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Table 2: OAK SPECIES GROWING IN CALIFORNIA

Tree oaks:



California black oak



Engelmann oak



Island oak
"Island Oak in Santa Rosa Island"
by :en:Geographer



Blue oak
"Large Blue Oak" by Yath



Garry oak
"Lone oak" by Llywrc



John-Tucker oak
"Quercus john-tuckeri - Hungry Valley, old ridge route" by Joe Decruyenaere



Canyon live oak
"Quercus chrysolepis acorns"
by Doug Beckers



Hybridized/
Palmer's oaks



Shreve oak



Coast live oak
"Quercus Agrifolia" by Peter O'Malley



Interior live oak
"Interior live oak twig with acorn" by Benny White



Valley oak
"Valley Oak Mount Diablo" by Miguel Vieira

Shrub oaks:



Huckleberry oak
"Quercus vaccinifolia 1" by Stan Shebs



Sadler oak



Leather leaf oak



Scrub oak
"Leaves of California Scrub Oak" by :en:Geographer



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Fire in the Oak Wild Lands

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The oak conservation community has worked tirelessly on efforts to conserve and protect California's oak woodlands. We must now add fire to the list of serious oak issues in California (see Table 1). In 2014 alone, 5,600 fires burned over 600,000 acres across the state. One fire, the King Fire, burned almost 100,000 acres. The 2013 Rim Fire burned over 250,000 acres in the Central Sierra Nevada. Still fresh in our memories are the Cedar Fire and the Old Fire. The Southern California fire storms of 2003, which were repeated two more times: first in October 2007, when 971,000 acres burned in a fire complex forcing the evacuation of one million people from their homes, and then again in 2008. This fourth year of drought promises more fire challenges.

Most often these fires burn in wild lands, mostly public forests, woodlands, and chaparral that are owned or managed by public agencies such as the U.S. Forest Service, the Bu-



Figure 1. The Los Padres National Forest Indians fire of 2008 cleansed the understory. Oaks and other hardwoods survived (2009 photo).

reau of Land Management, the U.S. military, and state and local government. The bioregional native vegetation complex largely evolved with a history of periodic fire, but fires have been suppressed for the past century. Not only are natural-

ly-occurring fires extinguished to save nearby homes in urbanized areas, but prescribed burns to prevent accumulation of flammable understory have been reduced over the years due to air quality, cost and liability concerns. As a result,



Figure 2. The Rim Fire of 2013 left enormous high severity burn patches of thousands of acres. Most trees died, but black oaks are sprouting (2014 photo).

there is an accumulation of vegetative biomass predisposing previously resilient landscapes to raging and damaging wildfire. Fires of the past burned at a lower intensity and served to keep biomass below dangerous levels.

Fires are themselves diverse, but as a general rule, the potential for a fire that is bigger, hotter, more damaging, and uncontrollable increases each year as the seasons progress. Early summer fires such as the Basins/Indians Fire in the Los Padres National Forest (June 2008) and the Flat Fire in the Shasta-Trinity National Forest (July 2012) produced patchy heterogeneous areas that are each a few acres in size, resulting in a variety

of unburned, light, moderate and high burn severities. This diversity can be beneficial to the landscape. Late season fires tended to be more devastating. Homogeneous patches in the Rim Fire were 10,000-12,000 acres in size. Post-fire succession in these wildlands must start over due to a complete loss of vegetation.

Oaks have previously been thought to be relatively more adaptable to fire than conifers. Generally black oaks, often mixed with coniferous forests, will sprout from the roots and sometimes from the stem following severe fire. Valley and blue oaks, and most other oaks, will survive a light fire with low fuels but will be killed by a hot and intense fire. Canyon live oaks and interi-

or live oaks have historically lined the steep canyons of California's many scenic rivers, and as such are now very susceptible to fire. Oak regeneration, normally present in California's highly vulnerable canyons, can survive a lower temperature fire, but not high fire severity. Scrub oaks, mostly in chaparral types, generally sprout after fire even though the above-ground shrub is often burned away.

Among U.S. Forest Service Forest Inventory and Analysis (FIA) tree monitoring plots remeasured from 2010-2012, there are 5,418 records of individual oak trees that had been alive when measured a decade previously. Of those, 415 trees or 7.7% of all oaks had died. With-

in the same decade, 8.1% of canyon live oaks on FIA plots died, and 81% of the mortality was caused by fire. In black oak stands there was 8.9% overall mortality in the period, and of that 35% was due to fire. Likewise 6.6% of interior live oak trees found on FIA plots died from 2001-2011 and 65% of that mortality was due to fire. Further oak mortality occurred in recent fires of 2013 and 2014. These rates of oak mortality indicate disturbing vulnerability for several species.

California Oaks recognizes that California wild lands are imperiled by threats of pests, drought, climate change, and sudden catastrophic fire. While low intensity fire is a good thing in wildlands, there are clear indicators that current large

fires are forever transforming significant portions of California's heritage wild land habitats. The widespread reintroduction of prescribed fire, management of mosaics of landscape patches with reduced fuel loads, enhanced preservation of important oak ecosystems, increased fire and fuels research funding, and public education are all vital parts of the solution. California Oaks urges all residents to join it in demanding that our public land and fire agencies address these issues or we will lose these important hallmarks of biodiversity.

Please be fire safe. For more information, call the California Department of Forestry and Fire Protection: (916) 323-7390, or, in an emergency, call 911.



Figure 3. The 2012 Flat Fire cleansed the canyon live oak understory but spared the trees (2015 photo).

Table 1: THREATS TO OAK WOODLANDS

- 1 Climate change and drought
- 2 Urbanization and lack of oak protection
- 3 Vineyard developments; clearing for other water intensive cash crops
- 4 Obsolete forest practice rules
- 5 Over-grazing and poor land management
- 6 FIRE
- 7 Lack of oak regeneration and poor acorn crops
- 8 Oak browsing by herbivores, gophers and voles.
- 9 Sudden Oak Death/ Goldspotted Oak Borer
- 10 Invasive species