



Rebuilding a Green Landscape After Wildfire: Tips for Landowners

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We've suffered a tragic natural disaster – a huge wildfire that originated in Amador County on September 9th 2015 and burned extensively through Calaveras County. In total, the fire burned nearly 71,000 acres, consuming 475 residences, 343 outbuildings, and damaging 45 structures (CalFIRE 2015). There have been two reported human fatalities and countless wildlife deaths caused by the fast-moving fire. Now that the smoke has lifted, the ashes have settled, and the smell of burned wood still persists throughout much of the affected area, our communities have to rebuild and become a safer place to live, like a Phoenix rising from the ashes.

Post-fire, the landscape is black and barren, but perceptive landowners understand the need to revegetate their property. Nature has rudely transformed our land – but we can convert devastated “back-40’s” and yards into resilient forests and home landscapes again.

We live in the Sierra Nevada foothills; the native tree and plant species of Amador and Calaveras counties are adapted to survive in a climate that has long, dry periods from June through October. Some of the native trees and plants to use for replanting the area burned by the Butte Fire are suggested below. Late fall and early winter is the ideal time to plant perennials so they will benefit from the seasonal rains when they finally return.

Cost-share assistance in revegetating your property may be available through the Natural Resources Conservation Service (209/223-6535) or through CAL FIRE in Amador (530/644-2345) and Calaveras (209/754-2708) counties. A list of useful publications, websites, and sources for native plants is provided at the end of this paper.

Erosion Control: Preventing or minimizing erosion after wildfires is one of the most important steps a landowner can take to help restore their property. Start by first protecting any existing plant cover and establish vegetative cover on bare or disturbed soil and slopes on your property 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. Seeding by itself is often not an effective erosion control strategy. Seeding can be used to help establish cover or to improve plant biodiversity, habitat, or improve feed for livestock and wildlife, but often will not prevent soil erosion during the first heavy rains. Specific seeding recommendations can be found below. In low intensity fire areas, often pine needles and oak leaves will fall and provide some cover. Additional cover can be accomplished by spreading weed free straw, mulch, or wood chips. Other erosion control techniques might be used including log terraces, waddles, hydro seeding, and the use of jute netting. Some of these techniques can create more of an erosion problem if not done correctly. See the resources below for proper installation.

Conifer Trees: Ponderosa pine, Sugar pine, Incense Cedar, White fir, Douglas-fir and even Giant Sequoia. The pines grow best in full sunlight with lots of growing space (no more than 100 stems per acre when fully grown). The firs and Sequoia prefer to be on cooler sites, shaded by other trees, and can grow in denser conditions. Remember that surviving trees have been stressed by over 4 years of drought and are extremely vulnerable to insect and disease attack. If trees have not been killed outright by the fire, they now have added stress (needles likely suffered heat damage and can't feed the roots through photosynthesis). Conifer trees that have been significantly burned will need to be removed or felled and may be replaced by planting new seedlings.

Hardwood Trees: Black Oak, Madrone, Dogwood, Big Leaf Maple. These trees will generally sprout back from the stump after a fire, unless the root structure has been completely consumed by burning. These trees, like conifers, can be replanted.

Brush: Manzanita, Ceanothus (Deer Brush, Coyote Brush, Whitethorn) and Live (Scrub) Oak. These brush species will readily occupy the landscape following a fire. One benefit of the fire is that the brush is reduced or eliminated from your property, and now the challenge will be to keep it at a manageable level! The brush component is important to have in the landscape as it creates habitat for birds and is an important food source for deer and other wildlife. However, it is best to have islands of brush across the landscape and to prevent dense stands. Dense stands ultimately create barriers for deer and other wildlife and prevent them from migrating. Brush is a huge contributor to fuel loading as it carries a fire from the ground into the tree canopy. Although brush seeds can remain viable in the soil for over 20 years, the brush can be controlled by manual grubbing (hand pulling), piling and burning with heavy equipment, intensive grazing using goats or other livestock, or using herbicides. For most landowners, the easiest method is the herbicide treatment, using products designed for the type of vegetation you wish to control. Check with your local University of California Cooperative Extension Farm Advisor to assist you with the proper product and application rate. In Amador County call 209/223-6482; in Calaveras County call 209/754-6477.

Understory Plants: There are a number of ground covers and smaller shrubs that are appropriate for landscaping around homes in a fire prone area. Use only plants appropriate for your elevation and site, considering slope, aspect (ex. south facing slopes) and nearby tree cover. While *all* plants can burn under the right conditions, low growing, open structured and less resinous plants are best. Maintain your yard through pruning, irrigation and removing dry or dead material to reduce flammability of individual plants, as well. Avoid planting seeds or seedlings of non-native, invasive plants or grasses, which can outcompete desirable species and aggressively spread into the broader landscape. Consult your local USDA Natural Resource Conservation Service (209/223-6535) or University of California Cooperative Extension Master Gardener office (Amador: 209/223-6838 or Calaveras: 209/754-2880) for lists of desirable plants, as well as those to avoid in your area.

Maintenance: As the landscape recovers and plants grow, it will be necessary to keep the area fire safe. Follow the guidelines in the ANR Publication "Home Landscaping for Fire" (see references below) to control weeds, maintain ground covers, prune shrubs and trees as needed, and clean up leaves and other dry materials, particularly in proximity to your home.

Seedling and Seed Sources

- ❑ The California Native Plant Society maintains a list of Native Plant Nurseries in California. <http://www.cnps.org/cnps/grownative/nurseries.php>.

Useful Publications & Websites

- ❑ NRCS Fact Sheets: <http://amadorrncd.org> follow link to 'After Fire' Resources. Subjects include: '*Preparing for winter following a fire*'; '*Prevent soil erosion on your property*'; '*Reseeding burned areas for Homeowners*'; and more.
- ❑ UCCE Central Sierra Butte Fire Recovery Information <http://ucanr.edu/Buttefire>
Recovering from Wildfire; Home Landscaping for Fire; Taking Care of Residential Trees after Wildfire; Burned Oaks: Which Ones Will Survive?; Erosion Control after Wildfire; Using Mulch to Control Erosion; Seeding Recommendations After Fire
- ❑ Calaveras County Public Works: *Soil Erosion Control After Wildfire*
<http://publicworks.calaverasgov.us/portals/publicworks/Docs/Grading/Soil%20Erosion%20Control%20After%20Wildfire.pdf>
- ❑ *Planting a Tree* – Tree Owner Information from the International Society of Arboriculture:
<http://www.treesaregood.com/treeowner/plantingatree.aspx>