Status of the Sierra Nevada

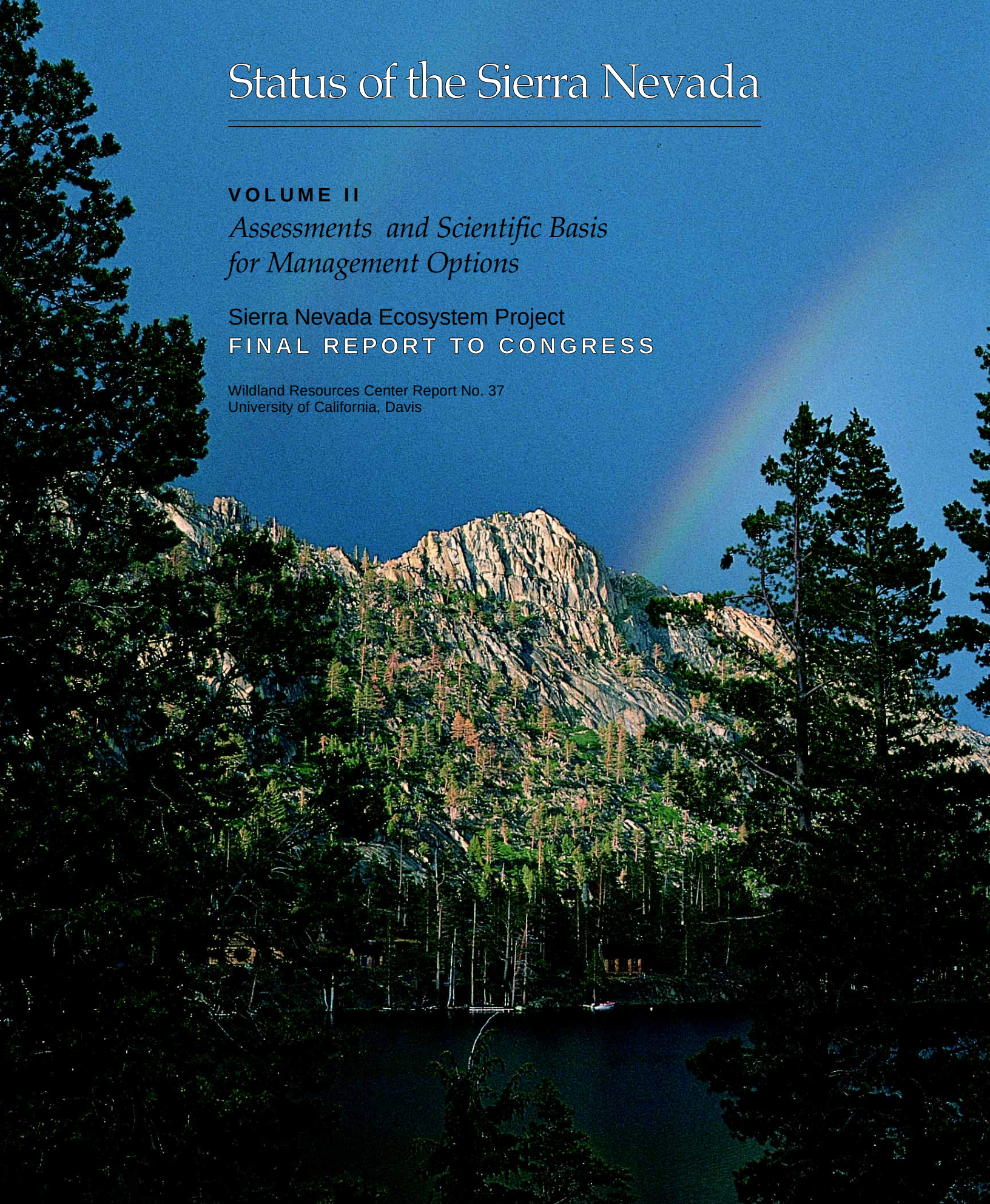
VOLUME II

Assessments and Scientific Basis for Management Options

Sierra Nevada Ecosystem Project

FINAL REPORT TO CONGRESS

Wildland Resources Center Report No. 37
University of California, Davis



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CENTERS FOR WATER AND WILDLAND RESOURCES
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July 1996

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ISBN 1-887673-01-6

Support for this research was provided by cooperative research agreement with the United States Forest Service Pacific Southwest Research Station and the University of California.

This publication is a continuation in the Wildland Resources Center Reports series. It is published and distributed by the Director's Office of the Centers for Water and Wildland Resources. The Centers sponsor projects in water and wildland resources and related research within the state of California with funds provided by various state and federal agencies and private industry. Copies of this and other reports published by the Centers may be obtained from:

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Please cite this volume as: *Sierra Nevada Ecosystem Project, Final Report to Congress, vol. II, Assessments and Scientific Basis for Management Options* (Davis: University of California, Centers for Water and Wildland Resources, 1996).

Photographs: Dwight M. Collins, cover, title page, sections I, II, III, V, VI; Jerry F. Franklin, section IV.

Contents

All chapters in volume II were peer reviewed.

SECTION III: BIOLOGICAL AND PHYSICAL ELEMENTS OF THE SIERRA NEVADA

SECTION IV: AGENTS OF CHANGE IN THE SIERRA NEVADA

SECTION V: SNEP CASE STUDIES

SECTION VI: BUILDING STRATEGIES FOR THE FUTURE SIERRA NEVADA

Preface

This volume presents the detailed scientific assessments, case studies, and background of scenarios compiled for the Sierra Nevada Ecosystem Project (SNEP). The study was conducted at the request of Congress (H.R. 5503) and was funded directly by congressional appropriation ($150,000) and by additional support ($6.5 million) from the U.S. Department of Agriculture, Forest Service. The project was managed by the University of California Centers for Water and Wildland Resources under contract with the Forest Service Pacific Southwest Research Station. A summary report of assessments, critical findings, case studies, and scenarios is published in volume I.

The chapters in volume II constitute, with few exceptions, assembly and evaluation of existing data from published and unpublished sources including expert opinion. Each chapter is authored and was prepared in response to direction from the science team and the steering committee of SNEP. The team found that much has been studied in the Sierra Nevada, although, in many areas vital to understanding the future, essential knowledge was unavailable or tests of ideas have yet to be done. Science team members were asked to draw reasonable inferences from their assessment of existing information including their own observations. They have been explicit about the bases of their knowledge and data and about where they are making assumptions or giving personal judgments.

The complete report of SNEP is contained in several volumes: Volume I offers a summary of the context for the study, the major findings from the assessments and case studies, and a presentation of alternative scenarios and their implications for the future health and sustainability of the ecosystem. Volume II contains assessments of historical, physical, biological, ecological, social, and institutional conditions in the Sierra Nevada, selected case studies, and details on the scientific bases of and methods used in scenarios. Volume III presents commissioned background reports, reports received too late for inclusion in volume II, and other supplementary materials.

In general, the study was intended to address several questions:

1. What were historic conditions, trends, and variabilities?
2. What are current conditions?
3. What are trends and risks under current policies and management?
4. What policy choices will achieve ecological sustainability consistent with social well-being?
5. What are the implications of these choices?

The first three questions were the primary focus of the assessments. The last two were the primary focus of scenarios. Some scenarios developed extensive methods and background to consider different alternatives and are presented in volume II. Several chapters are case studies where (1) existing efforts of ecosystem management were reviewed to give insight into the larger study, (2) specific locations in the Sierra were used to examine models or apply techniques of analysis, and (3) special review of the mediated settlement agreement for management of giant sequoia groves was requested by Congress.

All chapters in this volume were reviewed extensively, including anonymous peer review secured by the steering committee (see volume I). The review process involved many people who gave freely of their time and expertise and greatly improved this work. The project was conceived and executed as a scientific study by independent scientists. Thus, the reports in volume II are attributable to the authors and follow the usual standards for citation, accuracy, and statement of opinion. Throughout the study, the team fostered debate and welcomed diversity of ideas. At the end some issues remained in contention among team members and are so noted in the report. Assessment chapters, as in the journals of science, are not intended or written as consensus documents. Understanding complex ideas and recognizing areas of uncertainty come about as much by seeing different views as by studying a single, dominant perspective. But the authors have made every effort to document the basis in facts, assumptions, knowledge, and inference that they used in drawing their conclusions. Readers, by their own analyses of the information, may reach new conclusions. The team intended that the bases for its conclusions and the process of its reasoning be open and available to alternative analyses.

Authors of these chapters include the science team, special consultants, and other scientists whose expertise was solicited

for assistance and coverage of various aspects of the study. Several chapters represent summaries and syntheses of larger reports or groups of reports in volume III that were commissioned for the project. In spite of the large number of reports eventually assembled, not all important components of the Sierra Nevada ecosystem could be covered by our study. The region and the scope of work is vast, and some topics must await consideration at another time.

Background data and digital databases used in geographic information systems analysis are listed in volume I, appendix 1, and are available on the Internet from the Alexandria Project at the University of California, Santa Barbara, and the California Environmental Resource Evaluation System (CERES) project of the Resources Agency of the State of California. The assistance and cooperation of the many local, state, and federal agencies, private companies, and the public in or interested in the Sierra were instrumental in conducting this study. We gratefully acknowledge them here.

DON C. ERMAN
Team Leader