

after the fire

Safety Tips When Working in Wildfire Areas

Hundreds of thousands of acres have been affected by the fires in California. Many people will be working on these sites in post-fire cleanup and restoration operations, and many safety hazards may be present. Before heading out into the field to work in fire-affected areas, everyone involved should familiarize themselves with the following information. At a minimum, the following equipment should be considered and used when appropriate before entering a burn area:

1. **Hardhat** - A hardhat can protect you against a head injury from falling trees or debris. Look for hardhats that meet American National Standards Institute (ANSI) requirements: Z89.
2. **Leather gloves** - All workers who will be around debris from the fire should have a good pair of well-fitting work gloves. Gloves that are too thick, or that don't fit right, may limit your dexterity. Gloves made of leather or canvas, that extend above the wrist, will help to prevent cuts and other injuries.
3. **Sturdy boots or other appropriate foot wear** - The large amount of debris on fire sites can cause foot injuries both from materials falling on the foot, and from materials in debris piles puncturing the sole of the shoe. Your footwear should provide both toe and sole protection. Waterproof boots may also be necessary because some sites may be wet. Whatever foot protection you use it should also have good traction.
4. **Eye protection** - Use safety glasses or goggles, particularly if work involves the use of power or impact tools. Eye injuries are a common problem for recovery workers. Smoke and ash from fires can also irritate the eyes. Goggles may reduce eye irritation from smoke and/or wind-blown dust and ash.
5. **Long-sleeve shirt and long pants** - At a minimum, you should wear a long-sleeved work-shirt and long pants to protect yourself against injury from abrasive materials on the site.
6. **Mouth and nose protection/dust mask, N95 mask, respirator** - N95 facemask or respirator should be used if working for extended periods in the presence of smoke or in recently burned structures. A filtering facepiece (dust mask) with two straps can protect against airborne dust and open landscape ash but cannot protect against hazardous materials, such as lead and asbestos, gases or vapors, or toxic air borne ash from burned homes. A N95 mask or respirator should be used in these cases.

Post Fire Safety Considerations

Falling trees represent a primary risk to individuals working in burn areas. Trees that have been even partially burned may have weakened trunks and/or roots, and can fall at any time, putting anyone on site at risk. Even unburned trees may fall unexpectedly due to increased exposure to wind after a fire or from a domino effect.

When electing to work in an area that still contains hazardous trees, the following guidelines can help reduce safety risks:

Never enter burn areas on windy days especially where there are trees and/or toxic ash! It is best to postpone field work if high winds are predicted. If winds occur during a site visit then everyone should move to a safe area.

Assume that every tree in a burn area is a hazard tree, even unburned trees. However, trees with obvious defects should be especially avoided. Beware also that some trees may still be smoldering and could reignite and/or be dangerously hot.

Don't work in the vicinity of dead and blackened trees or trees with:

- Less than 50 percent live foliage
- Trunk injuries or large broken branches
- Lightning scars below the top fork
- Significant root damage, including trees that were either undermined prior to the fire or as a result of damages caused by the fire-fighting effort.

Consider flagging around obvious hazard trees in advance to make them more identifiable to anyone working in a burn area.

Avoid any physical contact with hazardous trees and maintain personal awareness.

If the wind increases and trees are swaying or you are concerned about the falling risk, leave the area immediately for a pre-designated safety zone.

Note: Fire damaged trees should not be removed too soon unless they present an immediate hazard to life and/or high value property improvements, essential access routes and/or utilities. Many trees may have only suffered heat and/or smoke damage and even scorched trees may survive. Removing trees will also create other potential hazards with the disruption of soil, slopes and other protective vegetation. A registered professional forester or certified arborist should be consulted for a complete analysis of potential tree issues and hazards following fire.

Tripping/Falling Hazards - Steep, barren slopes in burned landscapes can be difficult to navigate. Always move with caution in burn areas, and be sure to not dislodge rocks or logs that could roll down-slope and injure someone or cause damage.

Beware of hidden underground hazards where stumps, buried plastic pipelines and culverts, old abandoned redwood septic tanks, etc. have burned out in the fire which leave hollow areas "sink holes" underfoot that are tripping hazards.

Badly burned hillsides may not effectively absorb rainwater. During a rainstorm, these slopes may become dangerous due to mudslides, erosion, rockfall, rolling and sliding logs or other dislodged debris, and high volumes of runoff water.

Thunderstorms can be erratic bringing powerful winds and lightning. Be especially alert to the risk of falling trees and airborne toxic debris in strong winds before and during a storm. Major rainfall/runoff events following wildfire can cause downstream flooding. Beware of surges in highwater in waterways and over roadways during and immediately following these events.

Spooked and/or displaced wildlife (including snakes, deer, mountain lions and ground dwelling bees, wasps and hornets) can be a potential hazard.

Driving in Burned Areas - Use extra caution when driving in burned areas. Many plastic road culverts have either been seriously compromised or completely vaporized in the fire. Do not drive over roads with badly damaged or fire destroyed culverts without inspecting first. *Note: Many street signs including stop signs may have been destroyed or are missing following fire. Drive slowly, be aware of your surroundings and use extra caution. Expect the unexpected.*

Post fire field staff should work in pairs whenever possible when working in high hazard areas. Reliable cell phones or two-way radios should be used. Inform others where you are, and consider frequent check-ins while working in these areas.

Stay clear of electrical wires, burned structures or other physical property on fire damaged/destroyed properties. Risks in these areas include broken glass, nails, live electrical wires, severed barbed wire, and jagged edges where structures have burned. Also, burned structures may collapse, and hazardous waste (asbestos, chemicals, hydro-carbons and other toxic substances) may be present.

Emergency/temporary measures installed on the landscape following wildfire can have a high risk of failure and may become unsafe. These types of measures can cause more serious problems if and when they fail and often provide a false sense of security.

When it's not safe, it's not safe. Do not perform property inspections and assessments or meet with fire victims on their fire damaged lands when it's not safe.

This information was adapted from an After the Fire fact sheet entitled, "Post Fire Safety Operations" produced by USDA Natural Resources Conservation Service (NRCS) following the California wildfires in 2017-18. This fact sheet was reformatted and edited with additional safety precautions added by Rich Casale, retired NRCS employee and now working for NRCS as a post fire restoration specialist contractor.

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