Pine Bark Beetles

The forest that stretches from the San Francisco Peaks to Payson to Prescott is the largest contiguous Ponderosa pine stand in the world. Researchers tell us that the pine forests we see today are not like what we would have seen prior to European settlement. Then, Ponderosa pines grew in park-like stands with grasses and shrubs in the understory. One hundred years of successful fire suppression (thanks to Smokey) has left us with the forests we see today.

As you travel through our Ponderosa pine forests, you can see dead or dying trees either in groups or standing individually. In all likelihood, this mortality was caused by bark beetles. A few dead trees here and there are normal. In fact, drought is a normal condition in the arid southwest and when drought is combined with dense stands of timber, bark beetles can really thrive. Following are more details about the various Ponderosa pine bark beetles so you can understand them (and provide some recommendations to keep them from killing pines in your landscape).

There are several species of bark beetles that infest Ponderosa pine in our area. Red turpentine beetles (*Dendroctonus valens*) generally colonize the lower trunk. Engraver beetles (*Ips* sp.) generally colonize the upper portion of the trunk. The male engraver beetle bores into the tree emitting a chemical (pheromone) to attract a female. Then they create a nuptial chamber inside the bark, the couple mates, they create tunnels (egg galleries), the female lays her eggs at the edges of tunnels, and the larvae feed on the inner bark before pupating. In doing so, they interrupt the flow of nutrients in the inner bark (phloem) and cambium killing the tree. After the larvae pupate, they emerge from the host tree and look for new trees to infest. Several generations may breed each summer. The last generation of beetles overwinters as adults under the bark.

Within a few weeks of colonization, the needles at the top turn a straw-yellow color. If you look closely, you may also see fine boring dust in the bark crevices and at base of the tree. Pitch tubes (globules of pitch) may also be visible. Removing the bark will expose the galleries and insects if present. The following season, the needles turn a reddish color.

There is nothing that can save a tree once it is colonized by bark beetles. Simply remove infested trees as soon as possible. You may keep the firewood, but the woodpile must be placed in a sunny location and covered with heavy, clear plastic which has been sealed at the edges. This will cause heat to build up (160 degrees F) and kill remaining beetles. Individual woodpiles should not be larger than 4 x 4 x 4 feet (1/2 cord). Do not leave slash or other woody debris piles on site. This is an excellent breeding medium for bark beetles.

To protect healthy, high value trees, provide supplemental irrigation to trees during dry periods. This is best accomplished by using a soaker hose placed near the drip line of the tree. Some insecticides are available and effective. However, when bark beetle activity is on the rise, unqualified pesticide applicators may take advantage of naïve clients. Know your pesticide applicator and get the information, including active ingredient and rate to be applied, in writing before work begins.

In natural forest situations, pine bark beetles are native insects benefiting the forest by reducing the overall number of trees and making more resources available to those that remain. Dead trees also become breeding grounds for wood boring insects, which provide food and shelter to birds. Downed logs also create microenvironments for plants and ground dwelling animals. Remember, dead standing trees are a hazard in most residential landscape situations and should be removed for safety reasons.

Additional Resources:

Using Insecticides to Prevent Bark Beetle Attacks on Conifers, University of Arizona

Pine Bark Beetles, University of Arizona

Cypress Bark Beetle, University of Arizona

Pinion IPS Bark Beetle, University of Arizona

July 16, 2024

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