

Some Thoughts on the Role of Fire in California

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I AM GREATLY pleased to have this opportunity to participate in the Tall Timbers Fire Ecology Conference. Through the efforts of the Tall Timbers Research Station and particularly Mr. E. V. Komarek, we have a very interesting and well balanced program, with an outstanding panel of speakers. Even more, however, my appreciation of this conference arises from my belief that it is directly concerned with one of the most vital topics in land management in California.

Now, my personal reason for attaching such significance to the questions of fire ecology and prescribed burning may seem paradoxical to you. I believe our need for a full understanding of the role of fire is particularly great, because I believe that in our present society its role must be both limited and transitory.

There can be no question but that fire has had a major role in the shaping of our landscape. The early role resulted from uncontrolled lightning fires and, in some areas, aboriginal burning. This was intensified by the practices of the Mexican rancheros, who followed the Spanish tradition of burning off the hills. The gold rush of 1849 opened up even more extensive burning, and was followed

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by a whole wave of complex human impacts on the land. Over the last 100 years and more we have had an amalgam of deliberate burning, intensive and sometimes successful fire protection, logging, heavy grazing by domestic livestock, control of predators with explosive growth of certain other wildlife, road building, relogging, ploughing, building—and every such action has had its equal reaction in the response of the landscape. It is a brave man indeed who attempts to sort out the effect of any one of these forces.

We can recognize that every fire produces a whole complex of changes in the total environment—in the soil, in the vegetation, in the animal life. Each fire produces some effects we consider good and some we consider bad, with the balance depending on both the nature of the fire and—a point often overlooked—the nature of our objectives. It is here that the complex demands of our society on the land and the growing concern of society with environmental conditions become relevant to our interest in the use of fire. There is more at stake than the specific objectives of the land-owner or the public administrative agency. Incomplete cost analyses can no longer be accepted as an adequate guide. And while present institutions may still permit the operator — public or private — to ignore social costs, we cannot reasonably expect such immunity to last indefinitely.

Many well-informed land managers are deeply interested in prescribed burning for the simple and basic reason that it can be a highly useful tool. We do not have so many techniques of manipulation that we can casually forego any of them. However, there are clearly a number of people in this state who think that prescribed burning can solve most of our problems—people whose view in this regard is based on a gross lack of understanding of the complexity of our soils, topography, and vegetation, plus a naive view that the cost of prescribed burning can be equated with the price of a box of matches. Their error is so flagrant that perhaps we can ignore it.

The more serious issue is that of the costs involved in those selected situations where fire potentially has a management role. Most cost studies I have seen are inadequate in conception and incomplete in the detail purportedly covered. As one glaring example, let me

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mention the matter of escapes. In any use of fire, there is some probability of escape—or, more precisely, there is a whole series of probabilities, each relating to some particular magnitude of escape.

In twenty years of brushland range improvement burning, roughly one-tenth of the burns have escaped and the total area burned has been nearly 10% greater than planned. I do not argue that each such escape has been harmful. There is, however, a clear potential for disaster here. We are dealing with what I would term an open-ended risk—and I question that society will tolerate much of this. In any case, this is a true economic cost. While our present institutions often permit the landowner to ignore such costs—unless he's caught in a liability case—these costs are none the less borne by the economy and people of the state.

Again, consider the matter of air pollution. Eyes were smarting in San Francisco last week, with a common belief that the cause was agricultural burning in the Central Valley—and we cannot reasonably expect the voter to be much concerned about the chemist's analysis of the oxidant content of the atmosphere where he sees smoke instead of the hills of home.

I know that a number of you would answer that the costs of lost yields from unproductive land are greater than the costs of possible escapes, and that pollution from wildfires is a greater problem than pollution from controlled burning. I recognize the validity of these points. I simply believe that, when confronted with a choice among undesirable alternatives, society will expect us to develop additional alternatives.

This brings me back to the subject of this conference. Fire has a major role in the landscape. We must understand it fully if we are to use it effectively and if we are to continue to use it under increasing public constraints. Even more, we must understand the full role of fire in our numerous ecosystems if we are to replace fire with other techniques.