



# Forest Insect & Disease Leaflet

## Red Turpentine Beetle



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The red turpentine beetle (RTB) (*Dendroctonus valens* LeConte), a bark beetle, is the largest *Dendroctonus* spp., but infrequently kills trees. The adult beetle average size is 1/4-3/8 inches long. It is the most widely distributed bark beetle in North America. It has a red-brown- black color and is typically found in stressed pine species that are larger than 8 inches in diameter.

**Hosts**—All pine species and rarely other conifers such as spruce, true fir and Douglas-fir.

**Life Cycle**—RTB peak flight occurs from spring to early summer. Beetles emerge from infested stumps and trees and attack nearby stressed trees, exposed roots, or freshly cut stumps. In summer, eggs hatch in 1-3 weeks and larvae feed gregariously before overwintering; adults may also overwinter. One generation per year is typical, but can vary depending on location and temperature.



Red Turpentine beetle Adults.

Photo by Runzhi Zhang--Nature

**How to recognize RTB attack**—Trees that have been stressed by drought, nearby construction, soil compaction, over-watering and other issues, are often attacked by RTB, which can make them more susceptible to attack by other bark beetles. It is not uncommon for RTB to co-attack trees with other bark beetles.



Large pitch tube near tree base and white granules

Red turpentine beetle attacks generally start near ground level and most often occur below 8 feet. Attacks are often noticed by the presence of large light pink to reddish brown pitch tubes around the base of the tree and/or white granular material on the ground. RTB pitch tubes may be as large as 2 inches in diameter, much larger than the pitch tubes of other pine infesting bark beetles. The large pitch tubes and their location on the lower tree bole or root collar, galleries, and



Group feeding larvae

beetle size distinguish red turpentine beetle from other bark beetles. RTB pitch tubes can also be mistaken for sequoia pitch moth pitch masses, which tend to occur higher on the stem, usually near branch unions. A distinct feature of RTB larvae is that they feed as a group, while most other bark beetle larvae maintain separate feeding tunnels.

**Control/Prevention**—The best defense against RTB attack is to maintain the health of susceptible trees. Evaluate and manage site and environmental stressors or other insect and diseases agents that may predispose pines to attack. Minimize or avoid damage to forest stands or individual trees through improved logging, construction, and management practices that protect trees and their root systems. In a forest setting, thin host trees to reduce stress and increase vigor. Freshly felled tree stumps, fire scorched trees, exposed roots of live trees, and trees with compacted soil around them should be treated or removed.

The principle stress factor associated with susceptible trees is usually water related. Watering requirements depend upon soil composition and root development. If possible, trees should receive a deep watering (2 - 4 inches of water) once every 3 - 6 weeks; depending upon soil composition and its ability to retain water. Most of the water should be applied from the base of the tree past the trees drip line, near the edge of the branches, continuing to water about 10 to 15 feet past the drip line. The top 18 inches of soil should remain moist, but not soaked. Over-watering trees can be just as damaging as under-watering. If water continually accumulates around the tree or the area is always muddy, then over-watering is occurring. Trees currently under stress often require 2 - 3 years to recover from stress-induced events. As tree health improves, resistance to bark beetle attack increases.

If a tree has only a few attacks, then it may survive, however sometimes it doesn't, which depends on where the attacks are located and their vicinity to each other. Lightly infested or uninfested high value trees may be treated to protect them from RTB attack. Certain pesticide formulations containing Carbaryl\*, or Permethrin\* have been effective at preventing RTB attacks, when applied correctly to the lower 6-8 feet of the tree. However, other species of bark beetles could attack the upper portions of stressed trees. Therefore, also treating the upper portions of the tree may protect against other bark beetle attack.

\*Mention of products or companies by name does not constitute endorsement by the Division of Forestry, Fire and State Lands, nor does it imply approval of a product to the exclusion of others that may also be suitable

***Always use EXTREME CAUTION when applying pesticides/insecticides. Always follow label instructions and safety recommendations.***



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