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Burning by Prescription in Chaparral

Lisle R. Green

Author:

LISLE R. GREEN is a range scientist with the Vegetation Management Alternatives Research and Development Program, with headquarters in Riverside, Calif. He was formerly in charge of the Station's research on development and maintenance of fuelbreaks. He earned bachelor's (1940) and master's (1948) degrees in range management at Utah State University. He has been on the Station's research staff since 1948, except for 5 years when he taught range management and soil science at California State Polytechnic University, San Luis Obispo. .

In 1977, the Forest Service, U.S. Department of Agriculture, established a research and development program at this Station titled "Vegetation Management Alternatives for Chaparral and Related Ecosystems." This 5-year program, with headquarters at Riverside, California, is an intensive effort to develop, test, and demonstrate a wide range of operations for maintaining or increasing the productivity of chaparral and related ecosystems in southern California.

Cover: Pictured, upper left and continuing clockwise, is chaparral—the fuel for wild and prescribed fires. The photos on the right show ignition; across the bottom, prescribed burns are underway; and at left, the burn along a fuelbreak is complete. The center photo shows maintenance burning.

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PREFACE

This paper is an attempt to put together what is known about prescribed burning in the chaparral ecosystems. It also draws upon experience from related ecosystems. Work done over a period of 20 years by members of the Fuel-break Project and the more recent Chaparral Management Research and Development Program, both under the Pacific Southwest Forest and Range Experiment Station, is summarized, and other pertinent findings reported in the literature are also included.

The first part of this paper gives a general overview of the procedures necessary to plan, carry out, and evaluate a prescribed burning project. The second part discusses in considerable detail the information that has been gathered from research and experience to guide decisionmaking at each step of the procedure. At appropriate points, specific recommendations are made. Future practice and research in this field will fill in some of the gaps in the information we have—many such gaps are indicated in the discussion—and allow additional recommendations to be made.

Although all planning considerations are discussed at least briefly, emphasis is on the burn prescription. Most fuel managers and fire management officers who have adopted or been assigned prescribed burning projects have had more problems with prescription development than with all of the other phases of prescribed burning. They have been generally comfortable with equipment, suppression of escapes, mopup, and other fire management tasks that relate to suppression. They have not been equally comfortable with the tasks called for in planning to burn and lighting the fire. I believe that much more prescribed burning would be done if managers felt better able to predict what the fire might do under the existing or forecast weather and fuel conditions.

There has been a considerable lack of understanding of the effects of fuel and weather elements on fire. Most burning plans submitted to the Station's Forest Fire Laboratory, Riverside, Calif., have quoted prescription indexes from the California (now Pacific Southwest) Region's Supplement to the Forest Service Manual without attention to specific fuels and weather elements. This paper addresses that problem by discussing the various elements that affect fire behavior, then fitting them together into a list—a prescription—with which the prescribed burn manager can be comfortable. Much less space has been devoted to those areas where most fire management officers feel proficient.

Prescribed fire is a wildland management tool whose time has come. The National Park Service, U.S. Department of Interior, committed itself to prescribed burning several years ago. The present fire policy of the Forest Service makes provision for allowing prescribed fires to burn beyond 10:00 a.m. The California Department of Forestry is newly committed to prescribed burning projects covering more than 100,000 acres per year. This publication is intended to reinforce the increased emphasis on prescribed burning.

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