



FORESTRY

Insects and Diseases Associated with Forest Fires

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by D. Leatherman¹

Quick Facts...

Wood borers are instrumental in beginning the breakdown processes that prepare nutrients for reuse by subsequent plants.

The presence of bark beetles, including *Ips*, is indicated by a brown boring dust located at the base of the tree or masses of resin (pitch tubes) on the trunk.

Bark beetle activity in burn areas should be monitored and managed to keep losses within acceptable limits.

Wood borers only attack highly-stressed trees or wood pieces with the bark still attached. The presence of wood borers is not a major concern to healthy trees or other wood (such as furniture).

This fact sheet discusses: organisms and damage commonly seen during or immediately after a fire; and organisms and damage associated with fire-affected trees (including salvaged logs and firewood) within the first few years after a fire event.

During the fire and “mop-up” operations, many firefighters report swarming insects. Collectively termed “fire bugs,” these insects are harmless to people and are most often some type of wood borer. The most common wood borers are longhorned beetles (Family Cerambycidae), metallic wood boring beetles (Family Buprestidae, with members of the genus *Melanophila* being the “fire bug”), and wood wasps (also called horntails, Family Siricidae). Many wood borers use smoke as a pathway to the recently-damaged or killed trees which they favor. This is their ecological role and they are instrumental in beginning the breakdown processes that prepare nutrients for reuse by subsequent plants.



Adult longhorned beetle.

Bark Beetles

Within a year or two following the fire, many other organisms respond to the fire-induced changes. Insects such as bark beetles colonize burned trees that still have a viable inner bark. These beetles, including those in the genera *Ips* (“engraver beetles”) and *Dendroctonus* (including Douglas-fir beetle, red turpentine beetle, and mountain pine beetle), can kill trees that otherwise would not have died from the fire affects alone. A brown boring dust located at the base of the tree or masses of resin (pitch tubes) on the trunk indicates the presence of these



Adult metallic wood borer.



Adult wood wasp (or horntail).

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Ips boring dust.



Dendroctonus pitch tubes.



Larval cerambycids.

insects. Homeowners may want to preventively spray high-value conifers damaged – but not killed – by fire to prevent bark beetle attack. Also, bark beetles can accumulate in burned trees and then spread to nearby healthy trees causing even more damage. Therefore, bark beetle activity in burns should be monitored and managed to keep losses within acceptable limits.

Wood Borers

Wood borers develop inside damaged trees and emerge one to several years after the initial egg-laying. The large, white, segmented wood borer larvae are responsible for the munching sounds often reported by visitors to burned areas or by owners of salvaged logs and firewood. Sometimes the noise caused by their jaws scraping on wood under the bark can be heard up to several yards away! In addition to these tell-tale sounds, wood borer activity within snags or cut wood may be indicated by whitish, powdered or granular, boring dust accumulating in bark crevices and at the tree base. Wood borers only attack highly-stressed trees or wood pieces with the bark still attached, so the presence and emergence of wood borers is not a major concern to healthy trees or other wood (such as furniture). Their only negative impacts are lumber degrade in special situations and misunderstandings about their somewhat ominous appearance.



Cerambycid boring dust.

Other Insects and Fungi

Insects to expect in fire-killed trees following bark beetles and borers are carpenter ants. Unlike termites, they do not eat the wood but use semi-rotten areas for colony nests.

Many fungi also respond after wildfires. Taking up residence in wounds directly induced by the fire or created by wood borers, decay fungi quickly colonize fire trees. The spore-producing bodies of these fungi (conks) appear as woody projections or “shelves.” Mushrooms or conks on the bark of a standing snag or downed log indicates rotten wood for one to several feet above and below it.

Many conifer forest burns experience the widespread appearance of pine fire fungus (*Rhizina undulata*). This fungus forms irregular, oval, brown fruiting bodies on the charred soil. It may be abundant but not very easy to see. Its purpose is to help process the duff and upper soil layers, but it also can cause a root disease of conifer seedlings trying to form the next forest.



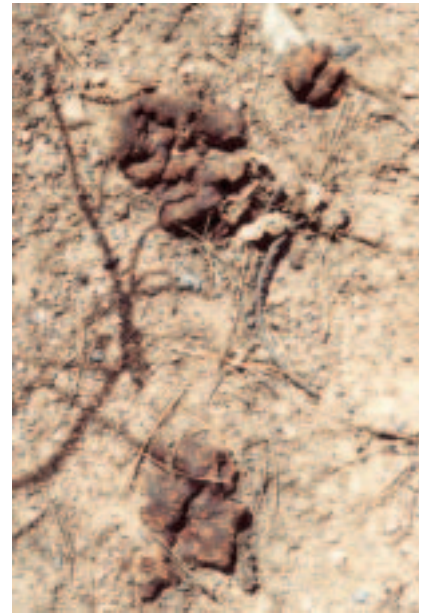
Decay fungus conks.



Mushroom found in openings.



Internal decay.



Pine fire fungus on forest floor.



FIREWISE is a multi-agency program that encourages the development of defensible space and the prevention of catastrophic wildfire.



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¹Colorado State Forest Service entomologist.

Also, other fungi and mushrooms typical of so-called disturbed or “early succession” sites may appear. Collectors of edible fungi should practice caution and normal identification standards before eating anything found at fire sites.

Of course, many other organisms can be associated with fire – this publication gives just the highlights. Please direct further questions to your local Colorado State Forest Service office.

References

USDA Natural Resources Conservation Service, New Mexico State Office, 6200 Jefferson NE, Albuquerque, NM 87109; (800) 410-2067; www.nm.nrcs.usda.gov:

- USDA NRCS fact sheet, Vegetation Establishment for Soil Protection
- USDA NRCS fact sheet, Temporary Erosion Control Around the Home Following a Fire
- USDA NRCS fact sheet, Straw Mulching
- USDA NRCS fact sheet, Contour Log Terraces
- USDA NRCS fact sheet, Straw Bale Check Dam
- USDA NRCS fact sheet, Silt Fence
- USDA NRCS fact sheet, Drainage Tips

From Colorado State Forest Service, Colorado State University, Fort Collins, CO 80523-5060; (970) 491-6303; Fax (970) 491-7736; www.colostate.edu/Depts/CSFS:

- 6.302, *Creating Wildfire Defensible Zones*
- 6.303, *Fire-Resistant Landscaping*
- 6.304, *Forest Home Fire Safety*
- 6.305, *FireWise Plant Materials*
- 6.306, *Grass Seed Mixes to Reduce Wildfire Hazard*
- 6.307, *Vegetative Recovery after Wildfire*
- 6.308, *Soil Erosion Control after Wildfire*

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