

Restoring Fire to the Environment in Sequoia and Kings Canyon National Parks

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This is a report to you from a land manager's viewpoint of measures taken in Sequoia and Kings Canyon National Parks in California's southern Sierra Nevada mountains to restore fire to its historic role on park lands. When I speak to you of the land manager's viewpoint, I speak as Superintendent of the above mentioned Parks, an assignment I have been privileged to have since October 1967. In this sense, then, this is a report and not a scientific document. During my career I have served over a period of about 18 years as superintendent of 6 national parks. By education, I have a Bachelor's Degree in Forestry from Colorado State University. This background is cited here since I am regarded in some quarters as somewhat of a fire bug. There is nothing in my background that should lead to this conclusion. Now let me review the program. The elevations in Sequoia and Kings Canyon National Parks range from 1,200 feet to nearly 14,500 feet. More than half of the Parks' 847,000 acres lie above 9,000 feet. These Parks were established to protect and preserve the finest remaining stand and the most outstanding specimens of the giant sequoias, as well as the most scenic portion of the Sierra Nevada which culminates in Mount Whitney, the highest point in the United States exclusive of Alaska.

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Sequoia National Park was established in 1890, thereby making it the Nation's second national park. Yellowstone was created by Congress in 1872, and we are observing the Centennial of its establishment as the world's first national park this year. Parts of Sequoia have received protection from fire since 1890, although the record is not clear from 1890 until 1918 when the U.S. Army was charged with the protection of the Park. But we know the military spent considerable time on fire suppression and presuppression. From at least the early 1920s, after the National Park Service came on the scene, until 1968, all fires were suppressed as soon as possible. This action was expected and required by the attitudes and policy of the time, but it tended to eliminate the effect of naturally occurring wildfire and undoubtedly resulted to some degree in the development of a plant environment different from that which would have grown if fire had occurred naturally in accordance with pre-European man historic patterns.

In the late 1950s and early 1960s, fire suppression policies in the national parks began to come under increasing scrutiny. Research was pointing out vegetative changes that were resulting because of protection from fires. In 1963, the so-called Leopold Report summarized these ecological changes and proposed measures that resulted in the formulation of a revised fire policy for the national parks. The policy states:

"The presence or absence of natural fire within a given habitat is recognized as one of the ecological factors contributing to the perpetuation of plants and animals native to that habitat."

The policy also recognizes natural fires

"as natural phenomena that may be allowed to run their course when such burning can be contained within predetermined fire management units and when such burning will contribute to the accomplishment of approved management objectives."

In 1968, an area was selected for an initial program with the objective of permitting natural fires to burn on the Middle Fork of the Kings River in Kings Canyon National Park. All lightning fires above 8,000 feet in elevation were allowed to burn. The area was approximately 15 percent of

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the total area of the two Parks, although a considerable portion of it was above timberline. The area has been expanded several times since 1968 and currently includes about 70 percent of the two Parks. Locally, we refer to this section as a "let-burn" zone. Nearly all of the Parks above 9,000 feet is included in this management unit and exceptions, where they exist, contain fuels that are contiguous across park boundaries into areas managed by other agencies. Fires are suppressed in these buffer zones even though they occur above 9,000 feet. Some areas down to 6,000 feet are included in the "let-burn" zone where logical unit boundaries make this feasible.

Lightning fires occurring in the "let-burn" zone are kept under surveillance chiefly through observation at least twice daily by aircraft under contract with the National Park Service. Upon discovery, a report is made which sets forth the size of fire at discovery, location, terrain, position on slope, elevation, vegetative type, fire behavior, weather factors, and estimation of fire potential. This information is made available to the Park Wildfire Committee. The purpose of this committee is to monitor the program and to advise the Park Fire Chief on any aspect thereof. This committee consists of the Fire Chief, Chief Park Interpreter, Resource Management Specialist, Research Biologist, Management Biologist, and Fire Control Officer. The Fire Chief chairs the committee. The chairman and any three members constitute a quorum. Since the program began, it has been necessary to suppress one fire in the "let-burn" zone. In 1970, in this instance, the fire had a damage potential beyond that contemplated by the policy and it was controlled accordingly. Since 1968, 53 fires have burned themselves out under the program. Nine of the above occurred outside the "let-burn" area but were allowed to burn either because they posed no threat or the terrain was too rugged for feasible suppression. The total area burned by the 53 fires amounted to 652.72 acres. The major part of the acreage burned occurred in 2 fires, one of which burned 452 acres in 1970 and the other in 1971 burned 140 acres. As may be seen, then, most of these fires burned a relatively small area. Only 4 fires have burned over 10 acres, including the 2 cited above.

Experience thus far indicates that natural fires under conditions.

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pertaining in the southern Sierra burn out after spreading over a relatively small area. Any extensive burn would seem to require special conditions quite favorable to spread of the fire. Our burning experience includes some relatively wet and dry years and the number of fires each year definitely reflects these conditions.

Thus far, the public, both visitor and resident, has accepted the program without much comment yea or nay. The park staff has taken advantage of every opportunity to explain cur use of fire, both natural and prescribed, in the Parks. I think the public attitude may be one of "wait and see." Considering the varying outlooks that most conservation programs encounter these days, I believe the public attitude with regard to this program is a definite plus. At the same time, I am quite certain that it will be woe to anyone who makes a mistake. In this respect, I suppose one could say we are playing with fire and at this stage there is no column on the score sheet for errors.

I am increasingly apprehensive concerning future application of sir quality standards that are being interpreted to imply that the environment cannot stand any more smoke of any sort or that all smoke is bad. Smoke from natural fires has been in our environment since time immemorial, and it may well be an essential part of it. This program offers a means for resource managers to restore fire to its natural role in parks and wilderness. Our experience in Sequoia and Kings Canyon National Parks indicates this can be done in a way that is acceptable to the public. Insofar as I am aware, this system provides the only manner in which the vegetative cover can be naturally maintained, if I may use such an expression. I trust that programs with other objectives will not remove this incalculably valuable tool from natural resources managers.

The future role of prescribed fire in management of park and wilderness lands is not as clear to me as the role of natural fire. Its value, at least in certain instances, has been clearly demonstrated. As a tool, even in these cases, it has not been recognized as useful and necessary so far as adequate funding through existing budget structures is concerned. Proper budgetary support is required if this program is to remain meaningful and productive in the national parks. I am increasingly skeptical of spring burning in the parks. In the first place it is not

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normally a natural event so far as I can observe because fire seldom occurred during the spring months. It may well be more than normally detrimental to nesting birds and other wildlife whose young may not be able to escape from the fire area. Spring burns make for a pretty dreary sight from an aesthetic standpoint for the remainder of the spring and summer season when visitors are most apt to be in the area. A winter season of snow and rain can do a great deal to restore the area after a fall burn. There are more inherent risks in spring burning because unforeseen weather may result in conditions unfavorable for a proper burn so that grave risk may become involved or the fire extinguished. This may happen in the fall too but I believe with less frequency and risk. Methods for burning in areas of outstanding visitor interest such as the vicinities of the General Sherman and General Grant trees are still ahead of us. These measures will provide the ultimate test of public opinion and minimum impact burning. Adequate funding and knowledge must be made available before this part of the task is undertaken.