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SHRUBLANDS IN CALIFORNIA: LITERATURE REVIEW AND RESEARCH NEEDED FOR MANAGEMENT

edited by
Johannes J. DeVries

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CALIFORNIA WATER RESOURCES CENTER

University of California

Contribution No. 191

ISSN 0575-4941

November 1984

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The research on which this report is based was financed in part by the United States Department of the Interior, Geological Survey, through the State Water Resources Research Institute Program, Project No. CT370522, University of California Water Resources Center Project UCAL-WRC-W-637, California Department of Forestry and California Department of Water Resources. Contents of this publication do not necessarily reflect the views and policies of the U.S. Department of the Interior, nor does mention of trade names or commercial products constitute their endorsement or recommendation for use by the U.S. Government.

ABSTRACT

This document is a detailed survey of the literature on shrublands in California. It summarizes the results of a multi-disciplinary project to define what is currently known about shrubland vegetation management and what additional research is needed to properly assess the social and environmental effects of such management. Fire is the most important management tool, and therefore receives the most emphasis in the publication.

A general treatment of management procedures and a description of the biogeography and prehistory of shrublands are presented in the initial chapters. The effects of shrubland management (primarily by fire) are presented next, with chapters on the effects on vegetation, on soils, on water yield and water quality, on streams (with particular emphasis on the organisms that live in the streams), and on wildlife. This is followed by a chapter on shrubland ecosystem dynamics. The final chapters in the document deal with management concerns, which include management of shrublands for livestock forage, the effects of burning on air quality, the economics and policy of shrubland management, and fire behavior and burning technology.

PREFACE

Shrubland ecosystems are one of the most extensive vegetation types in California. Interest in management of shrublands has increased greatly over the last few decades, and management research has been conducted for a number of years. This publication is the result of a coordinated effort to assess this research in order to see what has been accomplished and what important questions remain to be answered.

As attested to by the subjects addressed in this document, the problems associated with the management of California shrublands are many and wide-ranging. Management problems are being vigorously addressed throughout the state; an important example of this is the California Department of Forestry's Vegetation Management Program for prescribed burning to reduce fire hazards in shrublands. Management of shrublands is also being considered as an important potential way to increase water yield from shrubland watersheds. There is also a much greater awareness by the public and government officials of the urgent need to deal with extreme fire hazards resulting from the fuel build-up due to nearly a century of emphasis on complete fire suppression.

This document provides an up to date summary and review of the literature on shrublands and their environment carried out by a multi-disciplinary group of scientists, engineers, and economists from state and federal agencies and from the California State University and University of California systems.

This work was done under the guidance of the Shrubland Watershed Advisory Committee of the Water Resources Center of the University of California. Funding for the project has come from the California Department of Forestry, the California Department of Water Resources, and the Water Resources Center. The University of California's Wildland Resources Center has played a major role in this project also.

This document should be a valuable source for government agencies involved in shrubland management and for researchers who are interested in developing further knowledge on the various subjects. It is intended to provide a first step in a long range process to solve the problems associated with the management of shrubland watersheds and ecosystems in California.

An Executive Summary of this document has been published as a separate report ("Shrublands in California: Literature Review and Research Needed for Management--Executive Summary," Report No. 60, California Water Resources Center, University of California, July 1984). The summary provides a concise non-technical description of the material covered in each chapter of this document. It is recommended for use by those individuals who need a brief overview of the material covered here. The Executive Summary can be obtained by calling or writing the Water Resources Center.

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