Lodgepole Pine Beetle

An uncommon lodgepole pine bark beetle

Name and Description—*Dendroctonus murrayanae* Hopkins [Coleoptera: Curculionidae: Scolytinae]

The lodgepole pine beetle (fig. 1) is a rarely encountered species in the genus. This bark beetle is not thought to be an aggressive species, although it is sometimes associated with tree mortality. The lodgepole pine beetle resembles the more common spruce beetle, *D. rufipennis*, based on external features and coloration of the adult and the general shape of the egg galleries. The beetles are most commonly encountered in the lower 2 ft (61 cm) of the bole of lodgepole pine trees and may be associated with trees attacked by the mountain pine beetle, *D. ponderosae*. The adults are approximately 1/4 inch (5.0-7.3 mm) long and are dark brown with reddish brown wing covers. The larvae are white, legless grubs.

Figure 1. Lodgepole pine beetle adult. *Photo: Dan Jensen, University of Alberta.*

Hosts—Hosts for the lodgepole pine beetle include lodgepole pine, jack pine, and eastern white pine. In the central Rocky Mountains, the beetle has been collected on the Pike National Forest in Jefferson County, Colorado, and on the Medicine Bow, Bighorn, and Shoshone National Forests in Wyoming.

Life Cycle—The biology of this species is not well-documented. The life cycle is thought to be approximately one generation per year. The adults disperse in June or early July through early September, with initial attacks observed by mid-July. The egg galleries (fig. 2) are vertical and approximately 5 inches (13 cm) long, and the eggs are deposited in groups of 20-50 in broad niches on either side of the egg gallery. The larvae feed together collectively, beginning perpendicular to the egg gallery and then turning up or down. Larvae may finish feeding in separate galleries and prepare a chamber for pupation, or they may pupate within the frass of the main larval feeding area.

Damage—The beetle has been found infesting stumps, windfalls (where they prefer the underside of the stem), and the lower 2 ft (61 cm) of weakened trees larger than 8 inches (20 cm) DBH (fig. 3).

Management—Although the lodgepole pine beetle has been associated with epidemics of other bark beetles, its relative significance in these events is not fully understood. In most situations, this species attacks and kills trees that are severely damaged or are dying from other causes. In managed stands, the beetle is found infesting the stumps and larger roots of cut trees. The lodgepole pine beetle has never been associated with significant economic losses. As a result, management options for this bark beetle have never been developed.

Figure 2. Egg galleries of the lodgepole pine beetle. *Photo: Brian Howell, USDA Forest Service.*

Figure 3. Lodgepole pine trees attacked at the base by the lodgepole pine beetle. *Photo: Brian Howell, USDA Forest Service.*

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Significant controversy surrounds this beetle because of its similarity to the spruce beetle and because of reports of spruce beetle killing lodgepole pine during the Flat Tops spruce beetle epidemic in Colorado in the late 1940s and early 1950s. Although the lodgepole pine mortality was attributed to the spruce beetle, specimens that were collected during the epidemic and placed in museums all proved to be the lodgepole pine beetle. In a recent spruce beetle epidemic in the Medicine Bow Mountains of Wyoming, spruce beetles were observed attacking lodgepole pine trees where this species was mixed with Engelmann spruce. Surprisingly, only trees that were also attacked by the lodgepole pine beetle died. In the absence of lodgepole pine beetle, spruce beetle-attacked lodgepole pine trees survived and spruce beetles died inside their galleries, exited their galleries and died at the base of the tree, or abandoned their galleries.

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1. Furniss, R.L.; Malcolm, M.; Kegley, S.J. 2008. Biology of Dendroctonus murrayanae (Coleoptera: Curculionidae: Scolytinae) in Idaho and Montana and comparative taxonomic notes. Annals of the Entomological Society of America 101(6):1010-1016.

2. Wood, S.L. 1982. The bark and ambrosia beetles of North and Central America (Coleoptera: Scolytidae), a taxonomic monograph. Great Basin Naturalist Memoir 6. 1359 p.