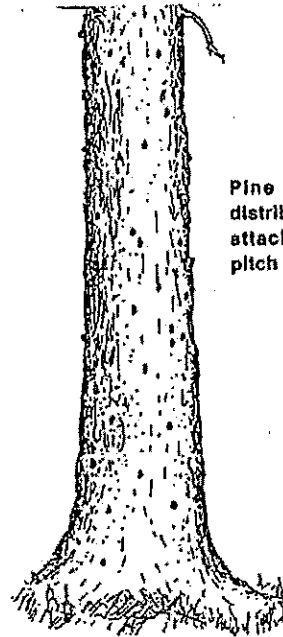


Attacked tree log showing area of blue stain in sapwood.

Because of the now apparent widespread distribution of the beetle in the southern prairie zone a survey has been initiated by the Canadian Forestry Service (CFS) at the Northern Forest Research Centre in Edmonton with the following main objectives:

- (a) To determine the extent of beetle dispersal in southern Alberta and Saskatchewan;
- (b) To record the tree species involved, the characteristics of attack pattern, tree size and age and whether tree mortality has occurred;
- (c) To verify if possible, the mechanism of long-range dispersal and/or transport; and
- (d) To alert landowners of the potential threat to pine species.

The survey is expected to be completed this summer and will include park areas, campgrounds, urban centres, farm shelterbelts, cemeteries and other areas of planted pines. To assist in the field identification, a brochure is being prepared by the CFS which will



Pine tree showing distribution of beetle attacks or resinous pitch tubes.

describe the beetle's life history, its signs of attack, and give specific recommendations for protecting high-value trees should the need arise. The brochure will be available in early May. Copies may be obtained through the nearest District Agriculture office or by contacting the Northern Forest Research Center in Edmonton.

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Adult and Larval gallery network under the bark.

