

# Prescribed Fire Effects on California's Oaks<sup>1</sup>

Timothy E. Paysen<sup>2</sup>

## Introduction

Urban encroachment, heavy use of public lands, and private land treatments create challenges for managing natural resources—in particular, California's oaks. Like many of the State's resources, the State's oaks are uniquely Californian. They give a Mediterranean flavor to the landscape that is unequalled in the country.

### **California oaks**

California's oaks serve as havens for human recreation and use, and as buffers to disaster (*fig. 1*). They also host numerous wildlife species. Many oak species have become depleted, and some so heavily that their roles in the future of California's landscape are seriously questioned.



**Figure 1**—Post fire erosion problem.



**Figure 2**—U.S. Forest Service prescribed burning program.

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<sup>1</sup>A poster version of this paper was presented at the 2002 Fire Conference: Managing Fire and Fuels in the Remaining Wildlands and Open Spaces of the Southwestern United States, December 2–5, 2002, San Diego, California.

<sup>2</sup>Forester, Pacific Southwest Research Station, USDA Forest Service, 4955 Canyon Crest Dr., Riverside, CA 92507.

e-mail: [tpaysen@fs.fed.us](mailto:tpaysen@fs.fed.us).

Fire, a common element in most California oak communities, can be a boon or a bane—depending upon the character of the fire and the condition of the ecosystem. A U.S. Forest Service program is underway with the objective of determining the appropriate use in the production of forest health and sustainability in California's oaks (*fig. 2*). A prime requirement is that the prescribed fire studies address effects on the complete ecosystem, as much as possible (“holistic” is the current buzz word). To do so is not a simple task. If fire can be used, then certain issues are important: what kind of fire, and when? Should the fire be “hot”? “cool? Winter? Summer? What will the effects on the entire community be?

## International oak research

Interest in fire effects on California's oaks is not just limited to California. Similar kinds of oaks, growing under similar conditions, and which are subject to frequent fire, can be found in a number of countries around the world; countries with Mediterranean-type ecosystems (*fig. 3*). Thus, cooperation with scientists from various parts of the world can be beneficial—perhaps imperative.



Figure 3—Mediterranean-type ecosystems.

## Study Implementation

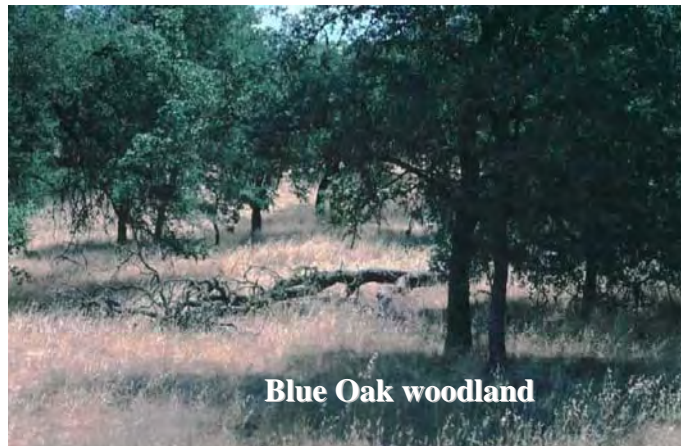
The Prescribed fire program at the PSW Research Station, Riverside, CA is already underway. Documentation has been prepared, and a number of studies are in place (*figs: 4-8*).



Figure 4—Thin and understory burn to produce a shaded fuel break in a canyon live oak (*Quercus chrysolepis*) forest on the San Bernardino National Forest, San Bernardino, CA.



**Figure 5**—Prescribed burn of invasive grass in oak (*Quercus engelmannii*) savannah on the Santa Rosa Plateau, The Nature Conservancy, Murrietta, CA.



**Figure 6**—Heavy fuel reduction prescribed burning in oak (*Quercus kelloggii*, *Q. douglasii*, *Q. chrysolepis*) woodland at Camp Roberts, San Luis Obispo, CA.



**Figure 7**—Prescribed burn in mixed conifer oak forest for hazardous fuel reduction on the San Bernardino National Forest, San Bernardino, CA.

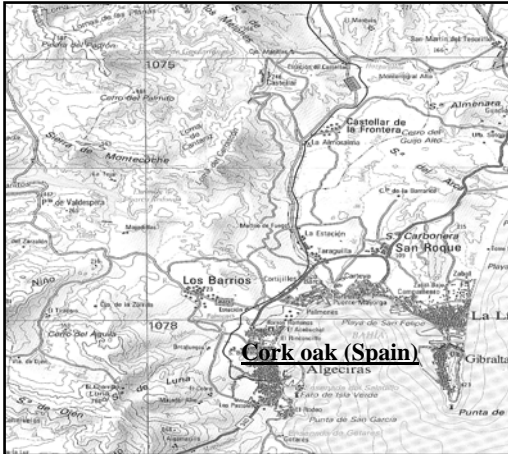


Figure 8—Understory burning in cork oak (*Quercus suber*) forests in Spain.

## Discussion

Studies are in cooperation with other agencies, branches of the USDA Forest Service, other countries, and with a variety of professional disciplines. To properly carry out the necessary studies, more research disciplines must jointly direct their efforts toward the effects of prescribed fire, and the nature of factors that determine its effects—both short- and long-term. Such efforts must be deliberate, and coordinated.