Zimmerman pine moth

Dioryctria zimmermani
Order Lepidoptera, Family Pyralidae; pyralid moths
Native pest

Host plants: Austrian and Scotch pine are preferred, but all pines except white pines are susceptible.

Description: Adult moths have a wingspan of up to 37 mm, gray forewings blended with red-brown, crossed by zigzag black and white lines. Mature larvae are 18 to 25 mm, whitish to pale pink or green, with rows of black spots on their abdomen and dark, black heads.

Life history: Adults emerge in mid to late summer, mate and lay eggs. Larvae hatch in mid September, move to bark cracks or crevices near the base of a top, lateral branch, and spin hibernacula where they overwinter. Larvae begin feeding the following spring, consume phloem, and girdle plants at the point of lateral attachment to the trunk at the top third of the tree. They complete development by August and pupate. There is one generation a year.

Overwintering: Small larvae in hibernacula under tree bark or in crevices.

Damage symptoms: Larval feeding causes frass and pitch at the point of lateral branch attachment near the top of trees. Foliage near tree tops turns yellow, followed by dieback. Groups of dead branches near the tops of pines are generally symptomatic of Zimmerman pine moth.

Monitoring: Look for frass and pitch at the point of lateral branch attachment near the tops of trees. This is most evident in early summer. Watch for dead branches near tree tops.

Physical control: Infested trees loose their aesthetic value and should be destroyed by early August, before new adults emerge.

Chemical control: Control of this species is difficult because the larvae are vulnerable to insecticides for only a short time in early Spring (mid April and early May). Treat trees with insecticides in Spring to kill caterpillars before they burrow deeper. Treat again in mid September to kill the next generation of larvae before they overwinter.

Biological control: Several larval parasitoid have been recorded. Although they may kill 50% of eggs and larvae, only a few larvae are necessary to reduce aesthetic value.

Plant mortality risk: High, especially aesthetic value.

Biorational pesticides: None

Conventional pesticides: chlorpyrifos (nursery and Christmas tree only), bifenthrin, permethrin

Dieback damage caused by Zimmerman pine moth larvae. (279)
Photo: Steve Katovich, USDA Forest Service

Breakage induced by Zimmerman pine month larvae. (W80)
Photo: Whitney Cranshaw

Tunneling caused by Zimmerman pine moth larva; needle in larval tunnel. (281)
Photo: Cliff Sadof

Zimmerman pine moth (continued)

Zimmerman pine moth adult. (W78)
Photo: Whitney Cranshaw

Tunneling and pitch associated with Zimmerman pine moth larvae. (280)
Photo: Steve Katovich, USDA Forest Service

Tree death caused by Zimmerman pine moth. (282)
Photo: Cliff Sadof