How to treat for Bark Beetles

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There are numerous species of Ips and Dendroctonus, commonly called bark beetles, which infest conifers throughout North America. Adults tunnel through the bark, mate, and lay eggs in the phloem (inner bark). The larvae develop in the phloem and cambial region. Pupal development is completed in the outer bark. Adults develop from pupae and emerge by boring out through the bark.

Larval feeding interrupts the tree's ability to move water and nutrients within the host tree. Several species also introduce a fungus into the tree which further inhibits the vascular system.

Common species of Pine Bark Beetles include Mountain Pine Beetle, Western Pine Beetle, Southern Pine Beetle, Ips Engraver Beetles, and Spruce Beetles.

What do Bark Beetles look like?
Bark beetles themselves are typically small, 3-4mm long with cylindrical bodies. Because they are so hard to spot on the trees, it's best to look for other signs of infestation, especially pitch tubes. Pitch tubes are "popcorn-shaped masses of resin" (USFS) that indicate a tree is trying to push the insects out. Other symptoms of infestation include: reddish boring dust, adult exit holes, woodpecker damage, and yellowing foliage. The beetles commonly attack drought stressed trees. High numbers of attacks to trees are possible, which can result in extensive vascular injury and ultimately, tree death.

Trees infested with bark beetles will gradually turn brown, defoliate, and die.

Host material & range
Because bark beetles are part of a large family of insects, the host tree range is wide. Generally speaking, bark beetles attack conifers.

These beetles attack mainly pine trees, including the Loblolly, Lodgepole, Pinyon, Pitch, Ponderosa, Scotch, Shortleaf, Slash, and Virginia varieties. These varieties of pine can be found all over the western and southern United States. Spruce trees can also be affected.

Current threat
Currently, Mountain Pine Beetle has reached epidemic levels in Colorado, reducing many of the native pine forests to standing deadwood. The formerly lush green mountainsides of the Rockies are now reddish-brown or gray due to the devastation of this insect.
Not only does Mountain Pine Beetle do its own damage by restricting water and nutrient flow within the host tree, but it can also act as a vector for Bluestain Fungus, a deadly infection. There are products on the market to treat for a beetle infestation, but there is no available treatment for Bluestain Fungus.

While Mountain Pine Beetle does its damage in the Rockies of Colorado, Western Pine Beetle is most damaging in California, but its range extends northward into Oregon, Washington, Idaho, and southern British Columbia; eastward into Montana, Nevada, Utah, Colorado, Arizona, New Mexico, and western Texas; and southward into northwestern Mexico (USFS).

Meanwhile, Southern Pine Beetle has been found as far north as New Jersey and Pennsylvania, though it is found south to Florida and west to Texas. Isolated pockets have been found in New Mexico and Arizona. To date, Southern Pine Beetle is the most devastating tree pest found in the South, having caused $900 million in damage from 1960-1990 (Price et al. 1992).

**Treatment for Bark Beetles**

Research studies using TREE-âge® Insecticide (containing 4% Emamectin Benzoate) have demonstrated great results against conifer bark beetles, depending on the pest species targeted (labeled species include Ips Engraver Beetles, Mountain Pine Beetle, Southern Pine Beetle, Spruce Beetle, and Western Pine Beetle). You can expect TREE-âge to be systemically distributed throughout the treated tree and protect the tree from the pest for up to 2 years.

TREE-âge is designed for use with tree injection devices that meet the label and dose requirements (for example, the Arborjet TREE I.V.) for the control of listed pests of trees. Follow manufacturer’s directions for equipment use.

**Injection tips**

Resinous Conifers: In resinous conifers, such as pine and spruce, start the injection immediately after drilling into the sapwood. A prolonged delay may reduce uptake on account of resin flow into opening.

Placement of Injection Sites: Inject at the base of the tree. Inject into the stem within 12” of the soil, into the trunk or root flares. Make applications into intact, healthy sapwood. Do not inject into injured areas or areas with decay. Select injection sites associated with stem growth.

Number of Injection Sites: Work around the tree, spacing injection sites approximately every 4 inches of tree’s circumference.

Drill Depth: Drill through the bark then 5/8” to 1-5/8” into the sapwood with the appropriate sized drill bit. Use clean, sharp drill bits. Brad point bits are recommended. Precautions should be taken to avoid diseased areas and transferring infected tissues to other injection sites.

**References:**

1. Effectiveness of Two Systemic Insecticides for Protecting Western Conifers from Mortality Due to Bark Beetle Attack. Don M. Grosman, Christopher J. Fettig, Carl L. Jorgensen, and A. Steven Munson. Western Journal of Applied Forestry 25(4) 2010

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