

# California's Oak Woodlands Revisited: Changes in Owners, Use, and Management, 1985 to 1992<sup>1</sup>

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## Introduction

A 1985 statewide survey of the goals, characteristics, and management practices of owners of California oak woodlands was instrumental in developing the research and extension components of the University of California's "Integrated Hardwood Range Management Program" (IHRMP) (Huntsinger and Fortmann 1990). The survey was based on a random selection of properties in the oak woodlands, instead of the more typical random selection from a list of names. In 1992, the owners of the same properties were resampled (Huntsinger and others 1997). Because this land-based sample was surveyed at two different times, it offers a unique opportunity to answer at least two kinds of questions central to the conservation of oak woodlands: What is the rate and nature of woodland land use change? Since Program implementation, have landowner practices and values changed? This brief summation compares some results of the second survey to those of the first, and addresses these questions for the years from 1985 to 1992.

The oak woodland can be thought of as an ecosystem at risk. Much of its value and character has to do with its being large and contiguous. Unsuitable to crop or forest production, the foothill woodlands remain a vast, often interconnected acreage running through 38 of California's 52 counties—home to more wildlife than any other major habitat type in the state (Mayer and others 1986). Today there are two major forces that most threaten the extensive and overwhelmingly privately owned oak woodland. In the early decades of the century millions of hectares of oak woodland in valley bottoms were converted to cropland. Today, conversion for residential use is gobbling up woodland (Bolsinger 1988). Land values in many areas are far higher than those justifiable by range livestock production (Hargrave 1993, Johnson 1996). Incentive programs that reduce property taxes, like the California Land Conservation Act (CLCA or Williamson Act), require the support of firm land-use zoning designations that are often lacking (McClaran and others 1985).

The second major risk to oak woodlands is a perceived lack of regeneration of oak species in the woodlands (Muick and Bartolome 1987). Scientists and lay people alike have noted a lack of sapling-sized oak trees in many areas. Concerns that some parts of the woodland will eventually disappear because of attrition are exacerbated by the harvest of oaks for fuel and for increasing forage production. In 1985, when the Integrated Hardwood Range Management Program (IHRMP) was conceived, it was believed that this kind of oak removal was a serious problem in the woodlands.

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<sup>1</sup> Presented as a poster at the Symposium on Oak Woodlands: Ecology, Management, and Urban Interface Issues, March 19-22, 1996, San Luis Obispo, Calif.

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## Comparing 1985 to 1992

Overall, oak woodland landowners still fall into the archetypes described as a result of the 1985 study (Huntsinger and Fortmann 1990) (*table 1*). However, there have been changes in land status, owner characteristics, management, and attitudes about oaks.

### ***Landownership Is Dynamic***

During the period between surveys, an average of almost 4 percent of oak woodland properties were sold each year. According to database and assessor records, about 11 percent of ownerships in the original sample were subdivided during the 7 years between sampling periods. According to survey responses, over the past 5 years 9 percent of the ownerships and 7 percent of the woodland has been subdivided (Huntsinger and others 1997). Results of various field surveys conducted in the woodlands show an exponential rate of decline (Huntsinger and Hopkinson 1996). Holzman (1993) found that conversion rates over the past 60 years varied regionally, with more than a third of the woodlands developed in one region and an average conversion loss of 20 percent among the five regions studied. Ranchers interviewed in a Central Sierra study tended to believe that high land values and the estate and property taxes that go with them, coupled with irregular and low investment return from ranching, are major obstacles to the long-term future of ranching in areas where development pressures are high (Johnson 1996). Hargrave (1993) found that in El Dorado County, investment returns from land appreciation often exceeded those from livestock production. Landowners report that subdivisions are closer than ever to their own properties, and with subdivision, management conflicts between agricultural producers and urban refugees also become part of the scene (Huntsinger and Hopkinson 1996).

### ***Landowner Goals Are Changing But Grazing Is Still the Major Land Use***

There is a consistent trend away from using the land to produce products of any kind. But although the data show a general reduction in the use of oak woodlands for grazing and in the participation of landowners in livestock groups and economies, grazing is still, in fact, the major activity and the major underlying goal of oak woodland landowners (*table 2*). This is especially true of larger parcels. This and other studies have indicated that about three-fourths of California's oak woodlands are grazed by livestock (Bolsinger 1988, Holzman 1993) and that, although fewer than half of ranches are solely supported by ranching (Richards and George 1996), ranching is the most important source of household identity for the majority of ranchers (Bartlett and others 1989, Richards and George 1996). Conservation of oak woodlands on any large scale will require the participation of the livestock industry. Trends among livestock grazers and other oak woodland landowners were the same: none of the results reported here were different when those who do not graze livestock were excluded from the analysis (*table 2*).

### ***Values and Practices Targeted by the IHRMP Were Affected***

Although this type of survey cannot "prove" that the Program caused people to act differently, changes in values and behavior can be linked to program goals. Considerable IHRMP research was targeted to finding out how wildlife management could offer incentives to landowners to keep oaks through the marketing of hunting opportunities and habitat management, and in 1992, more landowners were aware of the value of oaks as wildlife browse (*table 2*) and were actively engaged in improving wildlife habitat.

IHRMP-sponsored research testing overstory-understory relationships in oak woodlands showed that, particularly in drier parts of the state, oaks at mid-canopy levels do not reduce forage production and, in some cases, extend the availability of green feed by increasing the species and phenological diversity of the grassland (Frost and McDougald 1989, McClaran and Bartolome 1989). This information was promoted through educational materials and workshops, and

*Table 1—Two oak woodland archetypes identified as characterizing respondents in the 1985 and 1992 surveys.*

Owner of small property	Owner of large property
Does not sell products from land	Sells products, most often livestock
More often absentee	Resident owner
More recent arrival	Long-term owner
Relatively amenable to oak use regulation	Anti-regulation
Less than half cut living oaks	Most cut living oaks
Growing in numbers	Relatively stable in numbers

although removing oaks for increased forage production was the major reason large landowners gave for removing healthy oaks in 1985, today it is one of the least important reasons and is seldom done. Program efforts directed at owners of smaller properties have also apparently paid off. Owners of small properties tend not to cut oaks for economic reasons such as increasing forage production, but instead cut them for home use as firewood. Since 1985, the frequency of firewood cutting has decreased significantly, particularly for owners of small properties. Landowners are also much less likely to sell firewood than they were in 1985 (table 2), perhaps reflecting program efforts to increase awareness that oak harvest may not always be sustainable. In fact, landowners in 1992 were far more likely to agree that “oaks are being lost in California” than they were in 1985. Landowners who valued oaks for browse, shade, wildlife habitat, soil conservation, and/or had contact with an advisory agency were significantly more likely to carry out oak-promoting activities such as planting oaks and protecting oak sprouts ( $P < 0.1$ , *t*-test).

### **Landowners Are Not Receptive to Regulation**

As also indicated by this and other studies, ranchers and oak woodland landowners are not fond of regulatory options (Ellickson 1991, Huntsinger and Hopkinson 1996) (table 2). However, they are apparently receptive to education and information programs, as well as to incentive programs like the Williamson Act that reduce the costs of high land values for producers, because about half of them have their land contracted under the Act. A dramatic increase in landowner awareness of the threat to California’s oaks has occurred in the past seven years, and landowners have voluntarily responded with reduced cutting and increased protection of oaks (table 2). Stewart (1991) indicates that ranchers are more willing to accept “carefully crafted oak related ordinances” than is apparent in the general response to regulation of oak use found in this study.

## **Conclusions**

Several of the behaviors targeted by the IHRMP, including cutting of oaks for forage production enhancement and home firewood use, have shown dramatic reductions since the program began in 1985 (table 2).

The owners of both large and small properties have demonstrated a receptiveness to the Program's education efforts. Ranching and livestock production, by maintaining large open space areas in private, productive ownerships, can play a critical role in conserving California's natural resources. If well managed, privately owned woodlands linking reserve areas and parks

Table 2—Change in landowner attitudes and management, 1985 to 1992

Percent of landowners who...	1985 (n=126)	1992 (n=115 <sup>1</sup> )	P < ( $\chi^2$ )
Cut living oaks <sup>3</sup>	70	50	0.04
Thin oaks	35	26	0.1
Cut oaks to increase forage	45	28	0.01
Poison oaks	7	2	0.05
Value oaks for natural beauty	82	88	ns
Value oaks as browse	51	67	0.02
Sell firewood	20	11	0.04
Believe oaks are being lost	59	79	0.004
Believe oak use should be regulated	32	39	ns
Graze livestock on land <sup>4</sup>	76	66	0.07

<sup>1</sup> About 30 percent of 1992 respondents participated in 1985 survey. There was no significant difference between their responses and those of new respondents. Response rates were 75 percent in 1985 and 1992.

<sup>2</sup> Chi-square analysis.

<sup>3</sup> Includes owners who cut only one oak.

<sup>4</sup> An estimated 71 percent of the woodland in 1992. Results reported in this table were no different when those who do not graze livestock were excluded from the analysis.

can magnify reserve effectiveness in protecting wildlife populations many times. Landowners, however, tend to be adamant about protecting their own rights to use their land as they see fit, including selling the land at a profit for real estate development (Huntsinger and Hopkinson 1996). Often the land represents the majority of a family's financial assets and landowners feel threatened by any public tendency to view the state's remaining open space as having an implicitly "public" character. Balancing the economic needs of the landowner and conservation goals will challenge Californians concerned about their landscape in decades to come.

Although a program of research and extension can help reduce land use change by contributing to the economic well-being of ranchers through better or more diverse management, and to the enjoyment of oak woodlands by owners of small properties through enhanced wildlife and esthetic values, it cannot hope to prevent massive land use change as California's population expands into rural areas. Research and extension efforts must be complemented by some effort to influence the course of land use change in the oak woodlands we wish to conserve in California.

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