

# Pitch Moths

## Oozing pitch masses on trunks and branches on pines

**Name and Description**—*Dioryctria* spp. [Lepidoptera: Pyralidae]

Pine pitch moth—*D. ponderosae* Dyar

Zimmerman pine moth—*D. zimmermani* (Grote)

Pitch moth attacks appear as large, oozing masses of pitch that form at the wound site in response to larval feeding beneath the bark. Adult moths are rarely observed and are difficult to differentiate from other members of the genus. They are grey with white zig-zag markings and are up to 3/5 inch (15 mm) long. Full-grown larvae are 3/5-1 inch (15-25 mm) long, dirty white, pinkish, orange, light green, or light brown and are marked with rows of dark spots (figs. 1-2).



Figure 1. Pitch moth larva on ponderosa pine under bark. Photo: Southwestern Region, USDA Forest Service.

Several species that bore beneath of bark of pines and some other conifers are encountered in the Rocky Mountain Region. Most notable is the pinyon pitch mass borer, which causes large, oozing, soft pitch masses (fig. 3) on pinyon pine, and less noticeably, on ponderosa pine. This insect is also called the ponderosa twig moth and has caused notable damage on young pines in Nebraska. Other related species may produce less pitch or cause a clear sticky sap flow from branches or on the trunk of the tree. Zimmerman pine moth is an eastern species that has become established along Colorado's Front Range. It causes popcorn-like masses of pitch on the trunk and branches (fig. 4). Austrian pines are most frequently attacked, often at the junction of the trunk and a branch.



Figure 2. Pitch moth larva in pitch mass on ponderosa pine. Photo: Whitney Cranshaw, Colorado State University, Bugwood.org.

**Hosts**—Pinyon pine, ponderosa pine, lodgepole pine, Austrian pine, Scots pine, and, occasionally, Douglas-fir and true firs

**Life Cycle**—Pitch moth life cycles vary with species and can require 1 or 2 years for one generation. Pinyon pitch mass borer requires 2 years to complete its life cycle, and eggs are laid over an extended period from June through August. Eggs are laid in bark crevices or near bark wounds, including in previous attack sites and pruning cuts. Newly hatched larvae tunnel under the bark, forming irregular galleries or elongated gouges in the sapwood. Larvae pupate in silk-lined chambers in their tunnels or in the pitch mass in spring or early summer. The Zimmerman pine moth has one generation per year and does not bore under the bark until spring. They feed under bark, causing large amounts of pitch to be produced. Eggs are laid in August, and larvae hatch in late summer and seek overwintering sites under bark scales.

**Damage**—Larger branches, limbs, and trunks of young trees are attacked. Repeated attacks can seriously weaken trees and kill branches. The most severe damage is to trees less than 20 ft (6 m), especially in urban areas. The insects are rarely a problem on larger trees or in the forest environment.

**Management**—In forests and woodlands, no control strategies are warranted. Properly timed insecticide applications have successfully reduced damage on landscape trees. Individual larvae can be removed from the pitch mass or from under the bark with a knife or similar tool. Avoid pruning or mechanical injury to the bark during the summer months when adult moths are seeking egg-laying sites.

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Figure 3. Pitch mass caused by *Dioryctria ponderosae* on pinyon pine. Photo: Brian Howell, USDA Forest Service.



Figure 4. Zimmerman pine moth damage. Photo: Whitney Cranshaw, Colorado State University, Bugwood.org.

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1. Cranshaw, W.S.; Leatherman, D.A.; Jacobi, W.R.; Mannix L. 2000. Insects and diseases of woody plants of the central Rockies. Bulletin 506A. Fort Collins, CO: Colorado State University, Cooperative Extension. 284 p.
  2. Furniss, R.L.; Carolin, V.M. 1977. Western forest insects. Misc. Publ. 1339. Washington, DC: U.S. Department of Agriculture, Forest Service. 654 p.
  3. Harrell, M.L. 1993. Influence of pine host species on infestation and damage by *Dioryctria* borers in the central Great Plains. *Environmental Entomology* 22(4):781-783.
  4. Harrell, M.L. 1996. Life histories and parasitoids of *Dioryctria* borers of pines in Nebraska. *Journal of the Kansas Entomological Society* 69(4):279-284.