



Courtesy of the  
Ebbetts Pass  
Fire District

# The Bark Beetle



## The Bark Beetle

Bark beetles are the most destructive insects in the coniferous forests of the West and Southwest. There are many bark beetle genera, which are important with respect to forest damage. Adult bark beetles bore through the outer bark to the inner cambial layer, where they channel out galleries in which to lay eggs. Larvae hatch in these galleries and may excavate additional channels as they feed. As bark beetles carve out galleries, they introduce blue-stain fungi. This fungi grows in the wood, interfering with the tree's water transport system. Tree deterioration and eventual mortality result from two factors: (1) tree girdling caused by gallery excavation, and (2) spread of blue-stain fungi. Several species of bark beetles may attack in concert, partitioning the tree by elevation. Roundheaded pine beetle, western pine beetle, mountain pine beetle, and several species of Ips may all be found on severely infested trees.

## Recognizing A Bark Beetle Attack

Infested trees may be recognized at a distance by fading foliage high in the tree, initially a light green, changing to a light straw color in a few weeks, and eventually to yellowish-brown.



Close inspection may show a fine reddish-brown boring dust in bark cervices and at the base of the tree. Small pitch tubes, or globules of pitch may be seen on the tree trunk. Cream to dark red pitch tubes, resin mixed with boring dust, 1/4" to 1/2" in diameter, are an indication of a successful bark beetle attack.



In some cases where the number of attacking bark beetles is not high, the tree may have sufficient resin available to eject the attacking bark beetles by extruding resin at the attack site ("pitching out"). Pitch tubes of whitish resin 3/4" or more in diameter are evidence of an attack successfully resisted. Other evidence of bark beetle infestation includes galleries discovered under the bark, sapwood discolored by blue-stain fungi, woodpecker feeding holes and bark removal by woodpeckers.



Bark beetles are a common presence on forested lands in California. Populations of bark beetle species increase and decrease from year to year. This is a common phenomenon for insect populations. The damage caused by bark beetles is exacerbated by the drought California has suffered for many months. Trees stressed by drought are especially vulnerable to bark beetle attacks.

**What Can Private Landowners Do To Protect Their Trees Against Bark Beetle Attacks ?**

Here is a short list of preventative measures. For more detailed information, view or download the PDF document [Pine Bark Beetles Publication](#), listed below from the University of Arizona. (Adobe Acrobat is required to open these documents.)

<http://cals.arizona.edu/pubs/natresources/az1300.pdf>

1. **Reduce the density of trees** in your yard or wooded lot by thinning. Most landowners are reluctant to cut down any of their trees. Keep in mind that trees will grow faster and stronger if they have less competition from neighboring trees. Trees that do not have to compete for scarce water will be more likely to survive both severe drought and bark beetle attacks..



Before Thinning

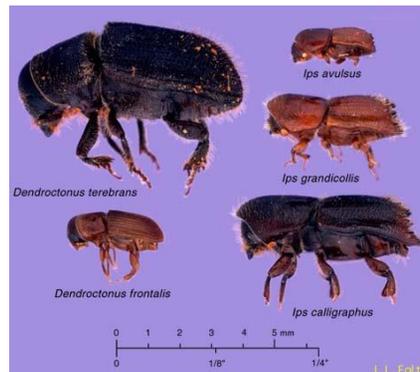


After Thinning

2. In times of drought or insufficient rain, **water your trees**. This is particularly necessary during the months from May to October. During a severe drought period such as we have recently experienced, it may be advisable to water at other times as well. Enough water must be provided to penetrate the soil to a depth of two feet. Water the trees in a donut-shaped pattern at the drip-line, or outer edge of the branches. A drip type watering system does well for this application. To find out if your tree needs to be watered, check the soil to a depth of 6-8 inches just outside the drip-line at least once a month.

3. A landowner may have certain highly valued trees, treasured because of size, location, appearance, or other reasons. Valued trees that have not yet fallen victim to bark beetles can be protected from beetle attacks by the application of insecticide to the outside of the trunk. The only registered chemicals for use against bark beetles are carbaryl and permethrin. An insecticide specifically formulated for bark beetles is applied to the entire trunk and the base of branches 4" or greater in diameter. Common home and garden insecticides, even those containing carbaryl or permethrin, will not work. For more information, contact Calaveras County Environmental Management Agency Agriculture & Weights and Measures or the USDA. Instructions for insecticide spraying are given in the document [Preventative Spraying](#) from the University of Arizona.

<http://cals.arizona.edu/pubs/natresources/az1300.pdf>



Most species of bark beetle are very small, and not commonly seen unless bark is removed from an infested tree. They are not found flying around or crawling on branches or the outside of the trunk. Fading foliage (changing from green to yellowish-green to sorrel to red and finally to rusty brown) is frequently the first sign the landowner notices.



By the time the needles have faded to red, the bark beetle attack has been under way for a considerable time, and the tree is dying.

**What Can Be Done For Trees Already Attacked By Bark Beetles ?**

The unfortunate answer to this question is that nothing can be done, except to **remove the tree**.

Sometimes a tree will have a fading crown but the lower branches will still be green. Topping the tree, or removing the crown, will not save that tree. The tree has already been weakened from the attack to its upper trunk. If bark beetles are not yet in the lower part of the tree, it will soon be attacked by beetle species that target the lower trunk.

Prevent the spread of bark beetles from this tree to others by removing it expeditiously.

**DO NOT** save the wood from bark beetle-infested trees for use as firewood or poles.