California 2020

USDA United States Department of Agriculture

Natural Resources Conservation Service

after the fire

Post-Fire Restoration

Dos and Don'ts

DO: Consult with the Natural Resources Conservation Service (NRCS) and your local Resource Conservation District (RCD) and/or a private land restoration consultant before starting any landscape, slope or soil restoration effort on areas damaged by wild fire.

DO: Gather as much information as possible from Cal Fire, U.S. Forest Service, local fire district officials, Fire Safe Councils, NRCS, RCD, and/or local fire restoration consultants regarding reducing fire hazard and making your property fire safe when planning your property restoration.

DO: Evaluate and map out locations of existing and/or pre-fire subsurface drainage, irrigation and utility facilities on your property, including under-ground pipe drains and outlets; roof runoff/gutter drain outlets; culverts; irrigation systems; utilities, etc. Determine if still operable and/or degree of damage, if any.

Note: Many underground plastic drains and irrigation lines may have melted or otherwise been destroyed in the fire or by fire-fighting equipment.

DO: Install sediment control measures, such as straw wattles, mulching, plantings, slash, sediment traps and/or other properly designed and located sediment control measures, if necessary, and as directed by NRCS, RCD or other resource restoration specialist, such as a Certified Professional in Erosion and Sediment Control (CPESC).

Note: Sediment control measures will help to prevent eroded and displaced soil from entering streams, roadside ditches and waterways, and help protect water quality and water supplies. Consult with licensed landscape contractors or other licensed contractors with erosion and sediment control experience for design and installation assistance.

DO: Coordinate and plan restoration efforts with neighbors and/or road and neighborhood associations.

DO: Re-plant damaged landscapes with drought tolerant, fire retardant native plants with re-sprouting ability. Use planting stock and/or seed that are native to the area and is from a locally collected source. Consult with NRCS/RCD for a list of plants to consider.

DO: Obtain any necessary permits before cutting down trees, performing any major land grading activity, building any retaining wall, constructing a permanent sediment or erosion control structure, or doing any work in a riparian area, wetland, stream course or other natural area.

Note: Permits and/or consultations may be needed from your county office, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, California Regional Water Quality Control Board, U.S. Army Corp of Engineers and NOAA/National Marine Fisheries Service.

DO: Monitor and maintain fire and fuel breaks that may have been created by fire fighters on your property. Water bars/breaks should be provided and maintained on these fire control measures so that runoff water does not concentrate and cause erosion. Consult with CalFire regarding maintenance assistance of fire and fuel breaks constructed by fire fighters on your property during the Fire.

DO: Monitor and maintain all existing and planned erosion, sediment, and drainage control measures, including vegetative treatments, before during and after all future rainfall events. Correct deficiencies as soon as possible.

Note: One of the main reasons why recommended treatment practices fail following installation is the lack of long term maintenance by the landowner or responsible party.

DO: Hire and/or consult with licensed contractors, preferably ones that are certified and/or experience in soil erosion and sediment control, for design and installation assistance of vegetative and structural measures needed to restore slopes, soils, proper drainage conditions and landscape.

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DOS AND DON'TS

DON'T

DON'T: Be too quick to remove fire damaged vegetation, including trees that were not completely burned. Many of the damaged and scorched native plants will re-sprout and come back, including oak trees that were severely burned.

Note: Consider pruning first before removing the entire plant.

DON'T: Place loose debris, prunings, discarded fire-damaged vegetation in gullies, drainage swales or watercourses, over stream banks, etc. in an attempt to protect bare soil without first consulting with NRCS. Piles of brush will prevent plants from reestablishing under dense brush piles and may dislodge if in contact with concentrated runoff or stream flows causing other problems.

Note: Removed brush can sometimes be used as mulch if chipped or spread thinly over the critical soil areas.

DON'T: Plant Erosion Control Seed Mixes. These mixes are likely to contain non-native mix of grasses and legumes or California natives that are indigenous to other areas of the state and/or are not intended for wild land or fire damaged soil/slope restoration. Don't plant other non-native, invasive plants or grasses, such as annual ryegrass as well.

Note: In some situations bare and disturbed soil and slopes can be re-seeded/re-planted with native grasses and plants but only if the seed and plant materials are from local known sources and indigenous to the area that needs treatment. Other native grasses and plants may discourage local natives from reestablishing on their own, and/or compete with, and/or slow down native re-establishment. If white ash is present, then resident seed from pre-existing native plants may no longer exist. White ash is an indicator that the fire burned very hot. Any resident seed bank in the soil was likely killed during the fire in these white ash areas. Re-seeding these areas to native grasses and/or re-planting with native plants of the same genotype, according to a re-vegetation plan developed by an experienced fire ecologist/native plant specialist, may be a good idea.

DON'T: Use materials such as broken asphalt or concrete, inorganic debris or other objects as an emergency or permanent erosion control measure, especially if these materials can come in contact with runoff water, natural drainages and stream courses.

Note: In some cases, rock and broken concrete can be used as velocity dissipaters and placed at the outlets of road culverts or other drains to protect the soil from erosion and washout, provided these dissipaters are designed by an appropriate professional.

DON'T: Cover fire damaged slopes with plastic sheeting in an attempt to prevent slope failure and protect bare or disturbed soil from next year's rainfall. Plastic sheeting will: increase runoff and the likelihood of erosion; retain moisture in the ground increasing the possibility of slope saturation and instability; and kills root systems of native plants trying to re-establish naturally. Plastic sheeting is almost always the wrong thing to do.

Note: Depending on site conditions, an alternative to plastic sheeting might be the use of hydro-mulch, a proper application of rice straw, or an erosion control blanket if recommended by a Certified Professional Erosion and Sediment Control (CPESC), engineer or geo-technical consultant.

DON'T: Control and concentrate future property drainage and runoff without a proper drainage control design that considers proper drainage facility sizing, location, and dispersion method. Whenever possible keep surface runoff in natural "sheet" flow and incorporate practices such as vegetative cover to slow runoff and improve the water infiltration capacity of the soil.

Note: Consult with NRCS/RCD for general planning information on controlling drainage around your home and property before proceeding with drainage repairs and improvements following fire damage. For design and installation assistance contact a landscape contractor experienced in erosion and drainage control.

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DON'T: Use straw bales (in whole bale form) as water diversion and detention devices or for sediment control in burn areas. Contrary to popular belief and use, these devices require a great deal of maintenance and are not right for most situations. Their design, location, and installation should only be done by a qualified contractor certified in erosion and sediment control. Straw wattles and loose straw that is simply spread over bare and disturbed soil is much more effective in protecting soil than keeping it in bale form.

Note: Rice or weed-free straw should only be used to prevent the possibility of nonnative grasses and weeds, contained in straw bales, from colonizing treatment areas.

DON'T: Disturb the hydrophobic soil layer that forms on some soils following fire on slopes susceptible to land sliding. Hydrophobicity is a natural phenomenon that actually gives the soil a water repellant ability that reduces infiltration and the capacity of the soil to hold water. The hydrophobic layer is normally found within 6 inches of the surface. In other areas, it may be advisable to break up this layer to aid in plant establishment and water infiltration lessening the impacts of runoff and erosion. For more information on soil hydrophobicity and/or an on-site soil evaluation and site assessment contact NRCS.

DO: Have an on-site assessment of fire damage done to your property by NRCS or another qualified fire restoration specialist that is certified in soil erosion and sediment control.

DON'T: Disturb potentially unstable slopes, especially those in fault areas and/or with signs of previous movement or known historic instability. Disturbances such as grading, cutting, removing trees root wads or other deep excavations will increase the likelihood of future slope failure.

Note: If these slope alternations are absolutely necessary, then consult with a registered geologist or geo-technical expert before slope disturbance/ restoration activity.

DON'T: Do anything. This may be the best solution on some properties. Doing nothing will allow nature and time to heal soil and vegetation damage naturally, especially in wild land and other natural areas. In fact, tampering with natural processes may very well delay natural recovery and re-establishment of pre-existing native cover.

DON'T: Do what your neighbor is doing. Every situation is unique whether or not the neighbor had expert advice or not before installing temporary or permanent land and water protection measures. Your property is different in many regards including soil type, slopes, drainage conditions, type and condition of plant cover, degree of fire damage, etc. Get expert advice and a site damage assessment, including treatment recommendations, from NRCS before proceeding with your property restoration efforts.

Note: Practices such as sandbags, plastic, straw bale basins and check dams, etc. are all temporary and require a great deal maintenance. Furthermore, they are not right for every situation and can actually make problems worse or create new ones.

DON'T: Wait until the last minute to plan, design and install erosion, sediment or drainage control practices that may be necessary to safeguard your home and property before next winter.

Note: The nature and extent of your restoration effort will depend on the degree of damage; time needed to get a site assessment; acquiring an appropriate plan and design; securing any necessary permits; lining up a contractor and doing the work.

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NRCS is a non-regulatory federal agency under the U. S. Department of Agriculture whose mission is to “Help People Help the Land.” The agency was formed more than 80 years ago with the help of landowners. Additionally, all information provided or resource data collected on private properties by NRCS is kept confidential and only shared with the property owner or legal agent unless NRCS has written permission, by the property owner, to release the information to others.

Contact Information

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