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# Identifying and Addressing Contemporary Issues in Central Coast Oak Woodlands<sup>1</sup>

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## Abstract

Recently, questions about the extent of thinning, the sustainability of forest management practices, and the compatibility with other uses were raised by the media, agency personnel, and environmental groups. In response, University of California Cooperative Extension and Cal Poly San Luis Obispo's Natural Resources Management Department collaborated to address these issues. In March 2006, a questionnaire was mailed to landowners of properties greater than 100 acres in Santa Barbara, San Luis Obispo, and Monterey counties. A total of 2,786 questionnaires were mailed, with 450 completed and returned (16 percent). The respondents were highly educated, holding degrees in areas other than agriculture or natural resources. Most landowners earned degrees in biology, business, education, law, engineering, or medicine. Over 60 percent of respondents were opposed to any county ordinance. However, 71 percent of respondents said oaks are "important" for their aesthetic value, which indicates support for oak protection. Responding landowners feared the loss of private property rights, and felt that government should not interfere with management on private property. Nearly 73 percent of respondents to our survey make less than 25 percent of their income from their land. Landowners rated their knowledge of oak products marketing, laws and regulations (e.g., Forest Practices Act), forest health (e.g., Sudden Oak Death), and available consulting services as especially poor. A majority of landowners who responded to the survey did not know how to get more information on oak woodland management. The workshop presented on August 17, 2006, in San Luis Obispo, was designed to respond to issues and information needs identified by central coast landowners as well as to provide the latest scientific findings and policies regarding oak woodland management.

*Keywords: Central coast, contemporary issues, forest management, oak woodlands, survey.*

## Introduction

Few plants have so greatly influenced a region as the oaks of California's woodlands, which include 18 different species, each with a distinct growth form and physiology. This diversity has allowed the oaks exceptional ecological importance throughout

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California's plant communities, including forests, woodlands, and chaparral (Pavlik and others 1991).

The hardwood rangeland occurs in 52 of California's 58 counties, covers approximately 10 million acres, and is held predominantly by private landowners. The central coast counties of Monterey, San Luis Obispo, and Santa Barbara contain a significant portion of the state's total hardwood rangeland and therefore stand out as an important area to study the hardwood resource. Monterey County has 560,000 acres of hardwood forest/woodland, more than any other county in California. San Luis Obispo County has approximately 454,000 acres, and Santa Barbara County has 248,000 acres of hardwood forest/woodland (Standiford and Tinnin 1996). These three counties are among 14 California counties with at least 100,000 acres (Mayer and others 1986).

Since the turn of the 20<sup>th</sup> century, the relentless population growth in California has resulted in the conversion of many woodlands to accommodate new ranches, farms, and homes. This loss of habitat has not gone unnoticed. Both the botanist Willis Jepson and naturalist John Muir observed the steady loss of oak woodlands in the early 1900s. University researchers, biologists, natural resource managers, and others continue to observe this trend that began to become obvious in the mid-20<sup>th</sup> century (Pavlik and others 1991).

### ***The Changing Oak Woodlands***

Information about oaks is abundant, but its value is limited by how accessible it is to woodland landowners. Making science-based information available to landowners is vital because they will shape the future of California's oak woodlands. Unlike some of the state's other ecosystems, over 80 percent of the total oak woodland is held by private landowners (Giusti and others 2004). These landowners are increasing in number, due to the trend of subdividing ranches into smaller pieces. Subdivision results from high estate taxes, or simply because residential use provides greater economic return than agricultural use. Between 1985 and 1992, 7 percent of the oak woodland was subdivided (Huntsinger and others 1997). Today many more oak woodland landowners are primarily using their land as residences rather than ranches, compared to 50 years ago (Walker and Fortmann 2003).

The result of this subdivision trend is the fragmentation of California's oak woodland ecosystems. The fragmented woodland may appear similar to the native woodland, but many studies have demonstrated that converting to smaller ownerships brings serious ecological consequences, including an increase in invasive plants and decreased numbers of native species, especially birds (Merenlender and others 1998).

Many groups have responded to this threat to the oak woodlands, and policy has been formed to encourage the continued use of oak woodlands for open space or agricultural purposes. The Williamson Act was passed in 1965 to give landowners tax breaks for keeping their land in agricultural use. Constantly evolving estate tax law has been modified to encourage the continued existence of large ranches. Conservation easements are another approach for preserving woodlands. These easements have been developed by land trusts that have formed throughout California in the past 20 years. Easements provide a way to compensate landowners for preserving their woodlands by purchasing the development rights.

Conservation easements have spread in popularity as means for landowners to receive financial benefits without developing their land. These easements have evolved at an extremely fast pace in recent years, making them difficult to understand and regulate (Merenlender and others 2004). A variety of issues related to permitted land use continue to be discussed in relation to conservation easements.

## ***The Project***

University of California Cooperative Extension (UCCE) and Cal Poly San Luis Obispo's Natural Resources Management Department acquired funding and began collaborating to address the key issues surrounding oak woodland management in the central coast counties of Monterey, San Luis Obispo, and Santa Barbara. Landowners were surveyed to set up an educational workshop about research and policies to promote good land management decisions.

Previous surveys of oak woodland landowners in California were conducted in 1985, 1992, 1994-95, and 2000-01 (Huntsinger and others 2004). These previous surveys focused on the entire state or on regions outside the central coast area (San Luis Obispo, Santa Barbara, and Monterey counties). The survey conducted here differs because it was designed to outline a workshop while previous surveys focused on characterizing oak woodland owners.

The survey was sent out in March 2006 to identify key issues for the oak woodlands of the central coast, and to assess the need for information by gauging landowner experience and knowledge pertaining to oak woodland management. The workshop was designed to cover issues and information needs that landowners identified in the survey. It is our hope that the results of the survey and workshop will lead to expanded implementation of best management practices in central coast oak woodlands.

## **Methods**

### ***Survey Development***

The first set of questions was developed in November 2005. We used Marketing Research (Aaker and others 2001) to design the rating scales listed in the questionnaire. The questionnaire was divided into several major categories, including ownership characteristics, rules/regulations, management practices, products marketing, woodland values, and extended education. The survey went through nine revisions before it was mailed. These revisions focused on improving the rating scales, content, and overall design of the questionnaire.

We originally thought the mailing list could be based on the cattle brand lists from San Luis Obispo, Santa Barbara, and Monterey counties. After some discussion, we decided that the focus of the study should be expanded to include general ownership of the oak woodlands in addition to ranches and farms. Our mailing list was based on GIS parcel data acquired from each of the three counties. We chose to include all parcels of at least 100 acres, which produced a list of roughly 3,000 addresses. In March 2006 the questionnaire, a cover letter required by the Cal Poly Human Subjects Protocol, and a return envelope were mailed to 2,786 landowners.

## **Survey Analysis**

Surveys were returned by 450 of the 2,786 possible respondents (16 percent). The surveys were collected at the UCCE office and immediately separated from their envelopes to ensure anonymity. Due to the anonymous nature of the questionnaire, we believe that some landowners of multiple parcels received more than one questionnaire. Therefore, the true response rate cannot be determined precisely, but is likely somewhat greater than 16 percent.

The response rate was adequate for identifying the interests of likely workshop attendees, but was far too low to make statistical inference about the general population of landowners on the central coast. Nevertheless, we felt it was important to report the results of this survey. The results included in this paper are presented within this context.

Questionnaires were numbered, duplicated, and entered into a Minitab spreadsheet. Additional spreadsheets included a log of comments for question 30 (perceived oak woodland issues) and a spreadsheet to record specified “other” responses for county, land use, degree, work experience, vegetation type, oak products, and information sources. A digital copy of all results was included in the project’s final report (Rice 2006).

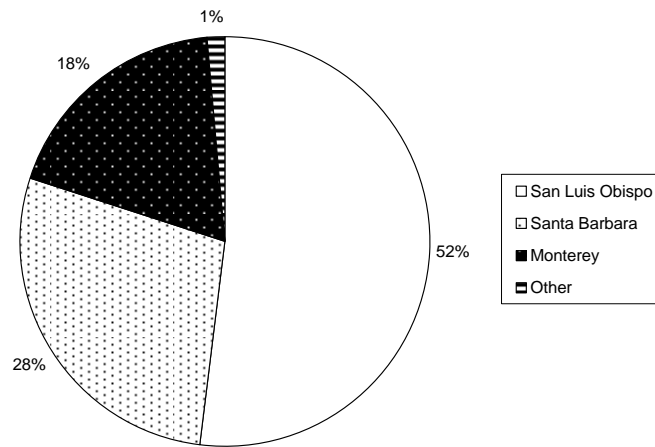
The results were tallied and used to create pie and bar charts in Minitab. We also used the cross tabulation function of Minitab, along with the chi-square analysis method to test for significant associations between related questions. Responses for some questions were collapsed to facilitate some Chi-square analyses (that is, at least five expected responses for each cell). The results of these Chi-square analyses should be treated with caution and should not be generalized to the larger population of all central coast landowners. Statistical tests were considered significant when  $P \leq 0.05$ .

## **Results and Discussion**

The results of the survey are presented below in four categories: respondent demographics, attitudes, landowner knowledge, and workshop key topics.

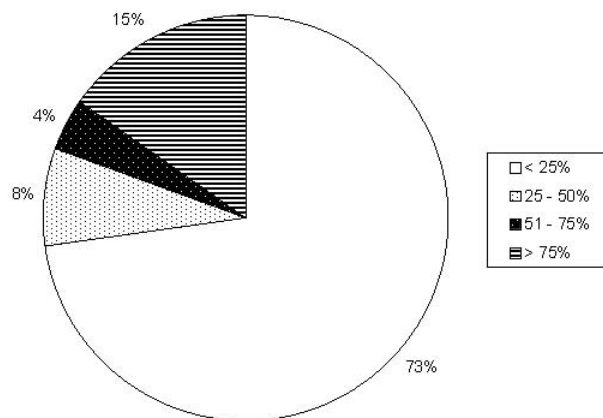
### ***Respondent Demographics***

The first section of the survey was focused on demographics. A total of 2,786 surveys were sent, including 1,310 (47 percent) to San Luis Obispo County, 844 (30 percent) to Santa Barbara County, 632 (23 percent) to Monterey County. A total of 450 surveys were returned, including 228 (52 percent) from San Luis Obispo, 123 (28 percent) from Santa Barbara, 81 (18 percent) from Monterey, and 6 (1 percent) from those holding the majority of their land in other counties (*fig. 1*).



**Figure 1**—County in which respondents held the majority of their land.

Ninety-seven percent of respondents own their land with only 3 percent leasing. Grazing was reported as the primary land use by 48.5 percent of respondents, followed by crops (14.3 percent), recreation (12.5 percent), and vineyards (9.8 percent). Landowners were asked what percentage of their income was derived from their land. The majority of respondents (73 percent) reported that less than 25 percent of their income was derived from their land (*fig. 2*).



**Figure 2**—Percentage of income reported as derived from land.

Nearly 40 percent of respondents reported owning their land for more than 30 years, while 14 percent have owned their land for less than 5 years. Nearly 72 percent of respondents plan to keep their land for at least 30 more years.

These associations apply to the survey respondents, but not to the general population of central coast landowners. The majority of these associations depend on how much those who responded to the survey relied on their land as a source of income. The county of residence seemed to influence dependency on woodlands as a source of income, with those in Monterey County earning the greatest share from their land (*table 1*). More highly educated survey respondents earned less of their income from their land. Those who depended more heavily on their land to make a living were more opposed to a county oak woodland ordinance. Respondents who earned less income from their land were more concerned with forest management and forest health issues. Those who were actively marketing forest products reported having more experience with forest treatment methods.

**Table 1**—*Relationships between survey variables.*

Significant relationship/trend	P-value
County of residence was related to percent income earned from land.	0.027
Education level declined with more income from land.	0.025
Opposition to oak ordinance increased with more income from land.	0.009
Concern for forest management increased with less income from land.	0.027
Concern for forest health increased with less income from land.	0.044
Experience with forest treatment methods was associated with forest products marketing activity.	0.042
Experience with forest products marketing increased with greater forest products marketing activity.	0.000

Over 92 percent of respondents said they had taken at least some college courses, and 74 percent had at least a Bachelor’s degree. A significant association exists between a respondent’s education level and income earned from the oak woodland. Results suggested that respondent education level decreased as a greater portion of income was earned from the oak woodland. These results seemed to agree with a 1985 survey that suggested that education level decreased as property size increased, and those with larger properties were more likely to sell oak woodland products (Huntsinger 1990).

Our survey also showed that nearly 84 percent of college-educated respondents reported having a degree other than crop science, animal science, or natural resources. Respondents had degrees in biology, business, education, economics, engineering, law, medicine, psychology, etc. This suggests that central coast oak woodlands are being used as residences by many highly educated landowners outside of the traditional agriculture and natural resource fields. Further research will be necessary to confirm this apparent trend.

Over 44 percent of respondents had 0-5 years of experience in managing oak woodlands, and 48 percent did not have experience in farming or ranching.

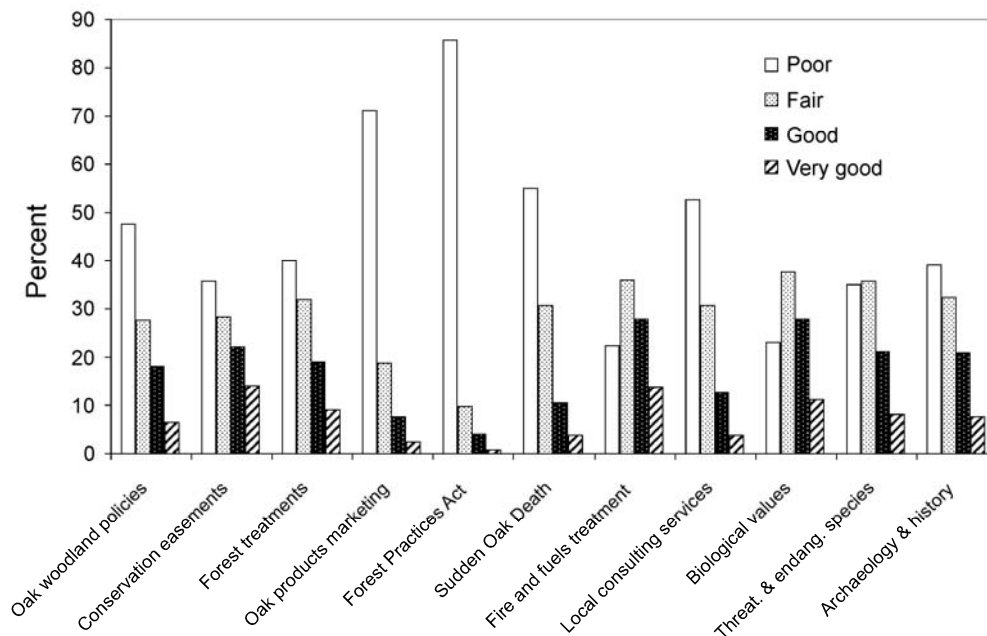
Evergreen oaks were the most dominant vegetation type, followed by mixed oaks and deciduous oaks. Only 2 percent of respondents did not have oaks on their property. Nearly 63 percent of respondents reported 10 to 20 inches of rain per year on their land.

## Attitudes

The respondents to the survey were generally very opposed to a county oak woodland ordinance, and many expressed their opposition to any regulation. Over 60 percent were opposed, 24 percent in favor, and 16 percent were unsure or declined to answer. Many landowners said that they fear the loss of property rights and thought that the government should keep out of oak woodland management of private lands. Previous research (Huntsinger 1990, 1997) found that owners of smaller properties were significantly more likely to believe that oaks woodlands should be regulated and were less likely to sell products from their land. While our survey did not separate landowners by property size, it did find significantly greater opposition from those who earned more income from their land (*table 1*).

## Landowner Knowledge

A major portion of the survey asked respondents to rate their own knowledge of certain oak woodland issues (*fig. 3*). They were asked if their knowledge was poor, fair, good, or very good. Many respondents for each question rated themselves as having poor knowledge in several categories. Knowledge of oak products marketing, the Forest Practices Act, Sudden Oak Death, and available consulting services stood out as the poorest categories. Fire/fuels treatment and biological values were the only areas in which poor was not the most common response.



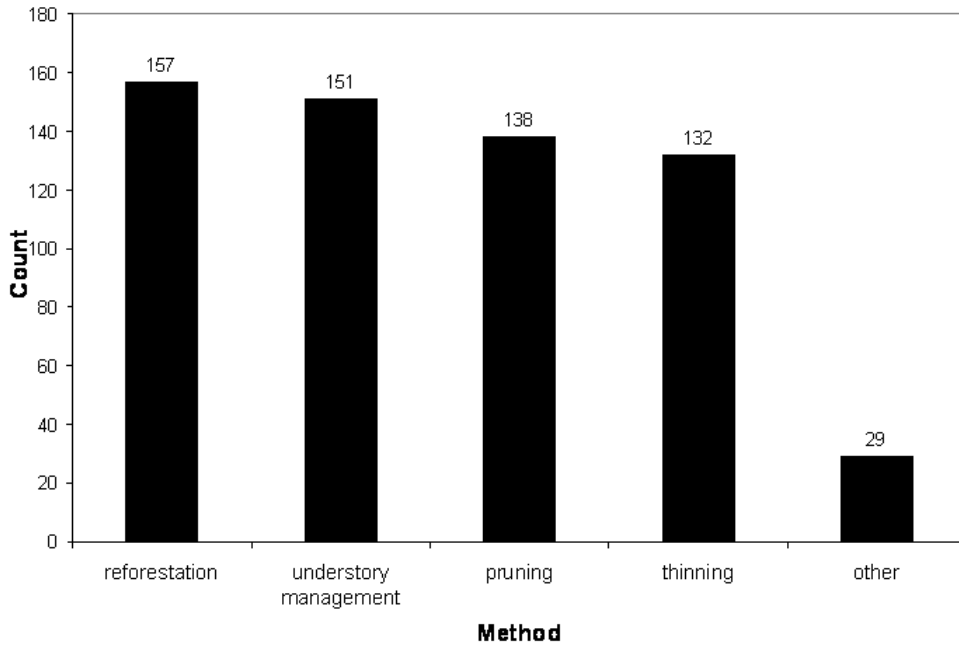
**Figure 3**—Landowner’s evaluation of their knowledge of oak woodland management practices.

## Workshop Key Topics

The survey was intended to gauge the need for a workshop about central coast oak woodlands. Landowners were asked if they knew where to get more information and were requested to identify their source. The fact that 63 percent of respondents did not have a source for more information showed that a workshop would not be

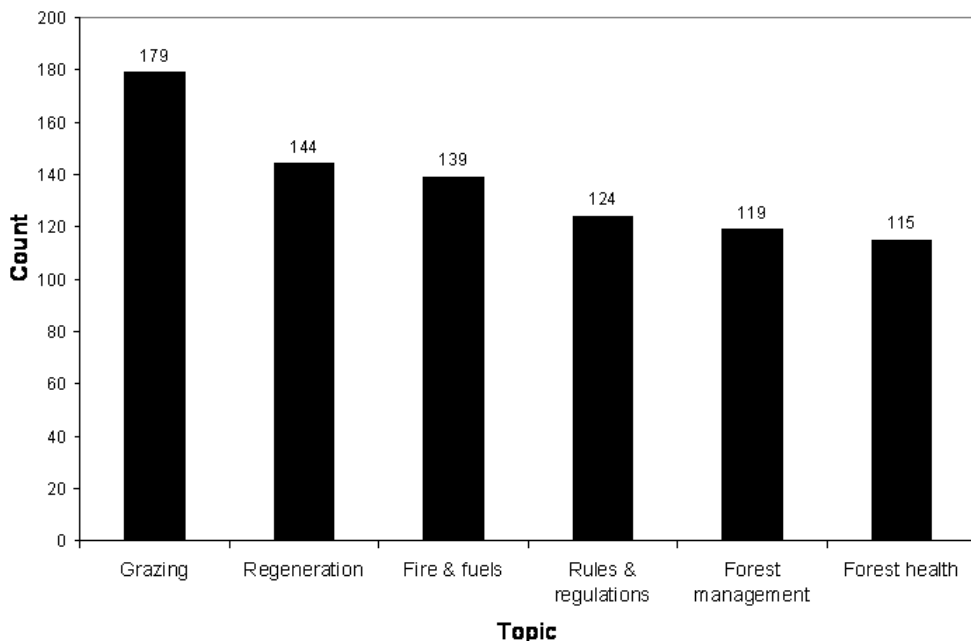
redundant and could be very beneficial to those seeking to become more knowledgeable. Respondents listed information sources such as University of California Cooperative Extension, Natural Resources Conservation Service, U.S. Department of Agriculture, the California Farm Bureau, California Department of Forestry, Bureau of Land Management, California Oaks Foundation, Cal Poly San Luis Obispo’s College of Agriculture, the Internet, and many others.

Landowners were asked for which forest management practices they would like more information. They indicated a desire to learn more about reforestation, understory management, pruning, and thinning (*fig. 4*).



**Figure 4**—Forest management methods for which landowners indicated they would like more information.

Landowners were also asked which key topics they would like covered in a workshop. Grazing, which was the dominant land use reported by the respondents, was also the most popular key topic (*fig. 5*). Other key topics included regeneration, fire/fuels management, rules/regulations, forest management, and forest health.



**Figure 5**—Topic areas landowners indicated they would like covered at the workshop.

Respondents also were given space on the survey to provide general comments on other topics that were not covered by specific questions on the survey. A number of people were concerned about development, urban sprawl, property rights, and education regarding oak woodland management.

## Summary and Conclusions

Our 2006 survey had a response rate of 16 percent (450 of 2,786), and focused on identifying contemporary issues and information needs of central coast oak woodland owners (>100 acres).

In the social sciences, the results of surveys with response rates below 70 percent have questionable generalizability to the population of interest. Selection biases for these surveys are likely to be large enough to influence the results and results will diverge from the population of interest (Huntsinger pers. commun.). For this survey it is likely that respondents were generally better educated, and specifically more interested or knowledgeable about oaks, workshops, and environmental issues than those who did not respond.

During this project we learned a great deal about sampling design. To conduct an effective survey of landowners, it is very important to identify the project’s objectives prior to budgeting and designing the survey. The number of landowners targeted should be based on how many the project can afford to survey and follow up (there is no reason to sample an entire population). Follow-up (additional mailings, phone calls, etc.) is an extremely important part of achieving a higher response rate. An important reference for designing an effective survey is *Mail and Internet*

*Surveys: The Tailored Design Method* (Dillman 2000). This method was recently well described and used by researchers conducting a survey in Wisconsin (Clendenning and others 2004). This paper also will serve as a reference for future survey projects.

In the future we hope to conduct another survey of central coast landowners that closely follows this method and provides results that are representative of the general landowner population. Currently, oak ordinances are a major issue on the central coast. Santa Barbara County is struggling to implement its existing ordinance, and San Luis Obispo County has recently received a recommendation from the grand jury to adopt an ordinance of its own. Ordinances already exist in the cities of Atascadero and Paso Robles. For these reasons, we believe it would be valuable to know what the central coast landowners think about oak woodland management issues.

Most respondents to the 2006 survey showed substantial interest in the central coast oak woodlands, and many were enthusiastic about attending a workshop. Some felt that a workshop was unnecessary, but still expressed concern regarding the key issues of the oak woodlands. The majority of respondents generally rated themselves as having “poor” to “fair” knowledge of many important oak woodland issues, and the majority said they do not know where to find more information about oak woodlands.

The interest in oak woodlands and the need for education provided sufficient justification to conduct a workshop. As a result, a workshop was planned and designed based on the characteristics of the landowners who responded, the key issues, and information needs that they identified. The central coast oak woodland workshop was held on Aug. 17, 2006.

Prior research has proven that a fundamental shift has been taking place in the ownership of the oak woodlands. Large ranches are subdivided into smaller properties whose owners do not make a living from their land (Huntsinger and Fortmann 1990). Despite targeting owners of properties larger than 100 acres, our 2006 survey found that nearly 73 percent earn less than 25 percent of their income from the woodland. For this reason, the workshop was not tailored to one group but rather to landowners in general. This broad range of landowners has legitimate concerns about their oaks and desire to improve their management strategies.

The workshop included 10 lectures that were one-half hour each. The topics included a keynote address, 2006 survey results, sustainable forest management, wildlife habitat, grazing, regeneration, rules/regulations, disease/insects, and wood products. The theme of sustainability was present throughout the workshop. The workshop was well received as evidenced by the evaluations returned by workshop participants.

While we are excited about sharing our results with other oak researchers, we conducted this project with central coast landowners in mind. This project aims to support the Integrated Hardwood Range Management Program in its mission to conserve California's hardwood rangeland. This paper provides information about the landowners who are most likely to attend natural resources extension workshops. We believe empowering landowners with knowledge is a crucial part of achieving this goal. We have focused on the central coast because it is one of the key oak woodland regions of California. Our hope for this project is that it will promote informed land management decisions that contribute to the conservation of the central coast's oak woodlands.

## Acknowledgments

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