Recovering From Wildfire in Southern California Forests

A Guide for Forest Landowners
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Contents

What Do I Do Now?

Well, the disaster so many forest landowners have always feared has finally happened to you - wildfire. Fire may have burned over all of your land, some of your land or land neighboring you. It may have burned it completely or only partially. Whatever the circumstances, you're now left wondering, "What should I do now?"

After the fire is out, it's time to start making some decisions. Although you may feel that the worst has happened, there are actions you can take now to protect your land from further impacts and to recoup some of your losses.

This brochure discusses issues that forest landowners in Southern California should consider following a wildfire in their forest, including how to protect your valuable property from further damage due to erosion, where to go for help and financial assistance, how to manage risk associated with remaining vegetation on your land, how to claim a casualty loss on your tax return (if permissible), and how to help your forest recover from wildfire. For those whose lands have not burned but who are in a watershed where fire has occurred, this brochure provides guidance on what to expect and how to participate in recovery efforts.

Emergency Help

If you need immediate help, and the area in which you live has been declared a federal and or a state disaster area, you can expect assistance from FEMA, the Federal Emergency Management Agency. Other federal, state, local, and volunteer agencies also offer disaster assistance. A table indicating what agencies provide services, the services provided and who may be served is included in Appendix A.

Most federal assistance is in the form of low interest loans to cover expenses not covered by state or local programs or private insurance. People who do not qualify for loans may be able to apply for a cash grant.

The federal Farm Service Agency (FSA) and the Small Business Administration (SBA), offer low interest loans to eligible individuals, farmers, and businesses to repair or replace damaged property and personal belongings not covered by insurance.

Wildfire Intensity

Once the fire is out, the first step is to assess the damage. Future actions you may take such as erosion control, salvage harvesting, and replanting depend heavily on the scale and intensity of damage caused by the wildfire. While wildfires can be very destructive, in reality, most fires burn at low intensity throughout most of their area, with only occasional pockets of moderate to high intensity burn. Occasionally, fires do burn at high intensity over large areas.

Low-intensity fires *(surface fires)* typically burn along the forest floor with flame heights of under four feet. Since they do not burn up into the forest canopy, most leaves or needles remain on trees, even though some may be brown and the lower branches may be scorched. The ground is still partially covered by old needles, leaves, and decaying wood.

These fires are, in the long run, beneficial to maintaining a healthy forest. In fact, tree species and communities evolved with low-intensity fire as part of the natural landscape. These fires clear out the underbrush, thin out young trees that may be too numerous, and reduce the amount of fuel accumulating on the forest floor, thereby lessening the chance of future high intensity wildfires.

Moderate-intensity fires *(understory fires)* typically burn the forest understory with flame lengths of up to about 10 feet. This is high enough to consume the needles and leaves from many but not all trees. These fires also consume much of the understory and forest ground cover. Since moderate-intensity fires typically leave the biggest and most vigorous trees alive, some forest cover will remain.

High-intensity fires *(crown fires)* have the flame lengths of over 10 feet reaching into the forest canopy. Fire can spread from tree crown to crown without touching the ground because of floating embers. These fires consume from half to all of the forest canopy. Needles and leaves are totally consumed as is the ground cover. Fires burn with such heat that the organic matter in the soil may melt and form a waxy coating on the soil that prevents infiltration of rain water. This now "hydrophobic" soil has a reduced capacity to transmit and retain moisture and to grow trees.

Increased Hazards caused by Wildfire

Soil Erosion: The most damaging long-term resource impact that can occur after wildfire is soil erosion. Erosion robs land of its soil and its ability to grow vigorous trees. A healthy forest functions to keep soil in place on the land. This is accomplished by two forest layers, the ground cover layer or litter layer and the forest canopy.

The forest canopy intercepts raindrops keeping them from hitting the ground. Rain which makes it through the canopy is slowed by the litter layer which covers the forest floor. Together, the canopy and litter layer protect the soil from the force of rain striking it that can detach soil particles. Without this protection, detached soil particles can wash down denuded slopes, enter stream channels and reduce water quality and aquatic habitat.

In addition to protecting soil from the force of rain, a litter layer functions to help the soil absorb rain water. In the absence of litter, rain is more likely to hit the soil surface and runoff than infiltrate the soil, reaching the stream channels faster, leading to an increase in the possibility for flooding.

Your burned forest land is at increased risk for soil erosion if:

- the forest litter layer has burned exposing bare soil
- the forest canopy has burned reducing rainfall interception
- the fire was of high intensity causing soil to repel water
- slopes are steep
- rain falls in large amounts quickly
- the soil type is highly erodible

Even if your land did not burn, you are at risk of erosion from properties that did burn in your watershed. This risk depends on the same factors listed above and the position of your property in relation to the burned area. Risk is greatest if you are directly downslope from burned, unstable areas or if your assets are located near a stream that drains a burned area.

Re-burning: Sometimes the heat from a wildfire will kill vegetation but not consume it. When this happens, dead trees standing or covering the ground increase the risk of another fire since they provides excellent fuel for any ignition that may occur.

Damage Assessment after a Wildfire

Although wildfires are a natural part of the forest, residents living in the forest will naturally want to minimize the impacts of wildfire on their property. For recommendations on minimizing risk and damage caused by wildfire, see the companion publication, *Living in Southern California Forests* (Nakamura 2006). Unfortunately, even the best of planning and treatments may not stop a wildfire driven by extreme weather conditions. This guide focuses on helping residents plan for forest recovery after a wildfire.

The first step in knowing how to foster recovery on your property after a fire is to understand the intensity of the fire and extent of the damage. First inspect your property and identify areas of high, moderate and low intensity fire. Drawing these areas on a map of your property can help you assess where additional impacts might occur. Even if a majority of the area was burned by surface fire, there may be "hot spots" with greater destruction that are important to note.

Forested land may endure resource impacts even if the fire never actually burns through. Fire suppression activities remove the forest ground cover layer to deprive the fire of fuel to burn. Note should be made of bulldozer lines and areas where snags were felled.

This map can then be used to plan for forest rehabilitation through erosion control and replanting if necessary.

An important consideration is the extent or scale of the damage. Fire may have affected all or part of your property or it may have affected property around you. Of course, your main concern is your own property. However, even if your property did not burn, you need to consider the potential effects on your property of fire in the surrounding area.

You should consider five different areas in your evaluation of fire effects: Around your home and yard, the immediately landscape beyond your yard, adjacent streams and drainages, your roads and driveways, and the watershed in which you live (Table 1). Use the questions listed here to identify recovery issues on your property and consider taking the recovery actions suggested for the risks you identify.

DIAGRAM DEPICTING LOCATIONS OF DEVELOPED AND WILDLAND LANDSCAPES ON AN INDIVIDUAL PROPERTY.

Table 1. Assessment Questions for Landowners after a Wildfire and Recovery Actions to Take

Areas to assess	Critical Questions	Recovery Actions
Around the house, yard	Are there dead or damaged trees that pose a hazard to your home, yard, or roads?	Remove hazardous trees.
	Are there live but damaged trees that would be susceptible to insect or disease attack?	Remove damaged trees or provide extra water, fertilizer, and/or pesticide.
	Are drainage facilities around your home functioning normally?	Ensure that gutters and downspouts empty onto areas protected from erosion by gravel or other erosion control measures.
Landscape beyond yard	What is the natural vegetation type for the burned area?	Identify conifer species present and dominant on your property.
	Should you do something to restore the vegetation and wildlife habitat?	Prepare the site by removing dead trees, ripping the soil, and controlling weeds. Plant seedling stock of the most appropriate tree species. Limit competition from grass, shrubs and weeds in the first 2-3 years
	Is your landscape at risk of increased soil erosion?	Identify the severity and extent of the burn on your property.
	Should you do something to prevent soil erosion?	Spread slash, seed, or straw mulch on slopes to protect bare ground. Install log terraces or water bars.

Adjacent stream, drainage	Are you in or near a drainage at risk of flooding, soil sedimentation, or debris flows?	Identify the nearest drainages on a topographical map and walk your property and neighborhood.
	Did the streamside areas on or near your property burn? How severely?	Identify the severity and extent of the burn on along streams. Monitor riparian areas for invasive plants.
	Are there accumulations of debris and sediment in the stream? Are they moving?	Inspect channels on your property and upstream. If they have excessive debris, obtain a permit to clear the channel.
	Are there signs of slope instability near the stream?	Contact professionals to explore possibilities of stream bank stabilization projects
	Are there culverts or bridges downstream that are at risk from flooding or debris flows?	Contact city or county about crossings maintained by their jurisdictions.
Roads and driveways	Are there dead or damaged trees overhanging roads and driveways?	Remove dead or damaged trees or prune damaged trees
	Are road drainage ditches and culverts adequate to convey increased sediment, water and debris?	Inspect road system after rainfall to identify road network problems. Clean out culverts and roadside ditches. Replace undersized culverts or regrade ditches. Contact professionals in road management or engineering to improve drainage.
	Are road stream crossings in danger of failure due to clogging debris?	Check stream crossings and clear debris before, during, and after storms.
Water shed	Did areas upstream from your property burn? How severely?	Identify your position on the landscape and within the burned area.
	Are you directly connected to upstream lands by a stream, creek or arroyo?	Identify who is responsible for managing upstream lands. Keep informed about management actions taken there.

Around the home. Inspect the area around your home and yard where you irrigate, control weeds, and have non-native species like lawns, roses, or shrubs. Imminent dangers in these areas should be addressed first. Fire killed trees overhanging your home, driveway, road, or other areas frequented by people should be removed. Trees that have been damaged but not killed should be inspected. Conifers that have lost all their needles will die since they cannot regrow their needles. Deciduous or broad leafed trees may survive since they can regrow their leaves. If uncertain whether a tree is dead, you may want to wait to remove it until the next spring to see if there is new growth. If you want to maximize the chance that a damaged tree or plant will survive you can provide it with extra water or fertilizer. You may be able to help high value trees survive pests by applications of chemical pesticides. Contact an arborist for professional help.

Drainage around your home should also be inspected. Ensure that gutters and downspouts continue to function normally. If they empty onto burned areas, consider applying gravel or other measures to minimize erosion around your home.

When replanting around your home, choose plants carefully. Ornamental plants will survive best in more shaded locations away from harsh south facing slopes with thin soils. Native plants can have poor survival if planted in a location that will be watered for lawns and ornamentals. Refrain from planting invasive species that will reproduce abundantly and possibly invade the natural vegetation areas beyond your yard. Lists of invasive species are available through the California Invasive Plants Council (see Resources Section).

Landscape beyond the yard. Beyond your yard is the natural, forested landscape where forest vegetation occurs. Your goal in this area should be to promote and maintain the natural forest and reduce the risk of soil erosion. Small areas of severe burn scattered across the landscape are less of a problem than a large area that was severely burned. The location of your property relative to the burned area and stream courses determines the degree of risk posed by the fire damage. Properties down steep slopes (over 40 percent) from a fire of many acres that burned severely, killing and consuming all or most of the vegetation are at the most risk.

There are a number of measures that can be taken to lower soil erosion hazard and protect your land's productivity and water quality during the first few years after a fire. The goal of these methods is to cover the soil surface to protect it from raindrop impact, to improve the soil's ability to absorb water, and reduce the amount and speed of overland water flow.

Slash Spreading: Tree limbs and branches can be spread on the soil to reduce raindrop impact. If branches are cut small enough (slashed) so that they come in contact with the soil, they will also help disperse overland water flow and reduce runoff and erosion.

Mulch: Straw can be spread over the soil at two tons per acre, about 100 pounds per 1,000 square feet. One straw bale covers about 750 square feet at this application rate. On steep slopes, it helps to "punch in" the straw with a long, narrow bladed shovel sometimes called a transplanting or tile spade. The result should look like the tufts of a toothbrush. Machines may also be used to blow straw, newspaper, or other fiber as a slurry onto the soil. This technique is used by public works and road departments to stabilize road cuts but is probably infeasible except where large areas are to be covered. Landscape fabrics, geotextiles, are also used to control erosion, but they are expensive compared with straw or natural mulches.

Seeding: Depending upon the pre-fire vegetation, the intensity of the fire, and soil disturbance, there may be sufficient grass and herbaceous plant seed in the soil to germinate and provide cover. When this is not the case, seeding to establish a quick growing ground cover of herbaceous plants to protect the soil during the first and second wet seasons may be an option. Priority areas for seeding include steep and erosive slopes. However, since these slopes are more vulnerable to soil erosion, it is likely that unprotected (by soil or mulch) seed will wash down the slope during the first rains before the seed has a chance to germinate. This is especially likely if the first rains are heavy and the fire was intense enough to make the soil water-repellent. Therefore, it is advisable to cover seed with a mulch or landscape fabric where feasible. A technique called "hydromulching" uses machines to blow a mixture of mulch and seed on exposed soils.

Before using any seed you should determine whether or not it is comprised of native species, exotic species or mixtures of both. Introducing aggressive non-native plants onto your property may cause more harm than good. Stay informed about species being seeded on adjacent properties. Exotic species can invade your property via wind dispersion, animals and even in runoff. Be aware that non-native, aggressive weeds can also be introduced in hay bales.

Log Terraces: To slow and disperse runoff water, log terraces can be created by falling or placing dead trees along the contour of the land, across the slope. Delimbing these trees will allow them direct contact with the soil.

Straw Bales: Straw bales can be placed on hillslopes or across drainage ways to act as sediment traps.

Waterbars: Waterbars are speed bumps for water, mounds of soil and rock placed across a road, trail, or fire break to divert water flowing down the road off to the side onto a stable area of vegetation, rock, or material to disperse the water's erosive power.

Adjacent streams and drainages. Next it is important to consider the possible effects of the fire on local streams. Burned areas tend to generate increased woody debris, sediment and runoff. This excess has to go somewhere. Often it makes its way into natural and manmade drainage channels such as ditches, creeks and arroyos. If you are downstream from the fire area, drainage facilities such as culverts can be plugged or even washed out completely by increased debris and stream flow. Even natural streams can become clogged with debris. Consequently, you need to be vigilant about maintaining the streams and drainage features on your property both before, during and after storms. You should:

- Inspect natural and manmade channels on your property and upstream. If they have excessive debris, contact your local Department of Fish and Game to acquire any permits necessary to clear them.
- Clean culverts and roadside ditches and keep them open;
- Replace culverts or regrade ditches that are undersized or not functioning.

You may need assistance in both assessing and maintaining drainage facilities. In the case of natural and manmade channels, it is best to contact your Public Works or Flood Control District to inform them of any problems you detect.

Invasive weeds are also an issue along major streams. Fires can provide an avenue for the spread of non-native wild cane (Arundo donax) and Tamarisk. These species may displace native willows and cottonwoods which typically resprout after a fire. Landowners with stream side property should monitor the vegetation and contact their local invasive plant taskforce if these weeds start to proliferate. Weeds (like wildfire) are always easier to contain if attacked early.

Roads and driveways. Another issue you may need to address if your property or adjacent property burned is the stability of your roads and driveways. Reduced vegetation cover increases the potential for erosion and failure of road cut and fill slopes. Increased runoff may overwhelm your existing drainage structures and flow down the road. The trees and large brush killed by fire may fall into streams, move downstream and block a road crossing. Streams diverted onto road can cause serious damage to a road including surface erosion, gullying, and can even wash away the entire road bed.

Inspect your road system after rainfall events to identify any signs that your road drainage network is at risk. These signs include:

- Collections of debris or sediment at the mouths or outlets of culverts;
- Sloughing cutslopes depositing materials on the road surface;
- Newly exposed rills (small gullies) or even larger gullies on fill slopes or on road surfaces; and
- Cracking in the road surface above a fill slope.

If you observe any of these symptoms, try to determine the cause if possible and see if you can correct it at the source. For example, sloughing cutslopes may be caused by runoff from above. Intercepting that runoff and rerouting it away from erosive slopes can solve the problem. For a landowner's guide to identifying road problems, see the Resources section. Serious problems such as cracking in the road surface or gullies will probably require professional help from a specialist in road management or engineering.

Road stream crossings should be checked and cleared of debris before, during, and after storm. The city or county may have road maintenance responsibilities. If so, contact them if you see maintenance problems or following storms in preparation for the next storm. Dead or damaged trees overhanging roads, driveways, should be removed or pruned so they do not fall on the roadway.

Assessing Tree Damage

Once the intensity of the fire has been assessed and hotspots of resource damage have been identified and treated to reduce the immediate threat of erosion, it is time to begin planning for long-term rehabilitation of the site.

One problem for long-term planning is estimating which trees damaged by fire may die in the future. Even trees in an area where the fire burned at low-intensity may die in the near future if they sustain enough damage. An understanding of how trees are damaged by fire and how mortality occurs can help make this guess an educated one.

For trees that suffered **light damage**, foliage is partially scorched, needles or leaves discolored, and the trunk blackened. If enough needles or leaves remain in an undamaged condition, trees will be able to continue manufacturing energy through photosynthesis. These trees have a good chance at future survival assuming conditions which promote tree health, such as adequate rainfall, continue.

For trees that suffered **moderate damage**, foliage has been mostly scorched, but growth buds at the tree top and branch ends have survived. These trees may survive in the short term, but they have been weakened to the point that they will have little ability to withstand any future stress such as insect or disease outbreak.

For trees that suffered **heavy damage**, all foliage has been consumed and growth buds killed. Broad-leaved trees, such as oaks, may be able to survive complete defoliation but conifers cannot. These trees are dead, even though the inner bark or cambium layer may stay green for up to 6 months.

Once tree damage has been assessed, landowners can make decisions as to which trees may need to be removed. Candidates for removal most certainly include heavily and

moderately damaged trees near structures and roads since these hazard trees are likely to fall and cause damage in the near future.

Removing Dead and Dying Vegetation

If your property has burned and there is an abundance of dead or dying vegetation present, consideration must be given to removing it. There are several reasons for this. One obvious reason is pure aesthetics. Not many people like the appearance of burned vegetation. The other major reason is risk. The presence of dead or dying vegetation, especially trees, invites insects and diseases that may affect any remaining, live, healthy vegetation. Another risk factor is the fuel load associated with the dead or dying vegetation. Accumulated dead trees can put your property at risk for another fire.

For the fortunate few, there may be some commercial value in salvage logging standing dead or dying trees. That is, there may be a market to sell the trees for timber or for biomass (wood-fired power plants). This is not always dependable option in Southern California but it should be researched by the landowner. If a market is available, the decision whether or not to harvest and sell trees must be made rather quickly. Trees that are heavily damaged by fire die and lose their commercial value rapidly. Trees that are damaged to the extent that they will not survive may also be harvested. Decisions on which trees to remove must be made by a qualified person (arborist or Registered Professional Forester).

Once a tree has died, decay sets in and commercial value begins to diminish. The speed at which this occurs depends on the tree species. In addition, dead pine trees that still contain sound wood become infected with blue stain fungus, which does not weaken the wood, but decreases the value and grade of lumber that can be made from it. Decay is not as important when the end use is biomass or firewood. If firewood is infested by insects, however, it should not be sold commercially.

Any income received from salvaged trees can be used to recoup losses as well as to finance rehabilitation of damaged areas through replanting and installation of erosion control measures.

While salvage harvesting can produce these benefits, it must be carried out properly to avoid further resource damage. Improperly done harvesting can increase soil damage when too much soil is disturbed or the wrong equipment is used.

In the long term, some dead trees are needed for wildlife habitat and cover. Also, dead trees return nutrients to the soil.

Because of these risks, and to comply with state law (State Forest Practices Act) salvage harvesting must be carried out in a professional manner by a Registered Professional Forester (RPF).)

For the majority of forest landowners in Southern California, the option of a commercial salvage operation for dead and dying trees will not be an option. The property or amount of timber may be too small, markets may not exist or the environmental costs of harvesting may be unacceptable. What confronts these landowners is often a daunting clean-up job.

There are no quick or easy solutions to cleaning up after a fire. Depending on the scope of the job, equipment such as chippers may be used. If permissible, partly burned vegetation may be piled and burned. The California Department of Forestry can assist you in deciding what needs to

be done and what the best approach might be. Some costs are inevitable, particularly if dead or dying trees must be removed in places where they pose risks to structures or utilities.

Making Use of Professional Help

A registered professional forester can be contracted to help you sell your trees, secure the best price for them, plan and execute the harvesting, and reforest your land. Neighbors and friends who have harvested timber before are good leads to registered professional foresters or you can consult the phone book yellow pages under the listings of "Forester, consultant."

You may want to contact several RPFs to obtain estimates for the services you want provided. Typically, there is no charge for an estimate. You will need to develop a written contract with an RPF which spells out the services being provided and fees being charged.

Services to Seek From a Registered Professional Forester. RPFs can offer a wide variety of services to landowners attempting to recover from wildfire. These include:

- Preparation of an Emergency Plan or Timber Harvest Plan (THP)
- Assessment of fire damaged trees
- Marking dead trees to be harvested and those to be left behind for wildlife habitat
- Establishing cutting boundaries
- Obtaining archeological clearance
- Obtaining any necessary Fish and Game Department and CalTrans permits
- Providing an estimate of timber volume by species
- Calculating timber basis
- Finding a Licensed Timber Operator or logger
- Supervising the logging operation
- Giving advice on reforestation
- Giving advice on erosion control

Forest Regeneration

How a Southern California forest develops naturally after a fire is affected by several factors including its species composition, the intensity of the fire and the degree to which site conditions were degraded both during and after the fire. Some trees and many shrubs will sprout after a fire and quickly regain their presence in the community. Others, especially conifers including ponderosa pine, big cone Douglas fir and coulter pine can only reproduce from seed. High intensity fire, which burns very hot, consumes the whole tree and forest stand. This dramatically changes the growing conditions where the forest once stood. Without sheltering vegetation, new conifer seeds attempting to take root face very sunny, hot, and dry conditions. They may not survive and if they do, they may grow more slowly than they would have in the same location before the fire.

It is possible that a formerly forested area may be converted to brush or herbaceous vegetation after a high intensity fire. Without intervention, this vegetation may dominate the site for decades or even permanently if the site conditions have been sufficiently degraded. Consequently, if a landowner desires to encourage the establishment and dominance of trees after a fire, he or she may have to take active steps to promote forest regeneration and control other, unwanted vegetation. This may include tree planting, chemical or mechanical treatment of competing vegetation, irrigation and fertilization (see below). If the landowner depends on

natural regeneration, there must be an adequate supply of seed available from nearby mature trees.

Reforestation

Landowners are not required by law to replant a forest that has been damaged in a wildfire. However, replanting can speed the development of a mature forest on a burned site. If replanting, a landowner needs to consider his or her objectives for the forest property. Whether the goal is to enhance wildlife habitat, protect the watershed, control erosion, or just to restore the aesthetics of the property, the goal will shape how the reforestation effort is conducted.

Site Preparation: Site preparation is crucial before planting new trees. This usually involves the removal of residue left after a fire, possibly ripping the soil to break compaction, and weed control.

Selecting Tree Species: Selection of the appropriate tree species for the site is also important to replanting success.

Seedling Care: Direct planting of seeds is usually not recommended due to overwhelming loss of seed from animal and insect predation. Seedling stock is usually one-year- (container stock) or two-years-old (bare root stock). Seedlings are vulnerable to grasshoppers, weevils, gophers, rabbits, mice, deer, and cattle. Seedling protectors are available to prevent damage from deer and cattle.

Controlling grass and shrubs can help alleviate the insect and rodent problem and may also be necessary to ensure tree survival especially on poorer soils and harsher sites where competition is great for available moisture and nutrients. Weed control is most effective and cheapest when done within the first two to three years following planting. If delayed or postponed altogether, trees may die or languish.

Forest Growth: Weed control gives trees a few years' advantage over competing vegetation. Eventually, trees predominate on the site once again. Subsequent growth and development of the forest depends on the species (some grow faster than others), site conditions (soils, topography, elevation, precipitation), the weather, follow-up treatments (controlling competing vegetation to favor desired vegetation, thinning and pruning) and just plain luck. It is not reasonable to expect a mature forest destroyed by fire to achieve its pre-fire condition in less time that it took to develop the original stand. You can get a clue to the age of the forest that was present before the fire by counting tree rings on stumps.

Reforestation Cost-Share Programs

A number of cost-share programs are available to assist landowners with reforestation. These include the California Forest Improvement Program (CFIP) administered by the California Department of Forestry and Fire Protection (CDF). Eligibility for this and other programs is strengthened when a case can be made that reforestation is improving wildlife habitat, watershed functions, or protecting water quality and fisheries.

Contact: CDF, Sacramento, P.O. Box 944246, Sacramento, CA 94244-2460. Phone: (916) 654-5242.
Internet web site: http://ceres.ca.gov/foreststeward/funding.html

Federal Emergency Management Agency (FEMA)'s Hazard Mitigation Grant Program (HMGP) supports measures to reduce the risk of damage and future disaster. State and local

governments or private nonprofit organizations with an area mitigation strategy can apply for 75 percent of funding for new mitigation measures such as debris basins or floodwalls.

Contact: FEMA, Region IX, Building 105, Presidio of San Francisco, San Francisco, CA 94129-1250. Phone: (415) 561-3540. Internet Web site: http://www.fema.gov OR http://www.fema.gov/Reg-IX/index.htm

U.S.D.A Natural Resources Conservation Service (NRCS), Environmental Quality Incentives Program (EQIP) provides technical, financial and educational assistance to projects prioritized through local working groups, half of which are targeted at livestock-related problems. USDA's Commodity Credit Corporation may pay up to 75 percent of costs incurred by the landowner. Contracts are for five to ten years not exceeding $10,000 per person per year and $50,000 over the life of the contract.

Contact: Natural Resources Conservation Service, 430 G Street, #4164, Davis, CA 95616-4164. Phone: (530) 792-5600. Internet web site: http://www.ca.nrcs.usda.gov

Tax Implications of Fire Losses

A loss of a portion of the forest on your property due to wildfire can be claimed on your federal income tax statement as a casualty loss. A casualty loss is a sudden and unanticipated loss resulting from fire, storm, or other natural disasters. In general, casualty losses can be deducted directly from ordinary income.

Allowable Deduction: Calculating the amount that can be claimed as a deduction requires sound data on your forest stand probably collected by a Registered Professional Forester. In some cases, the expense of collecting the necessary data will not offset the reduced tax burden that results. However, the data required to determine casualty loss can be collected by an RPF while developing a salvage harvest program.

The allowable deduction is the lesser of one of the following two values:

1) The change in the fair market value of the timber that resulted from the fire. In order to determine this value, an accurate inventory of the volume, grade, and size class of the timber both before the fire and after is required. Since some landowners did not have a thorough assessment of their timber stand before fire, an estimate of its previous condition is required along with knowledge of timber and land values. OR

2) The adjusted basis of the timber. The original timber basis is defined as the original purchase price for the timber asset. When timbered property is purchased or inherited, the value of the entire property is allocated to the land, improvements on the land, and the value of the timber itself. This value is adjusted over time when capital additions are made or when the amount of the timber basis is depleted as during a wildfire or timber harvest. Calculating the adjusted basis of timber after wildfire requires an estimate of the timber volume, grade, and market value at the time of purchase of the property. The longer the timber land has been owned, the more difficult and costly it becomes to make this estimate.

Other tax implications include:

Yield Tax: If you do decide to salvage harvest some of your burned timber, you will be required to pay a yield tax. This is based on the value of the timber just before it is harvested. Tax, at the current rate of 2.9 percent, is paid to the California State Board of Equalization.

Reforestation Tax Credit: If you decide to replant burned areas, you may claim a ten percent tax credit for your planting and reforestation expenses, up to a maximum of $10,000 per year. These expenses may also be amortized over a seven-year period.

Getting Tax Advice: You should strongly consider getting the advice of an Enrolled Agent. This tax professional can help you evaluate your tax situation and advise you on the most tax advantageous method for selling timber. An Enrolled Agent can also compute your taxes for you. Enrolled Agents can be found by consulting the phone book yellow pages under "Tax Preparation."

Resources

For more information on the topics in this brochure or other forest management issues, contact the organizations listed below:

Forest management

California Forest Stewardship Helpline: 1-800-738-8733, E-Mail: ncasf@mcn.org. The Helpline distributes the *Cost-Share and Assistance Program Directory for Individual California Landowners and Indian Tribes* which is also available at: http://ceres.ca.gov/foreststeward/html/ financial.html

Forest landowner education

U.C. Cooperative Extension: Found in the phone book under Government pages, County, University of California and/or Farm Advisor. Web sites: http://groups.ucanr.org/forest

Home Landscaping for Wildfire
http://anrcatalog.ucdavis.edu/FreePublications/8228.aspx

Forest Landowners of California

Education programs for family forest landowners Phone: (916) 972-0273. Web site: http://www.forestlandowners.org/

Road maintenance and troubleshooting

What you need to know about Rural Roads, a Guide for California Landowners, available from Cooperative Extension online at http://anrcatalog.ucdavis.edu/NaturalResources/8262.aspx

Timber Harvest Plans

California Dept. of Forestry and Fire Protection: Found in the phone book under Government Pages, State, Forestry. Web site: http://www.fire.ca.gov/

Emergency relief

Federal Emergency Management Agency, Region IX, Phone: (415) 561-3540. For online registration for aid: http://www.fema.gov

Tax treatment of timber or fire loss:

National Timber Tax Website. http://www.timbertax.org/

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