

The importance of forest health

Land management through prescription burns

“Forest health,” a term broadly used in US forest management, has been described as a normative term that implies one ecological state is better than another and as a positive goal for forests. There are four views of forest health, characterized here as oriented to biodiversity, ecological processes, history, and management. Climate change and a growing wildland-urban interface create new challenges for forest managers and restoration practitioners. In this shifting environment, effective public communication of scientific understanding of forest ecosystems and their changing state can be crucial.

Example of wildland-urban interface the camp fire Paradise Ca November 2018. Ignited by a faulty electric transmission line, the fire originated above several communities and an east wind drove the fire downhill through developed areas. It covered an area of almost 240 sq. miles, destroyed 18,804 structures. The towns of Paradise and Concow were almost completely destroyed, each losing about 95% of structures in town. The town of Magalia also suffered damage, with roughly half of the structures in town destroyed



Are prescribed burn beneficial?

Imagine your hiking in a dense unmanaged forest with an understory canopy of brush mixed with dry foliage. There are dead standing trees mixed in with the others. Is this a tinderbox waiting to happen? Could this forest benefit from prescribed burns?



History behind fire and land management

Prior to European colonization of the Americas, indigenous peoples used controlled burns to modify the landscape. These controlled fires were part of the environmental cycles and maintenance of wildlife habitats that sustained the people's cultures and economies. Tribes such as the Miwok, Yurok, and Yokut, managed fires often intentionally set or a result of lightning strikes creating an intentional mosaic of grasslands and forests across North America, sustained and managed by the tribes. Radical disruption of Indigenous burning practices occurred with European colonization and the forced relocation of those who had historically maintained the landscape. Understanding pre-colonization land management, and the traditional knowledge held by the Indigenous peoples who practiced it, provides an important basis for current re-engagement with the landscape and is critical to correctly interpreting the ecological basis for vegetation distribution.



Reasons for and Benefits of burning by the Indigenous tribes of California

- Facilitating agriculture by rapidly recycling mineral rich ash and biomass.
- Increasing nut production in wild/wildcrafted orchards by darkening the soil layer with carbonized leaf litter, decreasing localized albedo, and increasing the average temperature in spring, when nut flowers and buds would be sensitive to late frosts.
- Promoting the regrowth of fire-adapted food and utility plants by initiating seed germination or coppicing - shrub species like osier, willow, hazel, Rubus, and others have their lifespan extended and productivity increased through controlled cutting (burning) of branch stems.
- Facilitating hunting by clearing underbrush and fallen limbs, allowing for more silent passage and stalking through the forest, as well as increasing visibility of game and clear avenues for projectiles.
- Facilitating travel by reducing impassible brambles, underbrush and thickets.
- Decreasing the risk of larger scale, catastrophic fires which consume decades of built up fuel.
- Increasing population of game animals by creating habitat in grasslands or increasing understory habitat of fire-adapted grass forage (in other words, wildcrafted pasturage) for deer, lagomorphs, bison, extinct grazing megafauna like mammoths, rhinoceros, camelids and others, the nearly extinct prairie chicken; and the populations of nut-consuming species like rodents, turkey and bear and notably the passenger pigeon through increased nut production (above); as well as the populations of their predators, i.e. mountain lions, lynx, bobcats, wolves, etc.
- Increasing the frequency of regrowth of beneficial food and medicine plants, like clearing-adapted species like cherry, plum, and others.

WHAT ARE PRESCRIBED FIRES AND HOW ARE THEY HELPFUL?

While wildfires are destructive, prescribed fires are carefully planned and executed by professionals during appropriate fuel conditions and weather conditions. Prescribed fire is one tool that CAL FIRE and other land managers use to help keep our forests healthy. By using prescribed fire we can remove forest debris and encourage new growth. There is risk assumed when excluding fire from fire-adapted ecosystems. There is risk, as well, when using fire to obtain ecological and other management objectives. Close evaluation of daily and seasonal weather and fuel conditions, public health, and social and economic considerations—and other important factors—influencing fire behavior and fire effects are integral in determining appropriate place, time, and circumstances to use fire to accrue beneficial fire effects. Fires have been a natural part of the California landscape for a very long time, it is an agent of change necessary to keep our forests healthy and resilient. Native Americans in California used fire as a tool to drive game for hunting, to encourage the growth of plants used for food or tools, and rarely thought of fire as something that needed to be excluded. Prescribed fires help protect our communities for future generations to enjoy the beauty that surrounds us.



State law defines prescribed fire as a planned application and confinement of fire on lands selected in advance to achieve any of the following objectives:

1. Prevention of high-intensity wildland fires through reduction of the volume and continuity of wild land
2. Watershed management
3. Range improvement
4. Vegetation management
5. Forest improvement
6. Wildlife habitat improvement
7. Air quality maintenance

PRESCRIBED FIRE



BEFORE



AFTER



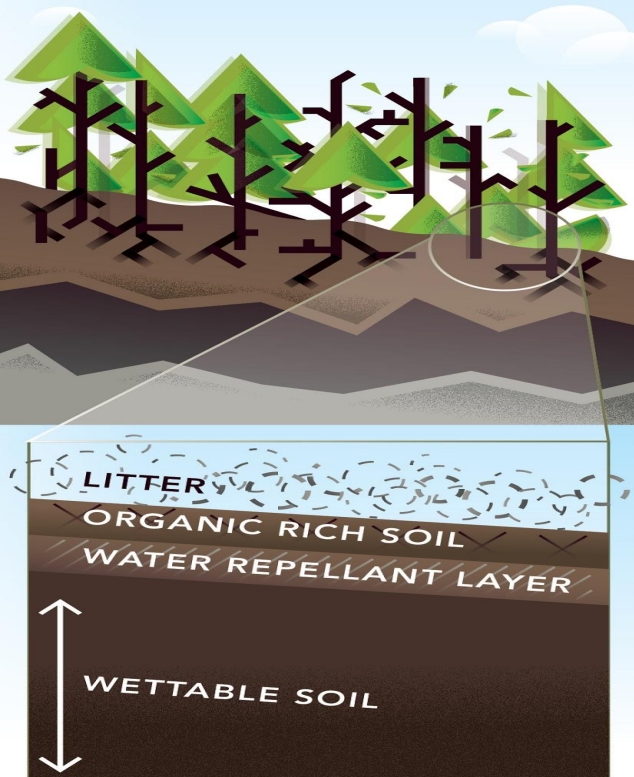
PRESCRIBED FIRE HELPS OUR FORESTS BY BURNING AWAY FOREST DEBRIS AND MAKE ROOM FOR HEALTHY NEW GROWTH.

CATASTROPHIC WILDFIRES ARE OVERWHELMING CALIFORNIA

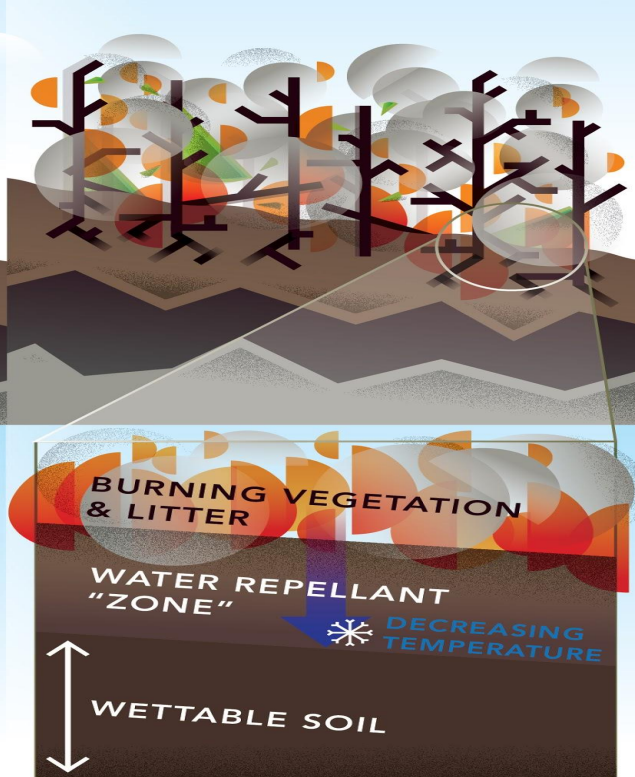
Learn more at ReadyForWildfire.org



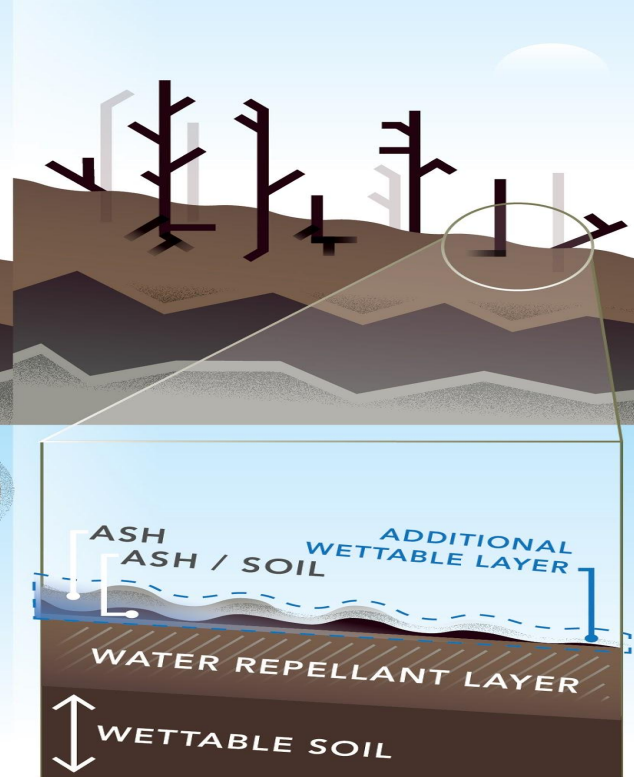
BEFORE FIRE



DURING FIRE



AFTER FIRE



LITTER (needles, leaves, dead grass, bark, etc) | **WETTABLE SOIL** (receives, filters and stores moisture)

WATER REPELLANT LAYER (decomposition of waxy material that comes from plant residues - these materials can coat soil, preventing water from filtering through)

Angora Fire June 24, 2007 South Lake Tahoe

The Angora fire started near the North Upper Truckee road subdivision as a result of an illegal campfire. The fire burned approximately 3,100 acres destroyed 242 residences and 67 commercial structures, and damaged 35 other homes.

Wildland-urban fires can be very costly. At the peak of the Angora fire there were as many as 2,180 firefighters involved costing around \$11.7 million to fight, and caused approximately \$141 million in property damage. The fire wasn't fully contained until July 2, 2007; all interior fires extinguished was achieved on July 10. Because the fire occurred in the watershed of Lake Tahoe, one of the primary concerns once the fire was out was the potential impact of the ash and debris on the Lake Tahoe hydrological system.



South Lake Tahoe after the Angora Fire

