

# Conifer Bark Beetle

## TREE DOCTOR TIPS

### Conifer Bark Beetle

#### DESCRIPTION:

Conifer bark beetles are beetles (of varying species) that tunnel just beneath the bark of conifer trees. Bark beetles account for over 90% of insect-related timber losses in the United States.

#### HOSTS:

Conifer bark beetles attack pine, spruce and douglas fir trees, usually when the trees are stressed or weakened. More trees die from bark beetles following and during hot, dry summers. Conifers on poor sites, in dense stands, or those suffering from construction injury are also more susceptible.

#### BIOLOGY AND SYMPTOMS:

Regardless of species type, conifer bark beetles have similar life cycles. Adult beetles first bore into trunks. Healthy, vital trees resist attacks by producing enough resin to force the attacking beetles out of the holes. Weakened trees are vulnerable because they cannot “pitch out” the beetles. The beetles carry a fungus on their bodies that may be introduced to the inner wood surface. This fungus spreads into the sapwood and stains the wood blue. Once beneath the bark, the attacking beetle makes a mating chamber and “calls” to the opposite sex with chemical attractants. The female lays her eggs in the galleries adjoining the mating chamber. After emerging, young grubs begin to feed on the sapwood and inner surface of the bark. After the grubs change into adult beetles, they chew their way out of the tree, leaving small holes behind. Newly emerged beetles leave the brood tree, fly to nearby trees and repeat the cycle in as little as one month when conditions are favorable.

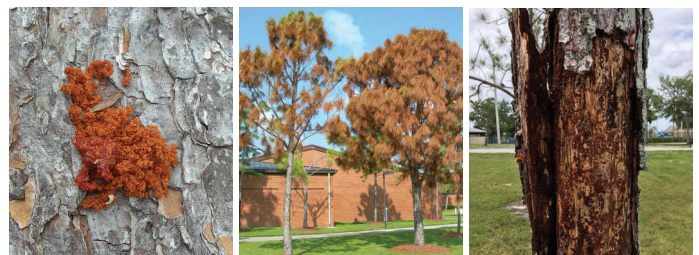
The most noticeable symptom of attack is discolored foliage. Needles progress from green to pale green, to yellow to red or brown over a period of one to four months to one to two years from the time of the first attack. Browning occurs faster during periods of drought or other environmental stress. Single trees are usually attacked initially, with the infestation spreading to nearby trees over time. Close inspection of infested trees may reveal pitch tubes produced in response to the initial borings of adult beetles. Pitch tubes may not form in dry weather or on stressed trees. In these situations, red dust in bark crevices,

on spider webs or on the ground may be the only visible signs. Exit holes, made by newly emerged adults tunneling out from under the bark, will also be present.

#### MANAGEMENT:

Management of conifer bark beetles begins with preventative care. Since the beetles are primarily attracted to stressed trees, cultural practices that maximize vitality will reduce susceptibility. Mulch to conserve moisture, improve soil conditions and help prevent trunk injuries. Provide one to two inches of water per week (rainfall counts). This is critical during drought periods. Closely spaced trees are more susceptible to infestations and may need to be thinned to improve stand health. Fertilize properly to give your trees the elements they need to optimize their energy reserves. Avoid planting conifers on poorly drained, heavily shaded or drought susceptible sites.

When conifer bark beetles are already present, few options exist. Remove heavily infested trees or severely injured trees as soon as possible, to eliminate breeding sites for more beetles. They cannot be saved and increase the risk of impacting other trees. Depending on the species involved, trees under initial attack or unaffected trees nearby may benefit from insecticidal treatments. However, in order to be effective, these treatments must be applied at regular intervals. Foliar applications will not kill insects already present inside the tree. They act by repelling or destroying adult beetles as they burrow into or out of the trees. In most cases, removing infested trees and initiating a cultural program to prevent tree loss is the best choice. Applications of systemic insecticides through trunk injection may also help preventatively or help control early infestations.



ABOVE: BARK BEETLE DAMAGE

*The scientists at **The Davey Institute** laboratory and research facility support our arborists and technicians in diagnosing and prescribing based on the latest arboricultural science. For specific treatment and application details, your arborist may consult *The Davey Institute PHC Handbook*.*

