

Pine Shoot Beetle

Tomicus piniperda, the pine shoot beetle, was first discovered in North America at a Christmas tree farm near Cleveland, Ohio in July, 1992. Pine shoot beetles are native to Europe and Asia where they cause destruction of pine shoots and growth loss.

Pine shoot beetles have been found in Garrett, Allegany, Washington, Frederick and Montgomery counties in Maryland. These beetles are a potential threat to pine trees and Christmas trees in the State.

History and Distribution

Adult pine shoot beetles are commonly intercepted at U.S. ports of entry in wood dunnage. Dunnage is used to stabilize cargo in ships, and the current beetle infestation may have resulted from dunnage being left at one or more U.S. ports. As of January, 2005, surveys have found beetles in 428 counties in 13 states and two Canadian provinces.

Description and Life Cycle

Adult pine shoot beetles are brown to black and about 3-5 mm cylindrical insects. The larvae, found only under the bark of infested trees, are white, legless grubs about 5 mm in length.

Adult beetles spend the winter in the thick bark at the base of living pine trees. Beetles become active in late winter to early spring. When temperatures exceed 50°-55°F for several days, beetles fly to cut pine stumps, logs or weakened trees where they bore through the bark. Females lay eggs along a gallery they construct running with the grain of the wood. Larvae feed between the inner bark and outer sapwood for several weeks before they mature into adults. By June, the new generation of adult beetles emerges and flies to the shoots of healthy pines. Beetles bore into and hollow-out the centers of shoots. Infested shoots become discolored, die and eventually fall off the tree. This is the most noticeable and possibly the most destructive phase of the beetle's life cycle. When beetles are numerous, severe shoot feeding can result in reduced tree height and diameter growth loss.

Following the first frost, beetles leave the shoots and move to the base of trees. They bore into the thick outer bark and spend the winter protected by the bark and snow.

Hosts and Damage

Pine shoot beetles are capable of infesting all species of pine occurring in Maryland. They prefer Scots pine and are rarely found in eastern white pine. They will not infest spruce and fir trees. Damage can occur during two phases of the life cycle. Shoot feeding during summer results in dead pine shoots and, if severe, can reduce growth and weakened trees. In the spring, during the breeding phase, beetles can attack and kill weakened trees. Although pine shoot beetles have the potential to be serious forest pests, most damage has been reported from Christmas tree farms.

Control

Sanitation is the key to controlling pine shoot beetles in Christmas tree plantations and forests. Material suitable for breeding, such as cut stumps, logs or dead trees, should be removed or treated (burned, chipped or sprayed) before a new generation of beetles emerges (no later than mid-May in Maryland). Traps, trap logs and cover sprays can be used effectively in a Christmas tree operation. The United States Department of Agriculture, Animal Plant Health Inspection Service has established a quarantine of all infested counties in the United States. In cooperation with state officials, inspection is required of all pine Christmas trees, garlands, wreaths, nursery stock, logs, and lumber with bark attached, before they can be moved from the quarantine area. Although pine shoot beetles are new to Maryland and have not yet impacted Christmas tree or forest health, they are potentially a serious pest. Questions concerning the biology of the beetle should be directed to the MDA's Forest Pest Management Section (410-841-5922); questions concerning the quarantine and movement of regulated material can be directed to Fred Mann, USDA-APHIS (410-841-5930).

