

# Concerns and Costs of Managing Mediterranean-Type Ecosystems<sup>1</sup>

Douglas R. Leisz<sup>2</sup>

It is a pleasure for me to be here at this Symposium on the Dynamics and Management of Mediterranean-type Ecosystems. I, too, see it as a proper finale for the Chaparral Research and Development Program. During the early 1970's, as Regional Forester, I worked with Bob Harris, who was then Director of the Pacific Southwest Forest and Range Experiment Station, to establish the Chaparral R&D Program. When Bob Callahan became Director of PSW, we continued our efforts.

We were especially interested in seeing the establishment of a chaparral management demonstration area where the tools and techniques used in managing chaparral and related ecosystems could be seen and their effects compared. In 1976, the Laguna-Morena Demonstration Area, which you will visit on Wednesday afternoon, was established for this purpose. In taking on the Mediterranean-type ecosystems of California, and of the world, you researchers and managers have taken on a true challenge and one worthy of your efforts. Both the Demonstration Area and the Chaparral Program have increased our knowledge about managing chaparral and related ecosystems. I am proud to have been involved in their establishment and am proud to be here as the Program draws to a close.

## MEDITERRANEAN-TYPE ECOSYSTEMS--THEN AND NOW

We are gathered here to share our collective knowledge on the dynamics and management of Mediterranean-type ecosystems. What, then, is a Mediterranean-type ecosystem? It is one influenced by a Mediterranean climate; that is, it exists in an area with (1) warm-to-hot summers and mild winters; (2) a moderate marine air influence throughout the year; (3) moderate precipitation concentrated during the winter months, with summers that are very dry; and (4) extended periods of sunny weather and few clouds, especially in summer (McCutchan 1977). By this definition, almost all of California's National Forests

---

<sup>1</sup>Presented by Ralph C. Cisco, Supervisor, Cleveland National Forest, at the Symposium on Dynamics and Management of Mediterranean-type Ecosystems, June 22-26, 1981, San Diego, California.

<sup>2</sup>Associate Chief, Forest Service, U.S. Department of Agriculture, Washington, D.C.

include some Mediterranean-type ecosystems. About 65 to 75 percent of the area on the four southern National Forests (the Cleveland, Angeles, San Bernardino, and Los Padres) is dominated by the Mediterranean-type climate. Up to 40 percent of the area on the Mendocino and Shasta-Trinity National Forests and 30 percent of the Lassen, Plumas, Sequoia, Sierra, Stanislaus, and Tahoe National Forests is characterized by Mediterranean-type ecosystems.

In its past management efforts, the Forest Service has recognized Mediterranean ecosystems as including brushlands, woodlands, grasslands, and coastal sage scrub, with most of the area being covered by that all-inclusive term "brushland." No one was too concerned about the ecosystems existing on these lands because (1) the areas did not, for the most part, produce commercial timber, and (2) the areas could be expected to burn every 20 to 30 years or so anyway. The money budgeted to these lands came in the form of fire protection--protection mostly for urban areas downstream. Management of the vegetation was oversimplified because the vegetation was seen as being very uniform and, more or less, worthless.

Both of these misconceptions have begun to crumble during the past 5 to 10 years. Although we still use the general terms "brushland" and "chaparral," we have begun to recognize the diversity that actually exists in these vegetation types. We used to characterize chaparral in California as being either chamise chaparral, desert chaparral, mixed chaparral, or mountain chaparral. Now, we recognize that chaparral in southern California alone should be divided into some 10 to 20 types, each characterized by a different species makeup, community dynamics, and relationship to fire. Management schemes for these various chaparral types should reflect their diverse characteristics and requirements.

As our recognition of the diversity present in our Mediterranean ecosystems has increased, so has our recognition of the potential of this resource for satisfying human needs. We all know that the most valuable function that chaparral vegetation serves for us is as a soil stabilizer, but did you know--

--that 1 acre of chaparral shrubs, at 25 tons of biomass/acre, can produce the Btu equivalent of 73 barrels of crude oil?

--that the San Bernardino National Forest recorded 6.8 million visitor-days use in 1980, more than any other National Forest in the United States, even though over 70 percent of the land is non-forested?

--that the foliage of chaparral shrubs serves to clean the air by removing CO<sub>2</sub> and manmade air pollutants?

--that densification of chaparral biomass can generate a number of useful products such as particle board and fireplace logs?

--that California's Mediterranean-type ecosystems provide habitat for over 400 bird species?

--that cattle and goats will graze on many chaparral shrub species?

--that chaparral shrubs can be used for silage to feed livestock?

These are a few of the products we know can be supplied by chaparral lands and vegetation. There are probably others that we haven't dreamed of yet. One of the most exciting things about the implementation of the Renewable Resource Planning Act of 1974 and other related legislation is that it provides us with the opportunity and direction to study and manage all the potential resources of our National Forests and not just traditional commercial resources. We are required to assign, at least initially, equal consideration to all resources.

But the problem with managing any resource--especially ones owned by a diverse public--is that all demands cannot be simultaneously satisfied. Some land uses such as soil stabilization and air purification will be compatible, but others, such as recreational development and vegetation harvesting for wood products, may not be. Every good has a cost, and included in that cost is the value of other products that must be foregone if that good is produced. To complicate the matter further, public demand for various products changes with time. It is our job as managers of public lands to stay in touch with and respond to these changing needs, concerns, and costs, recognizing that there will always be trade-offs.

#### ISSUES AND CONCERNS

What are the concerns currently being voiced about the management of Mediterranean-type ecosystems in California? Through the public involvement process required by the Renewable Resources Planning Act of 1974, Region 5 planners have identified the issues and concerns that people consider important. Some of these are

--What role should the National Forests play in affecting water quality and the amount and timing of water yield?

--To what degree should the Forest Service manage chaparral vegetation to produce various goods?

--how should the Forest Service facilitate the development of mineral commodities on the National Forests of California?

--how should prescribed fire be used as a management tool?

--how can coordination be improved between the Forest Service, charged with protecting the National Forests, and the various fire services responsible for protecting privately owned

structures within and adjacent to National Forest lands from fire?

--Should seasonal closure continue to be used as a fire prevention tool in southern California?

--How can problems caused by incompatible management activities between National Forests lands and intermingled or adjacent lands be resolved?

Many of these concerns have been around, in one form or another, for a long time. But all of them have been intensified by the increased pressures of California's--especially southern California's--expanding population. Demands for water, clean air, recreation, and wood and fiber production are greater than ever before. As the population moves further into the wildlands, protection of life and property becomes an increasingly difficult task.

#### MANAGEMENT EMPHASIS

How do we deal with these natural ecosystems that we are only beginning to recognize the diversity and potential of? how do we respond to varied, conflicting, and ever-changing public demands while continuing to protect the resources for which we are responsible? These are difficult questions that must be answered by managers, planners, researchers, and practitioners with increasing amounts of input from the public. They are questions that will be addressed repeatedly during this Symposium.

Amid this environment of change, there are several management strategies that will be receiving new or renewed emphasis within the Forest Service and in President Reagan's administration in general:

1. National, regional, and local planning efforts, with substantial emphasis on public input, will continue.

2. The interdisciplinary approach to natural resource problem solving will be encouraged.

3. More interagency coordination and involvement will be required.

4. More coordination and involvement between various government levels will be required.

5. Increasingly, decisions will be made based on sound economic analyses.

6. The Forest Service and other government agencies will be required to increase efficiency while reducing employee numbers.

These management directions should be viewed not as restrictions but as opportunities to streamline our activities and increase productivity.

## SUMMARY

All the ideas I have presented and questions I have raised will be discussed in more detail by other speakers this week. I think you will agree, at least by week's end, that California's Mediterranean-type ecosystems are much more diverse and more valuable than we have considered them to be

before. The issues and concerns involved in using the resources are becoming increasingly complex. There will be high costs and difficult trade-offs no matter what management decisions are made. In conclusion, future managers of Mediterranean-type ecosystems will have more definitive information on which to base their decisions; the entire program is well worth your efforts.