

after the fire

Post Fire Restoration

Preparing for Winter Following Fire

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The sound of falling rain this winter may take on a whole new meaning for those who either suffered property damage from wildfires or who live directly downstream of fire damage watersheds. If you are concerned about the possibility of erosion, mudslides, flooding or other related winter storm impacts following fire then the following 10 Basic Rules may help you prepare and safeguard your properties and families during future winter storm and runoff events.

10 Basic Rules

1. Keep it under cover. Protect existing plant cover and establish vegetative cover (or other protective cover such as mulch) on all bare or disturbed soil and slopes immediately around your home and other property improvements before the winter rains. Plant materials and different types of mulches can be used to protect soil and slopes from the impact of falling rain and storm water runoff. *Note: Seeding and/or mulching is not recommended in wild land areas but may have some application on soils disturbed by dozers and along side access roads and driveways if recommended by an appropriate professional, such as a native plant specialist. Grass and/or plantings should be native or non-invasive non-native plant materials.*

2. Do not disturb soil and slopes during the rainy season. Slopes and soil are more susceptible to instability and erosion when vegetation is removed or disturbed and when soil becomes saturated.

3. Drainage facilities and potential runoff impacts on private roadways, long driveways and even fire breaks, especially in fire damaged areas, need to be evaluated. Runoff control treatments including protective release points may be needed to protect down slope areas from erosion, slope failure and flood hazards. Consider the following 4-D formula when dealing with drainage and runoff issues.

- a. Decrease volumes and/or velocity of runoff by providing velocity dissipation (rock or other prepared outlets) at culvert and drain outlets and breaking up large volumes of runoff coming from roof tops and landscape into smaller less erosive forms.
- b. Detain runoff and meter over time or store for later use to lessen impact on saturated soil and slopes during peak storm events. Detention basins, rain gardens, and water harvesting systems are all ways to detain runoff.
- c. Dissipate runoff where ever concentrated flows come in contact with bare soil and/or steep slopes by installing practices (vegetation, mulch, rock aprons, etc.) that spread runoff and help reduce both erosive capacity of soil and runoff volumes. Install velocity dissipaters at all culvert and drain outlets to prevent soil erosion. *Note: Road culverts may need to be extended to a safer discharge point if culvert outlets have been denuded by fire.*
- d. Divert runoff if all else fails. Use this "D" with extreme caution. It may be helpful to re-route runoff and drainage away from unstable slopes, eroded areas, unprotected soil, etc.



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4. Monitor and maintain all existing and planned runoff, erosion and sediment control measures (including vegetative cover) before and throughout the rainy season. Correct deficiencies as soon as possible. In some areas, leaf litter may be a serious problem for roof, driveway and landscape drainage systems because of all the fire and heat damage done to evergreen vegetation this year. Properly designed, located, and installed trash racks, debris barriers, gutter guards and other similar devices will help to reduce maintenance and allow home and property drainage systems to function properly.

5. Use emergency/temporary practices such as sand bags, brush and slash, plastic sheeting, and hand-dug drainage ditches, etc. with extreme caution or don't use at all. Do not install without professional guidance. For example: covering slopes with plastic sheeting or dumping brush into gullies or other eroded areas is almost always the wrong thing to do. An improperly designed or placed emergency practice can be worse than no practice at all. Additionally, emergency measures may cause new hazards or problems and provide a false sense of security.

6. Prune or remove high hazard fire damaged trees capable of falling on to living structures or roads before winter storms. *Note: Don't remove healthy or slightly damaged trees unnecessarily. Tree root systems are still holding soil and slopes in place and tree cover is protecting soil from impact of falling rain as well as reducing winter runoff. Consult with Cal Fire and/or a registered professional forester (RFP) or certified arborist for assistance. Contact Forestry hotline at 800-738-TREE (8733); forestryhelp@gmail.com for a list of RPFs or certified arborists.*

7. There is an increased threat of rock fall in some areas because of damage to vegetation and shallow rocky soils and slopes in affected watersheds. Debris barriers and rock fall netting can be effective in capturing smaller rocks, but larger rocks will require more substantial measures. If there is a threat of large rocks releasing from slopes on your property or adjacent properties, then seek professional assistance. Contact the USDA Natural Resources Conservation Service or the resource conservation district.

8. Get professional help with design and installation of any temporary or permanent practices to control runoff, prevent an erosion problem, or address a slope stabilization concern.

9. Work with neighboring property owners when determining permanent solutions for drainage and runoff issues. Runoff normally extends beyond property lines. You may be liable for both controlled and uncontrolled releases of collected runoff on to down slope neighboring properties if you decide not to be concerned with potential off site impacts.

10. Be prepared and don't stay in your home when it becomes unsafe. Have a home and neighborhood evacuation plan. Have an emergency plan for your pets and livestock as well. Stockpile emergency supplies including sandbags, a supply of sand, straw, etc. Pay close attention to weather forecasts, flash flood and storm warnings, water levels in nearby creeks, etc. throughout the winter. Monitor property rainfall with a rain gauge. Evacuation plans should always include at least one alternative escape route and a list of important/emergency numbers, including numbers of neighboring property owners.

Roadway related problems, flooding, existing gullies and eroded areas, including stream bank erosion are all likely to appear or get worse this first winter following fire. Sediment levels in creeks and waterways are expected to rise, reducing channel capacities and increasing the likelihood of flooding on properties and down stream. *Note: If flooding and/or mudslides occur and impact road surfaces, do not attempt to drive over flowing water or mud.*

Some signs of impending danger from debris flows, landslides and severe erosion or imminent flooding include: an intense storm event (1-2 inches per hour), especially following previous rainfall that caused ground saturation; water flowing over the landscape where it hadn't appeared in previous winters; leaning or falling trees; tension cracks along the top edge of slopes and along driveways and roads; seeps or increased spring activity in slopes; severely disturbed and unprotected slope areas caused by firefighting efforts or from recent activities to remove fire damaged trees and other slope holding vegetation.

For more information, helpful publications, erosion control plant lists, drainage control and road maintenance guides or other natural resource information contact:

NRCS: Emma Chow, District Conservationist, 707-252-4189 x 3111 or emma.chow@ca.usda.gov or Napa RCD: Leigh Sharp, Executive Director, 707-690-3119 or leigh@naparcd.org