



Red Turpentine Beetle

Dendroctonus valens



HOSTS: PONDEROSA AND LODGEPOLE PINE

Red turpentine beetle preferentially attacks trees that are fire-scorched, diseased, injured, or even attacked by other bark beetles.

DAMAGE: VARIABLE

Healthy trees are rarely killed. Because this species opportunistically attacks trees that are already stressed/damaged, it can be hard to separate RTB impacts from other factors.



RTB pitch tubes



Light RTB attack

Heavy RTB attack

Ecology

Red turpentine beetle (RTB) is native to North and Central America. It infests pine species within its range, living in and feeding on phloem (the vascular tissue that transports water and sugars throughout the tree). Red turpentine beetle is considered non-aggressive, since it rarely kills healthy pines. Red turpentine beetle is attracted to the odor of turpentine, which is released when pines trees are cut or injured. The beetle generally infests slash, fresh logs, and stumps in addition to weakened trees. Attacks on trees are usually limited to the lower trunk and roots. In response to attack, trees release resin, forming pitch tubes. Impacts from RTB are often limited to individual trees. Outbreaks are rare, and if they do occur, are localized.

Populations can build up after fire, timber operations, or other events that cause damage to trees. Rising RTB numbers increases the likelihood of trees being attacked. Trees attacked by RTB may also be colonized by other bark beetles and woodborers.

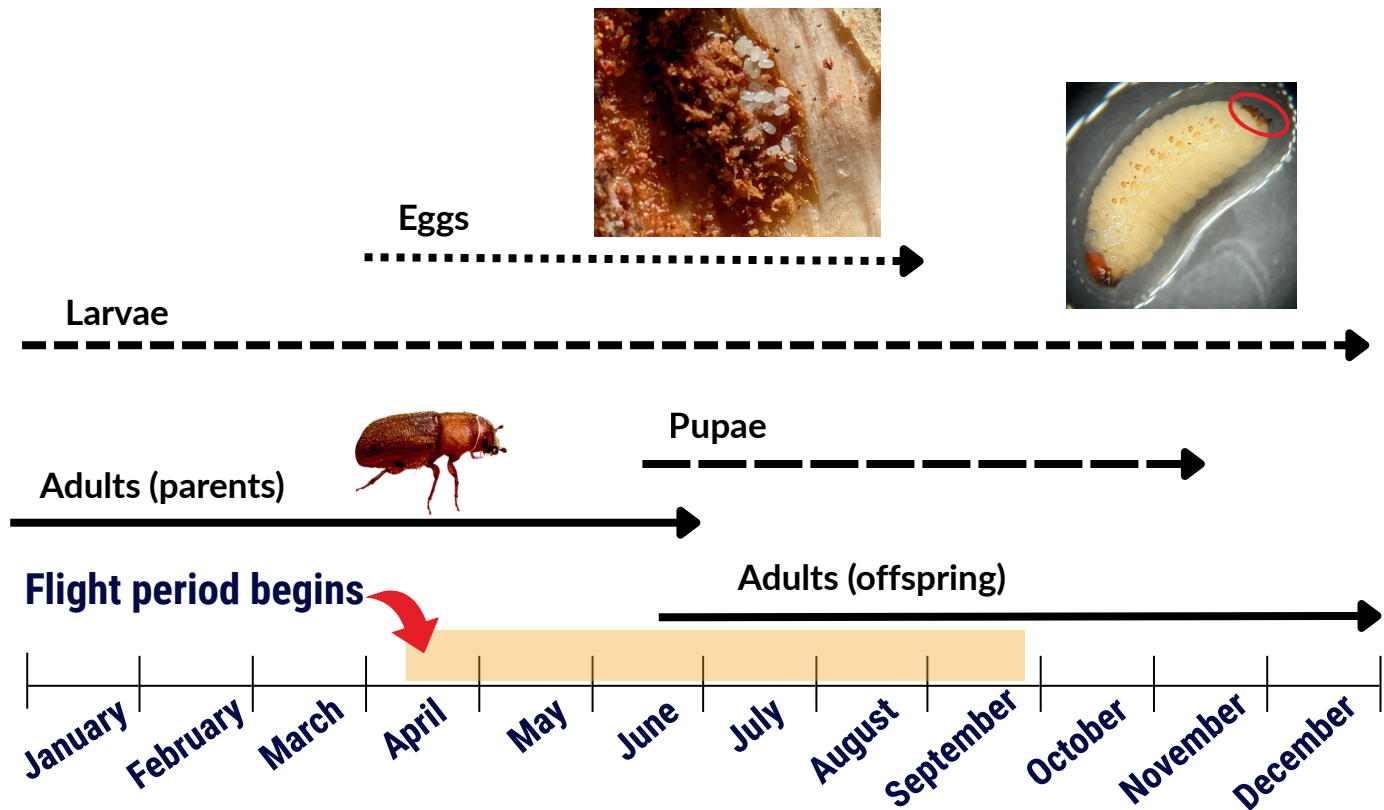
Identification

- Large clusters of boring dust at base of tree
- Crowns of infested trees remain green (but may fade if tree is under attack from other insects)
- Masses of red-orange pitch in lower 6 feet of the trunk and roots
- Fresh pitch tubes are sticky and shiny, and vary in color from white to pink to red. Older attacks can be identified by hard and yellow/gray crumbling pitch tubes.
- Chamber excavated under bark, as opposed to distinct galleries typical of other bark beetle species
 - Larvae feed in groups, creating irregular fan- or cloud-shaped galleries
- Presence of brown adult beetles approximately $\frac{1}{4}$ inch long (largest of all bark beetles in Montana) or presence of small white larvae (less than $\frac{1}{4}$ inch)
- Larvae have spines at end of abdomen

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Life Cycle

Red turpentine beetle adults typically fly and attack new trees in the spring, and may continue to do so throughout the summer and early fall. Females are the host-selecting sex, and produce the pheromone frontalin to attract males. After mating, eggs are laid, which later hatch into larvae. Development of offspring can vary in timing and overlapping generations can be present in a single tree, as females can lay multiple broods in the same host. The life cycle can be completed in less than a year in warmer areas, or take up to two years in cooler locations. The life stages that overwinter are larvae and adults.



Management

- Avoid tree damage, particularly fire scorch, mechanical injury and soil compaction.
 - Maintain a 40-50 foot barrier between large pines and construction activities (paving, grading, trenching, root smothering, etc.)
- Thin stands to reduce competition and promote individual tree vigor.
- Remove infested slash, stumps, severely scorched and/or wounded trees to prevent populations spilling over into nearby healthy trees.
- Monitor for activity. If five or more new pitch tubes appear over 1-2 months, assess tree for underlying causes of decline: disease, wounds, fire damage, other insect infestations, etc.