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# Proceedings of the Symposium on Oak Woodlands and Hardwood Rangeland Management



**October 31 - November 2, 1990  
Davis, California**



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This proceedings summarizes the research results presented at a symposium on oak woodlands and hardwood rangelands in California. Sixty-six papers are included, focused on six major topics, namely: regeneration and restoration of oaks, wildlife habitat considerations, monitoring trends, land use planning, management strategies, and ecology and management of Engelmann oak. These papers form the state of knowledge for this important ecological zone in California, and help to frame management, policy, and conservation strategies for this resource.

*Retrieval Terms:* oaks, oak management, range management

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## Foreword

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# Proceedings of the Symposium on Oak Woodlands and Hardwood Rangeland Management

October 31 - November 2, 1990, Davis, California

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Richard B. Standiford, Technical Coordinator

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## IN BRIEF ...

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*Retrieval Terms:* oaks, oak management, range management

This proceedings contains 66 papers presented at a symposium on oak woodlands and hardwood rangelands in California. The objective of this symposium was to provide the state of our knowledge on the ecology, inventory, uses, and management of oak woodlands in California. It was structured around six major topics:

- Regeneration and restoration of oaks and other hardwood species;
- Wildlife habitat relationships;
- Factors influencing conversion of hardwood rangelands and policies to mitigate these conversions;
- Management strategies to ensure sustainability of the hardwood range resource;
- Ecology, management, and conservation of Engelmann oak; and
- Monitoring, classifying, and analyzing the hardwood range resource.

These research studies can be used to address conservation and long-term sustainability of California's oak woodlands and hardwood rangelands.



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## PREFACE

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On October 31 through November 2, 1990, a research symposium was held at the University of California, Davis, on oak woodlands and hardwood rangeland management. These areas are an important natural resource in California, occupying almost 10 million acres in the state. They are ecologically important because of the richness of the biological resources found on them, and economically important as the source of more than 70 percent of the state's forage resource. As an indication of the importance of these areas, 1990 declared the "Year of the Oak" by the California State Legislature.

This symposium was designed to provide the state of our knowledge on the inventory, ecology, uses, and management of oak woodlands in California. More than 350 scientists, resource managers, and individuals attended this symposium. It was structured around six major topics presented in plenary session. Each of these sessions had a chair who was responsible for selecting papers presented, and for coordinating the technical review of the papers. The topics included at the symposium were:

- Regeneration and restoration of oaks and other hardwood species (chair—James Griffin, Hastings Natural History Museum, University of California, Berkeley),
- Wildlife habitat relationships (chairs—Bill Laudenslayer, Service Pacific Southwest Research Station, USDA Forest; and Ken Mayer, California Department of Fish and Game),
- Factors influencing conversion of hardwood rangelands and policies to mitigate these conversions (chairs—Cathy Bleier, California Department of Forestry and Fire Protection; and Tom Scott, University of California Integrated Hardwood Range Management Program),
- Management strategies to ensure sustainability of the hardwood range resource (chairs—James Bartolome and Lynn Huntsinger, Department of Forestry and Resource Management, University of California, Berkeley),
- Ecology, management, and conservation of Engelmann oak (chair—Tom Scott, University of California Integrated Hardwood Range Management Program), and
- Monitoring, classifying, and analyzing the hardwood range resource (chair—Robert Ewing, California Department of Forestry and Fire Protection).

This is the third in a series of symposia dealing with hardwoods and oaks in California. The first was held in 1979 in Pomona,<sup>1</sup> and the second was held in 1986 in San Luis Obispo.<sup>2</sup> The information presented in this publication builds upon the knowledge base of these earlier symposia, also published by the Pacific Southwest Forest and Range Experiment Station (now Pacific Southwest Research Station).

Included within this publication are 66 research papers. Approximately 70 percent of the studies reported on at this symposium were either directly or indirectly funded as a part of the Integrated Hardwood Range Management Program. This program, jointly managed by the University of California (UC) and the California Department of Forestry and Fire Protection (CDF), was started in 1986 with funds from the State legislature. It is designed to address the long-term sustainability of the State's oak woodlands and hardwood rangelands by developing basic information on the ecological and managerial processes of hardwood rangelands through an aggressive research program, and applying this knowledge base to conservation issues through an extension outreach effort.

We are especially grateful to the individuals who made this symposium a success. In addition to the session chairs listed above, Dennis Pendleton of University Extension at UC Davis was co-coordinator of the entire symposium. Debbie Roberts of University Extension at Davis oversaw the logistical details of the symposium. Pam Muick of UC Berkeley chaired an excellent poster session. Robert Schmidt of UC Berkeley was instrumental in developing the idea for this symposium, and served on the steering committee. We also appreciate the financial support of the Pacific Southwest Research Station, CDF, UC, the California Department of Fish and Game, the California Department of Parks and Recreation, and the U.S. Bureau of Land Management. Several groups endorsed this symposium, leading to a diverse audience of individuals interested in oak woodland management. These included the Society for Range Management, the Society of American Foresters, the California Oak Foundation, the California Farm Bureau Federation, the Western Chapter of the Ecological Society of America, and the California Native Plant Society.

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<sup>1</sup>Plumb, T.R., tech. coord. 1980. **Proceedings of the symposium on the ecology, management, and utilization of California oaks**; June 26-28, 1979; Claremont, CA: Gen. Tech. Rep. PSW-44. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture; 368 p.

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<sup>2</sup>Plumb, T.R.; Pillsbury, N.H., tech. coords. 1987. **Proceedings of the symposium on multiple-use management of California's hardwood resources**; November 12-14, 1986; San Luis Obispo, CA. Gen. Tech. Rep. PSW-100. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture; 462 p.