

## Secondary Source for *Friendly Fire*

### From *Before the Wilderness*

This excellent collection of recent essays is a real eye-opener. The following, about fire and acorns, is taken from “Making Oaks and the Acorn Crop” by Helen McCarthy. The full bibliographical entry for the book is: *Before the Wilderness: Environmental Management by Native Californians*, Compiled and Edited by Thomas C. Blackburn and Kat Anderson, Ballena Press, 1993, Menlo Park, CA. McCarthy’s article is on pp 213-228

The use of fire, through burning portions of the landscape, was one of the most effective management tools available to California peoples, and its application and careful control were particularly important to the manipulation of the oak/acorn resources. The record is clear that tribes up and down the state burned systematically and with purpose. Burning is known to be beneficial to grasslands throughout the world, and some chaparral plants are even pyrophitic; i.e., they actually require burning in order for seeds to germinate. However, what specific effects does fire have on oaks? Fire not only affects individual plants, it affects the overall structure of the ecological community, and influences the composition and distribution of species within that community. It is this level that is of initial concern.

Many studies have shown that the California landscape (especially the woodlands) is fire adapted, which means that it could not have attained the composition and structure it exhibits without frequent fires. Black oaks in particular would not have either their present distribution or their frequency without fire, and studies have shown that fires begun by natural causes (i.e., lightning) would not have occurred frequently enough to create that distribution. Reynolds, in research carried out in the Central sierra found that “natural ignition [is] inadequate to explain the vegetational relation that existed at contact time. Therefore, fires stemming from aboriginal practices must have played a very important role in this region.”

His research also showed that there is “more old growth black oak than one would expect” to find “in open places or former openings in the coniferous canopy particularly on southern exposures.” Reynolds, noting that village sites are often found near mature black oak stands, argued that cultural factors played a role in maintaining the stability of these black oak areas, and that the “age and size of the oaks suggest that burning was pursued aggressively by the Indians.” This suggestion is based on the fact that oaks, especially black oaks, need considerable light for optimal growth and concomitantly good acorn production; if they are left to compete freely with conifers in the woodland, the conifers will overtop and shade out the oaks, and eventually take over. When an oak or mixed community is burned, however, conifer seedlings which might grow to be competitive adults, are destroyed by the fire and are thus prevented from establishing a foothold in the grove or opening. Oaks or oak seedlings, on the other hand, are capable of re-sprouting and reestablishing themselves, thus maintaining their dominance in that

locale. This ability to re-sprout is a critical adaptive characteristic in a fire-structured landscape, and is the essential factor underlying the effectiveness of fire in promoting an optimal environment for oaks. However, under the current policy of fire suppression, conifers and brush are encroaching on many meadows, openings, and stands of oak. An examination of old photographs of Yosemite clearly shows this process of replacement, which was kept in check by systematic burning in pre-contact times.

In addition to promoting favorable distribution of oaks in the woodland community, the use of fire may positively affect individual trees and their yield. Karuk women, for example, reported that “the trees are better if they are scorched by fire every year. This kills disease and pests.” Two pests in particular may infest an acorn crop: the Filbert Weevil and the Filbert Worm. The later drops out of the tree and goes through a reproductive cycle in the ground beneath the tree, emerging later to reinfect the acorns. Some botanists have noted that there is a particularly heavy infestation during the year following a bumper crop. Indian people clearly understood this relationship, as the following statement by Klamath River Jack in a letter to the Fish and Game Commission demonstrates:

Indian have no medicine to put on all places where bug and worm are, so he burn; every year Indian burn. ... Fire burn up old acorn that fall on ground. Old acorn on ground have lots worm; no burn old acorn, no burn old bark, old leaves, bugs and worms come more every year. ... Indian burn every year just same, so keep all ground clean, no bark, no dead leaf, no old wood on ground, no old wood on brush, so no bug can stay to eat leaf and no worm can stay to eat berry and acorn. Not much on ground to make hot fire so never hurt big trees where fire burn. [Jack 1916]

. . . Fire also keeps an oak stand clear of undergrowth, so that it is protected from the effects of a large, intense fire, which might cause severe damage...