



# Forest Pest Fact Sheet

## Red Turpentine Beetle (*Dendroctonus valens*)

### Hosts

Red turpentine beetle (RTB) (**Figure 1**) can attack many types of conifers, both native and non-native species, but in Idaho it is most common in stressed ponderosa and lodgepole pine and in recently cut stumps. Unlike many other species of *Dendroctonus* bark beetles, RTB does not usually kill its host tree.

### Distribution

RTB occurs throughout Idaho wherever the hosts occur, and is widely distributed in North America. Although it is not normally damaging within its native range, RTB became a major invasive tree killer in China after being introduced on infested pine logs in the 1980s.

### Life Cycle

In Idaho, RTB usually has one generation per year. Beetles fly in spring to search for suitable hosts and are attracted to the odor of tree pitch. RTB adults may be spotted flying around during peak flight, especially near recently cut or injured trees. Females attack trees first and tunnel into the inner bark at or near ground level. They begin constructing egg galleries and attract males with pheromones. Eggs are laid in groups beneath the bark. In 1 to 3 weeks, eggs hatch and larvae begin to feed in the tree's conductive phloem tissue. Unlike other bark beetle species where larvae maintain individual feeding galleries, RTB larvae feed in groups and create a fan-shaped gallery, killing a patch of tissue (**Figure 2**). RTB feed and develop until fall, overwintering as adults beneath the bark, and emerge in spring to carry out new attacks.

### Recognition

Adults are reddish brown in color and about 1/4" - 3/8" (6-8mm) long, making them the largest bark beetles in western North America (**Figure 1**). However, other bark beetles can look similar, and it is easiest to identify RTB by the signs and symptoms of attack. Attacks typically occur on the lower portion of the trunk, below eye level, where RTBs leave large, reddish pitch tubes (**Figures 3 & 5**) and granular boring dust (**Figure 4**). Not all attacks are successful and some trees may be able to "pitch out" the invader (**Figure 6**). Galleries are relatively large and wide in comparison to other bark beetle species that may be present in the tree. However, it is not recommended to chop into otherwise undamaged trees to examine RTB galleries.



**Figure 1.** Adult red turpentine beetle (1/4—3/8 inch long). *Photo: Ladd Livingston*



**Figure 2.** Larvae feed in groups under the bark. *Photo: Ladd Livingston*



**Figure 3.** Pitch tubes on lower portion of trunk.





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## Damage

RTB often attacks trees under stress, such as trees experiencing drought, mechanical injuries, or scorch after a fire. Trees near recently cut stumps, fresh chips, or fresh slash may also be attacked due to the attractive odors of the cut trees. Western white pine that are pruned during the beetles' flight period (spring and summer) are sometimes attacked. Because RTB only kills patches of tissue near the base of the tree, trees are rarely killed by RTB alone. However, subsequent attacks by other bark beetle species such as western pine beetle (*Dendroctonus brevicomis*) can attack ponderosa pine and cause tree death. RTB also transmits blue-stain fungi, which inhibits translocation of resources within the tree and stains parts of the sapwood blue.

## Preventive Management

When thinning or harvesting in a forest, precaution should be taken to minimize injury to standing residual trees. High-value trees in intensive-use areas (near roads and/or home construction) should be protected from trunk injury, root damage and soil compaction. During beetle flight (spring and summer), avoid pruning pines if possible and spread fresh chips or slash away from standing trees. Schedule management activities for late summer or fall when beetle flight numbers are lower. High-value trees can be protected with preventive bark sprays during periods of high risk (nearby cut or damaged trees or acute tree stress). It is important to use a pesticide specifically formulated for bark beetles, to recognize that these pesticides only provide short-term protection, and to remember that RTB is not usually a tree-killer. There are currently no preventative pheromone treatments for RTB. Please contact Idaho Department of Lands entomologists for assistance before considering spraying. **Read and follow all insecticide label directions.**

## Long-term Management

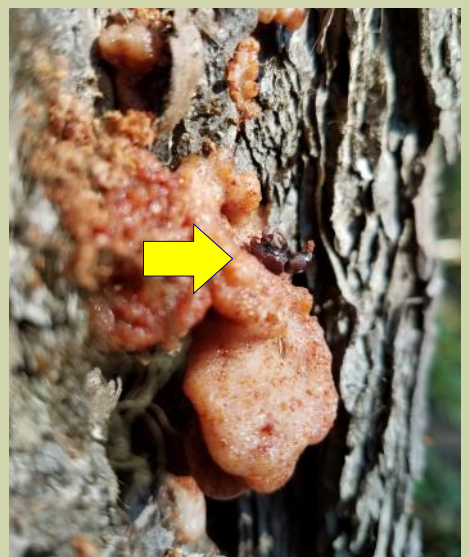
Look for evidence of other injury or disease on attacked trees. RTB attacks on healthy trees are unlikely and usually indicate some other stress factor affecting the stand. Monitor trees for additional attacks by other bark beetles, especially the western pine beetle. Maintaining tree health, thinning to promote vigor, and avoiding tree damage are the most important preventive measures that can be taken to protect against bark beetle attacks.



**Figure 4.** Granular boring dust at the base of a tree attacked by RTB.



**Figure 5.** Pitch tubes with "successful" entry holes.



**Figure 6.** Red turpentine beetle 'pitched out' by tree defenses.