Media Kit Contents

60 Seconds on Bark Beetles

Tiny insect creatures – bark beetles – are greatly increasing the risk of wildfire in California. They thrive in trees that are stressed, diseased or injured, either by human activity or during storms, drought or wildfires. Bark beetles multiply in weakened trees, strangling them by cutting off nutrients. Dead trees become ready fuel for wildfires, increasing risk to homes, property and lives in an already dangerous wildfire situation because of California's drought conditions.

Bark beetles are small (less than a ¼ inch), hard-bodied insects that attack a tree's bark surface and continue to the inner bark of the twigs, branches and trunk. Then, they lay their eggs in the inner bark. Trees react by releasing a sap (or pitch) as a natural defense against the attack in the form of a ½-¾-inch pitch tube outside the trunk of the tree. A healthy tree's pitch tube will be white in color. If the pitch tube on a tree is reddish brown, it has been infected by bark beetles.

Signs of bark beetle infestation can also be seen on the leaves and needles. The needles will begin to turn a reddish-brown color and may begin changing color at the top of the tree and move down.

Also, bark flaking or holes in the bark caused by woodpeckers foraging for bark beetles is a good indicator bark beetles are present.

Once a tree is infested with bark beetles, it can be dead in 2-4 weeks creating an immediate wildfire threat. Bark beetles aren't dangerous under normal conditions, but when trees are weakened due to lack of water from California's prolonged drought, they are more susceptible to attacks from bark beetles.

What to look for:

These photos and more are available on the CAL FIRE Flickr account: https://www.flickr.com/photos/calfire/

Adult bark beetle on a quarter (www.sbcounty.gov)

Outer bark showing entrance/exit holes made by adut bark beetles (www.sbcounty.gov)

The bark beetle is tiny (www.kcet.org)

Important Statistics

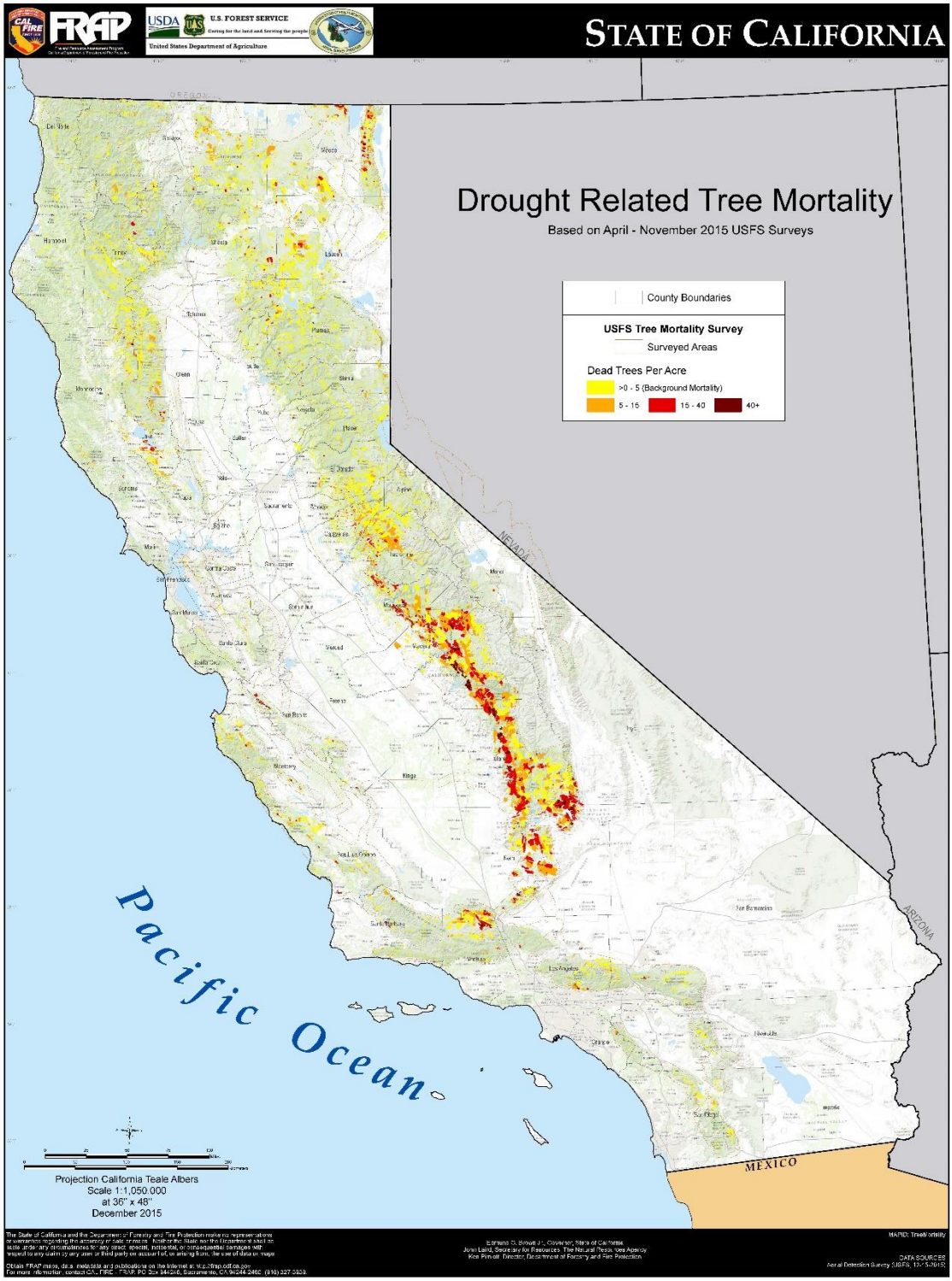
- More than 29 million trees, mostly conifers (pines), have died from drought and bark beetles in California. In some communities, up to 85 percent of forest trees have died, becoming dry fuel for wildfire.
- CAL FIRE and the U.S. Forest Service mapped tree mortality across 3 million acres of forested land in 2015, compared with 900,000 acres in 2014, according to the annual U.S. Forest Service Aerial Detection Survey.
- Tree mortality from drought and bark beetles increased more than eight fold in California forests last year and is expected to increase even more this year.
- There are more than 600 species of bark beetles in the U.S., including 200 in California.
- Even if the drought were to end this year, it is likely the bark beetle epidemic will last three to five more years. This is due to the bark beetle population not diminishing until then and trees still suffering from the effects of drought.
- Bark beetles are not much larger than a piece of cooked rice.
- One mating pair of bark beetles can reproduce more than 12 million beetles a year.
- Bark beetles attach to the tree's bark surface and bore into the inner bark of the trunk, branches and twigs where they lay their eggs. When the larvae feeds on the tree's living tissues, it cuts off the tree's natural process for transporting nutrients.

Where to find more information:

- www.prepareforbarkbeetle.org
- www.readyforwildfire.org
- www.fire.ca.gov

Statewide Map (of affected areas)

To view this page, visit http://egis.fire.ca.gov/DroughtEmergencyViewer/



Frequently Asked Questions

Q. What is tree mortality?

A. Tree mortality means trees have died. Trees dying is a normal occurrence in natural ecosystems. The difference now is that the extended drought has caused an abnormally high number—in the millions—of trees in California's forests and wildland-urban interface areas to weaken and/or die. Weakened trees are more susceptible to attacks from bark beetles. Once a tree is successfully invaded by bark beetles, there is no recovery for the tree; it will die.

Q. How significant is California's tree mortality from bark beetles and drought?

A. According to the U.S. Forest Service, tree mortality from bark beetles and drought has reached over 29 million trees, up from 3.3 million trees in 2014. Most tree mortality in California has occurred in the southern Sierra Nevada and the Central Coast. Researchers at the Carnegie Institution for Science have learned that approximately 58 million additional large trees are suffering from severe canopy water losses.

Q. What trees in California are dying in the greatest numbers from drought and bark beetle?

A. Ponderosa pine, Jeffrey pine, and pinyon pines are most impacted by bark beetles, but many trees have died just from lack of water in the current drought. Most other pine species, white fir and incense-cedar are also heavily impacted by the prolonged drought and by bark beetles. There is also an increase in tree mortality among oaks, although it is primarily attributed to drought, not bark beetles.

Q. What are bark beetles?

A. Bark beetles are small insects, generally black, hard-shelled and approximately 5 millimeters in length—about the size of a piece of cooked rice. Bark beetles tunnel under bark, cutting off the tree's supply of food and water needed to survive. Bark beetles can kill a tree in as little as two to four weeks during warmer months.

Q. How do I identify bark beetles?

A. In bark: Look for reddish-brown pitch tubes. These ½-¾ inch blobs of sap on the outside of a tree trunk are a sign that bark beetles successfully attacked the tree.
Leaves/needles: Needles on dying conifer trees and pines begin to turn a reddish-brown and often start changing color at the top of the tree. The color change gradually moves down the tree. Other trees may slowly fade from green to brown.
Outside of tree: Flaking bark, or holes in the bark caused by woodpeckers, are good indicators that bark beetles or other insects are present.

Q. How do I know if a tree is dead from bark beetles?

A. Early signs may be difficult to interpret, but if there are signs that bark beetles have successfully attacked a tree (see above), the tree is dead or will die soon. It often takes months for outward signs of mortality to show.

Q. If there are dead trees on my residential property, what should I do?

A. Dead trees need to be removed. They are a fire hazard because they are fuel for wildfire to burn. Standing dead trees will rot, becoming unstable, and will eventually fall. Dead trees can fall on people, homes, buildings and infrastructure, such as power lines. The sooner a tree is removed the better. The more it rots, the more unstable it becomes. For larger trees located near houses and

other infrastructure, foresters and arborists prefer to remove them in pieces. However, if the tree is too rotten, it is unsafe to climb and difficult to predict where it will fall.

Q. Whose responsibility is it to remove a dead tree?

A. On private property, it is the responsibility of the property owner to remove dead and dying trees. It is recommended that landowners consult with a licensed professional forester or arborist if they are unfamiliar with tree harvesting practices.

Q. I can't afford to remove my trees, what should I do?

A. Investigate local assistance opportunities. Most likely there are others in the community with a similar situation. There may be local efforts to help those needing assistance. Talk to your local Fire Safe Council or your local fire department. The state's Tree Mortality Task Force is looking for opportunities to host "funding fairs" in affected communities where local groups and individuals will be able to meet with multiple agencies to talk about available funding. Information on these funding fairs will be posted on www.PrepareForBarkBeetle.org.

Q. What do I do with my dead trees now that I've cut them down?

A. You can either leave the dead trees on your property or you can have them removed. If you are leaving the trees on your property they need to be properly handled. If you plan on using the wood for firewood, cut to the appropriate size and store. Wood from bark beetle-infested trees can be covered with plastic, following a specific technique to kill the beetles, and left covered for several months. See Tree Note 3 for more information. If wood is not going to be used, lop—or chip and scatter—the wood. The smaller the pieces the better. Chipping will kill bark beetles and the smaller pieces are less of a fire hazard.

Q. Can dead trees be burned?

A. Yes, on permitted burn days. Check with your local fire station, CAL FIRE office, or air quality district for details on burn days and proper burning requirements.

Q. Do I need to hire a licensed tree service or can I cut down dead trees on my property?

A. It is highly recommended that you hire a professional to cut down your trees, as tree removal can be dangerous. Falling trees can also be hazardous to people, nearby buildings, cars, other trees and infrastructures. It is also a good idea to make sure you, or your contractor, have adequate liability and damage insurance coverage.

Q. What environmental requirements are there for removing dead trees on my property?

A. An emergency regulation by the California Board of Forestry and Fire Protection in 2015 allows for an exemption to cut dead and dying trees of any size without the normal regulatory requirements such as a timber harvest plan, submission requirements, and completion and stocking report requirements. For more information visit: http://www.ReadyForWildfire.org/Dead_Tree_Removal

Q. How do I prevent bark beetles in the future?

A. The best way to prevent bark beetles is by following best forest health practices. In order to do this, you need to plan for extreme weather years. Ensure that trees are widely spaced, and that the number of trees growing on your land is appropriate for the acreage in order to reduce competition for limited water, light and soil nutrients. There are some professional chemical treatments that may help trees fight off bark beetles, but they have not always been proven to work.