



Red Turpentine Beetle

Forest Health Fact Sheet

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Red turpentine beetle adults are the largest (8mm long) bark beetles in North America

Red turpentine beetle (*Dendroctonus valens*) is the largest and most widely distributed bark beetle in North America. Attacks from this beetle are distinguished by the large pitch tubes they elicit from trees, and granular frass left at the base of trees that resembles Grape-Nuts. Despite their large size, attacks from this beetle alone rarely result in tree mortality. Infestation of red turpentine beetles are often associated with attacks from other bark beetles (*Ips* spp., mountain pine beetle and western pine beetle) or stresses such as drought, fire, logging or site disturbance, etc. This insect is a secondary pest whose presence indicates that a tree is stressed from one or more other factors.

Hosts

- Major: ponderosa and sugar pines
- Minor: lodgepole/shore and western white pines

Red turpentine beetles are widely distributed in pine stands across Canada and the U.S. (except for in the Southeastern and Gulf States).

Biology

Red turpentine adults attack April - September. In most areas of Oregon, this beetle has one generation per year, but in southwestern Oregon, two generations per year are possible. Larvae and adults overwinter. Adults are red-brown and around 8mm long.

Damage

Red turpentine beetles attack pole-sized and larger pines around the lower trunk and root collar. They may also infest cut stumps. Large (up to 2" wide) pinkish-white pitch tubes are usually the first sign of infestation. Red turpentine beetle pitch tubes are typically larger and lower on the bole than pitch tubes produced by [mountain and western pine beetles](#). They are also much smaller



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Pitch tubes and granular frass near base of a tree signifying red turpentine beetle attack

than pitch masses produced by [sequoia pitch moths](#), the latter of which tend to occur higher on the tree and/or near branches or tree wounds. Frass that closely resembles Grape-Nuts, is produced by red turpentine beetles and often accumulates on the ground below their pitch tubes. Removing bark from an infested tree or a stump may reveal their short, irregular, single chamber brood galleries which are filled with reddish-brown frass.

Beetle populations increase dramatically during periods of drought. Trees stressed as a result of thinning



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Irregular, single chamber red turpentine gallery packed with frass

operations, fire or land clearing are often infested by this insect. Outbreaks of more aggressive bark beetles, such as *Ips spp.* bark beetles, western and mountain pine beetles also lead to more attacks and therefore higher populations of red turpentine beetles. These various bark beetle species are often found within the same tree. *Ips* beetles attack the top of a tree, mountain pine beetles attack the main bole, and red turpentine beetles colonize the lower bole and root collar as secondary pests. Attacks involving only the red turpentine beetle are rarely numerous enough to cause tree death. However, when red turpentine beetle attacks occur in successive years, trees can be girdled and killed. As with most other bark beetles, red turpentine beetles vector fungi that hasten tree death by disrupting water transport. These fungi also stain (but do not decay) sapwood.

Management

Mechanical

Fresh cut stumps provide an ideal breeding site for red turpentine beetle. Debarking infested stumps kills adult beetles and their brood. Do not debark live trees in infested areas.

Silvicultural

Maintain vigorous pine trees by thinning overstocked stands. Avoid damaging the lower trunk and roots of

Management highlights

- Debark infested stumps
- Improve stand vigor by thinning
- Avoid damage to tree boles and roots
- Remove trees with >50% crown scorch or >25% cambium damage from fire
- Don't store freshly cut pine wood near standing pine trees
- Manage slash to simultaneously prevent *Ips* outbreaks

leave trees during thinning and land clearing operations.

Remove any mechanically damaged trees, or trees with >50% crown scorch or >25% cambium damage from fire.

Avoid placing freshly cut pine logs, firewood, or slash near green trees. The odor of fresh pine resin attracts red turpentine beetles.

In all pine stands manage slash for *Ips* beetles, which can cause additional tree stress and mortality.

Insecticides

There are preventative insecticides that can protect high-value trees but they are expensive and difficult to apply. In most cases insecticides are not advised for secondary pests such as red turpentine beetles.

When using pesticides, always read and follow the label



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Fire-damaged tree with multiple red turpentine beetle attacks

More information:

Oregon Dept. of Forestry, Forest Health
<http://tinyurl.com/odf-foresthealth>
 2600 State St. Bldg. D, Salem, OR 97310
 503-945-7200

Other references:

USFS Forest Health Protection
www.fs.usda.gov/goto/fhp/fidls

OSU Forestry Extension
<http://extensionweb.forestry.oregonstate.edu/>