

Bark Beetles

Mountain Pine Beetle *Dendroctonus ponderosae* (Hopkins)

Hosts: Ponderosa pine, white pines

Symptoms/signs: External evidence on green infested trees consists of pitch tubes. On successfully attacked trees, these are small and numerous. Pitch tubes on unsuccessfully attacked trees are larger in size (around 2 cm in diameter), typically white, and widely scattered over the trunk. During drought years, infested trees may not produce pitch, and external evidence consists only of boring dust. These are referred to as blind attacks. Later, foliage on successfully attacked trees fades to yellowish green, to sorrel, red and finally brown. Under the bark, egg galleries are straight, vertical, and packed with boring dust. They range from 10 to 122 cm in length. Adult beetles are brown cylindrically shaped beetles about 4 to 7.5 mm long. Larvae are small white grubs with tan head capsules.



Figure 105. Adult mountain pine beetle.



Figure 106. Egg and larval galleries of mountain pine beetle. Note that egg galleries have an initial “crook” or “j” and then run vertically up the bole. Larval feeding galleries are perpendicular to the egg galleries.

Biology: The beetle produces

one generation per year. Adults begin attacking trees in early July and the attack period can extend into September. Females initiate attacks and release pheromones to attract males. Beetles create egg galleries in the inner bark and females lay eggs.

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In 1 to 2 weeks small larvae hatch. Generally they overwinter as small larvae. Larvae resume development the following spring and when mature, excavate oval cells in which they transform into pupae and then adults. Adults then bore out and attack new trees. In the Southwest on ponderosa pine, this insect is found primarily on the Kaibab Plateau in northern Arizona and in northern New Mexico. It can be found on white pines throughout the Southwest.

Effects: The direct effect of successful attack is tree mortality. Epidemics can affect ponderosa pine ecosystems by reducing the density and size distribution of its host, and altering species composition and stand structure.

Similar Insects and Diseases: Several other bark beetles may be found in Southwestern ponderosa pine, including other *Dendroctonus* species and engraver beetles. These may be distinguished from mountain pine beetle by their egg gallery characteristics and adult appearance. Egg galleries of the western pine beetle are maze-like, and those of the roundheaded pine beetle are vertical and slightly sinuous. Galleries of engraver beetles possess a nuptial chamber with one to several galleries radiating out from it. Engraver beetle egg galleries are free of frass. *Ips* adults display a pronounced concavity at the rear end of the elytra that possesses three to six spines on either side. The elytral declivity on *Dendroctonus* adults is rounded and does not possess any spines.



References: 1, 75

Figure 107. Ponderosa pine mortality caused by mountain pine beetle.