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Identifying Ponderosa Pines Infested with Mountain Pine Beetles

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Trees successfully and unsuccessfully attacked by mountain pine beetles have several symptoms in common, so that proper diagnosis is not always easy. Guidelines presented here enable the observer to correctly distinguish nearly all attacked trees.

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Adult mountain pine beetles attack green trees in late summer. Some trees resist attack and continue to live, while others are overcome, produce brood, and die. The unsuccessfully attacked trees may or may not be reattacked in subsequent years. These trees, while sometimes showing some of the signs of attack, do not show all of them and should not be removed in the course of control work. The task, then, is to properly determine if an attacked tree is infested.

Unfortunately, the needles on most infested trees do not fade until the spring or summer after attack, so that infested and healthy trees superficially look the same for about 10 months following attack. This guide is to help you determine which trees are in fact infested.

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Successful Attacks

Trees that are successfully attacked have the following characteristics:

1. Fine, dry frass (sawdustlike) around the base of the tree and in bark crevasses.
2. Brood. You have to cut away pieces of bark to see the cream-colored grubs or pupae. Brown, then black adults will be seen in late June and July.
3. Small (about ¼ inch in diameter) or no pitch tubes. (If you cannot see pitch tubes or fine frass and the tree really is infested, you simply miss spotting it. However, its needles will likely turn straw yellow by June and the tree can still be cut and sprayed before beetles emerge.)
4. Wood under the bark is dull blue due to blue-stain fungi carried in by the beetles. If you see only a single narrow strip as high as you can reach, the tree may survive. To be fatal, blue-stain has to be well distributed around the tree and accompanied by fine frass or brood. Stain becomes visible in the fall, and by winter is found throughout the sapwood.

5. Needles fade in June and July. Unfortunately, about 20 percent of infested trees do not fade until after beetles escape. In this case, as in step 3, you just miss the tree, and its brood escapes before the tree finally looks dead. These missed trees are one of the major reasons why bark beetles are hard to control.

Unsuccessful Attacks

Trees that may live, **if** not reinfested or attacked higher up by other bark beetles, will have the following characteristics:

1. Large pitch tubes (½ inch or more in diameter).
2. Coarse frass.
3. Very sparse or no brood. Frequently the vertical egg gallery is packed with very resinous frass, and the surrounding wood is moist and white.
4. No bluestain wood, or only thin strips of bluestain developed by the following spring.
5. Foliage remains green, not turning yellow. Since some successfully attacked trees do not fade the summer after attack, one or more of the other characteristics must be present.

Please remember when using this guide that its purpose is to prevent removal of uninfested trees. Consequently, one can expect that some trees that were left will die and have to be removed. The risk of spreading or maintaining a beetle infestation from such trees is minimal. Also, keep in mind that attacks can range from a single beetle which cannot harm the tree, to several hundred pairs which assure tree mortality. Somewhere in between are the trees that are difficult to properly identify. If there is any question and the trees are in an active control project area, they should be removed and treated; otherwise, success of the control project is jeopardized.

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