Bark Beetles in the Western States

USDA Forest Service
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Issue:

Bark beetles have killed millions of acres of trees throughout aging western forests. Even though they are a natural part of the cycle of renewal in coniferous forests, outbreak populations can sometimes conflict with management objectives. Currently, increased stresses from overcrowding and drought have made western forests susceptible to beetle attack. Without cold winters to reduce beetle populations, tree tolerance mechanisms that used to effective are not working. Beetles often complete their life cycle in less time than normal and some species are active in cold, high-elevation forests where outbreaks were previously rare.

Research shows:

- Forest susceptibility to bark beetles is reduced by thinning which opens up dense stands and creates tree conditions that are more vigorous.
- Logs and slash debris from thinning must be removed from the site to prevent beetle population buildup.
- Individual high-value trees and sites (campgrounds, scenic corridors, cultural resource sites, administrative areas) can be protected with bark-beetle-specific pheromone repellents.
- The potential influence of climate change on future bark beetle outbreak patterns may be dramatic.

Research continues on beetle response to vegetation treatments, evaluating long-term outcomes and interactions with fire, diseases and blowdown. A detailed synthesis of research results was written to provide information for land management decisions. See http://www.treesearch.fs.fed.us/pubs/25555

Management activities:

- In FY06, 42,000 acres were treated west-wide, using the best science to minimize beetle-caused mortality, including environmentally sensitive measures such as specific pheromones and preventive thinning to reduce risk before an outbreak occurs.
- Treatments have been limited to areas of special concern and high value, including developed campgrounds, trailheads, ski areas, water supplies and lands in the wildland-urban interface.
- Risk rating, ground surveys, and beetle populations at outbreak levels indicate that the mortality will likely increase in the future and treatments will need to continue. Long-term solutions lie in restoring ecological conditions to a healthier state.
- The recently revised *National Insect and Disease Risk Map* estimates that approximately 22 million acres of western forests could experience bark beetle-caused mortality over the next 15 years. The Western Forestry Leadership Coalition prioritized areas on this map in their 2007 "*Western Bark Beetle Assessment: A Framework for Cooperative Forest Stewardship*" to 2.4 million acres of highest priority need.

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