

Oak Research Needs¹

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If you have ever read stories to your children, you have probably read about the little train that “could,” but perhaps you have not heard about the oak tree that “wood knot,” slight pun intended. It would not regenerate when it was supposed to. Or it would regenerate thousands of seedlings, but not one of them would survive. It would not always respond to thinning. It would not consistently provide mast for cattle and deer. It would not survive fire, but was fire dependent. It would not always sprout after death of the bole, and it would not always interact consistently with the rest of its ecosystem. However, it would frustrate scientists trying to study it and develop management guides for it. Because I come from a research institution, I am well aware of this frustration and, today, propose to talk about what we do not know about oaks and oak woodlands. I will divide my brief remarks into biological and social aspects.

Biological Aspects

One thing we have learned about oak woodlands is they often do not respond the way we think they should. I am reminded of studies on blue oaks in northern California that demonstrated that removing oak trees increases forage production. When this was tried in the San Joaquin Valley, just the opposite seemed to happen—forage production was reduced. On another front, the number of hybrids among the oaks is such that arguments ensue over what species we are actually dealing with—another confounding factor in trying to predict response. Thus, an oak woodland study from a specific area needs testing elsewhere, before its results can be considered as universal truth.

As I look at what research has been accomplished over the past few decades, I am encouraged by our progress, but I still feel we have a ways to go.

- Resource inventories of oak woodlands are a fairly recent phenomenon; thus, changes in resources are not well recognized. You will hear some assessment of changes in oak woodlands here at this conference, but we need more detail. What is actually happening on the urban fringe where change seems to be occurring so rapidly? Are woodland resources declining rapidly, and if so, how fast?
- Much has been done over the past decade on blue oak regeneration. But, what about the other oaks, especially valley and Engelmann, and what about factors that affect survival once the oaks regenerate? Surely more research is needed, before we can assure oak regeneration and survival in the woodlands.
- Oak woodlands do not always respond to management the way scientists expect. Of particular concern to me are the responses to urban development and prescribed fire. In both situations, it is not just the management impacts on oaks that are of concern, but also their effects on the entire ecosystem including related plants, insects, mammals, etc. I am particularly interested in what “ecologically sensitive development” looks like. Can we have both development and a healthy woodland ecosystem?

¹This was an invited, plenary paper presented at the Symposium on Oak Woodlands: Ecology, Management, and Urban Interface Issues, 19 - 22 March 1996, San Luis Obispo, Calif. None of the plenary papers at this symposium was subjected to technical peer review; they were the views of the presenters, in behalf of the organizations they represented.

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Social Aspects

Too often scientists study ecosystems without including the people who inhabit them. Yet, people often have tremendous effects on ecosystems. We need to understand what makes people tick and why they want to tick in the oak woodlands.

- Though there have been some studies of landowners, communities, and the public in general as they relate to the oak woodlands, much more research is needed before we will completely understand how people interact with this ecosystem.
- We need to know the needs, expectations, and motivations of people before we can start solving some of the problems they create. How do their feelings vary by ethnicity or other social groupings? Why do they do the things they do?
- On the economic side, how do we provide incentives or easements for desirable ecosystem management on private lands? How do we fund these programs: with tax dollars, rebates, public taking?
- What are the best organizational structures for ecosystem management in our oak woodlands? Do we use national, state, or local laws with police enforcement; landowner cooperatives; religious teachings; or our economic markets?

Certainly there are lots of unanswered questions. And after looking at all we do not know, I can only conclude that more research is needed in oak woodlands, both on the biological and particularly on the social sides. Without this research the problems addressed in this conference will remain. Would you expect a scientist to say anything else?