

MANAGEMENT OPTIONS AND POLICY DIRECTIONS CONCERNING HIGH INTENSITY FIRE: A FIRE POLICY PANEL DISCUSSION

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Use of prescribed fire will always involve some element of risk. But good managers do not shy away from reasonable risk.

With the clear insight provided by hindsight, there are times when it is best to simply tell the public, "We made a mistake! Here's how we would do it differently next time!" We have all said that in the past and will probably say it again. In the area of fire management, such examples might include (Kilgore 1982): 1) the Forest Service's Mack Lake Fire, 2) the Park Service's Ouzel Fire, and 3) the US Fish and Wildlife Service's Seney Fire.

Whereas the 1988 Greater Yellowstone Area fire experience also raised many questions, the situation was markedly different from any previously experienced. The fires burned largely in the widespread northern Rocky Mountain lodgepole pine, a high-intensity, stand-replacing fire type; the results raised major questions about wilderness fire policy and programs that public land managers and technical/professional fire staff need to address clearly for themselves and the general public—including the media. The National Park Service and USDA Forest Service now have a prime opportunity to learn from the extremely dry and windy conditions that occurred in this type in 1988 and to adjust implementation of their programs and information about such programs accordingly (USDA/USDI 1989).

I'm convinced that out of controversy—and sometimes agonizing reexamination of fire management programs—comes valuable lessons. In this case, if nothing else, we learn again that communicating with our public (as Gene Benedict described them earlier in this conference) may be a real key to better acceptance of fire management programs (McCool and Stankey 1986, Smith 1989).

During the keynote address of this meeting, Norm Christensen did a great job of reminding us that fire itself is not the objective! Instead, we "manage" fire—including high-intensity, stand-replacing fire—as a process to accomplish specific management goals.

For large natural national parks and for wilderness, we are trying to perpetuate landscapes and landscape processes. Said another way, we want to aim for a moving-picture vignette (Christensen, this proceedings), made up of a range of the kinds of spatial patches that would have existed in our time had we not interfered with the processes responsible for creating and maintaining such patches. The range of patches and relative importance of different disturbance processes should be regarded as variables likely to change in the future.

In the absence of major climatic changes of either natural or anthropogenic origin, we probably would obtain a semblance of the primeval fire mosaic through fires burning within the range of intensities, frequencies, seasons, and sizes found in the ecosystem before the arrival of technological humans (Kilgore 1985). However, with the preliminary indications of global warming that are appearing now, it seems that both natural and anthropogenic climate changes are likely to have major impacts on what we have previously called “natural.” Therefore, we can expect that continual changes will also be occurring in both natural processes and vegetative structures of our national parks and wilderness units.

It thus becomes imperative that we seek out realistic goals for park and wilderness management that take these changes into account. Initially we want to preserve the disturbance regime and the effects of that regime (landscape heterogeneity as noted by Christensen 1988) as they occurred without our intervention. But it now appears that both natural and anthropogenic climate changes must also be taken into account as we try to define our objectives more clearly, in our ever-more-complex global environment. While I would argue that the broad concept of “natural” is still extremely important philosophically to the national park and wilderness movement, Johnson and Agee (1988) correctly point out that, “Components of these ecosystems cannot be defined at a particular level that will unequivocally be perceived as ‘natural,’ ” because the word natural involves individual value judgments. In that the concept of natural is so hard to define—and logical application of the concept may vary from site to site, I would agree that, “. . . park and wilderness preservation goals will have to be stated in more precise system-component terms depending on the values represented by the individual area” (Johnson and Agee 1988). This is a major challenge for both scientists and managers in the 1990s.

Management Options

For this panel, we were asked to briefly discuss management options and policy directions for dealing with high-intensity fires in national parks and wilderness. The options, briefly are four. We can: 1) suppress all fires; 2) use prescribed burns; 3) accept most natural fire ignitions, including some that result in high-intensity fires; or 4) accept all natural fire ignitions, including those that result in high-intensity fires. I want to comment briefly on how viable each of these is.

Suppress all fires

This is generally not a viable option. As Gene Benedict said earlier, you can defer fire for a while, but you pay now or you pay later. Total fire exclusion simply does not work! We’ve learned that from decades of trying to exclude fire.

Learn how to use high-intensity prescribed burns

Planned ignitions or driptorch fires started by managers are used successfully in many lower-intensity fire types to simulate (or substitute for) natural fires which you need to suppress because (a) an area is too small, with condominiums or commercial timber nearby (this means protection of developments and boundary lines); (b) weather was too dry or too windy and thus “out-of-prescription;” (c) fuel reduction is needed before natural lightning ignitions can be accepted; (d) political factors relating to a, b, or c. Fairly intense prescribed burns could theoretically also be used to simulate high-intensity fires. This will require a research and development program, however, involving a number of experimental trials before it is determined to be technically feasible (Brown 1989). Prescribed high-intensity fires involve some fairly high risks. But the Yellowstone experience makes clear that prescribed natural fires in high-intensity types also involve risk. Such risks could only be considered reasonable by managers after adequate testing of techniques in different vegetation types and under a range of burning conditions.

Accept some natural high-intensity fire ignitions

In this case, we would accept certain lightning-ignited, high-intensity fires—when our best technology says we can hold them within the boundary of the park or wilderness. This option would obviously need to include hazard reduction burns in advance around boundaries and developments. When fires are suppressed under this option, it would be necessary to try to simulate the lost effects of those fires using prescription burns. Otherwise, subsequent natural ignitions may result in more intense and/or larger fires than would otherwise occur.

Accept all natural ignitions, including those that lead to high-intensity fires

Under this option, we would need to assume that at some point of dryness and wind speed, we simply cannot control the resulting high-intensity fire. For example, the 1988 fires in Yellowstone burned under less than 5% fuel moisture and with 30 to 60 miles per hour winds. If and when this scenario arises, we would need to already have a total evacuation contingency plan that focuses solely on protecting human life and property. Such a plan would need to indicate the best use of interagency suppression personnel to get the most for our money while protecting human life and property, with minimal adverse impacts on natural values of parks and wilderness. As in option 3, it would also need to include hazard reduction burns in advance around boundaries and developments. And it would need to include park closure plans as appropriate.

Policy Directions

The question we are being asked is, “How should we handle high-intensity, stand-replacing fires in national parks and wilderness?” My answer is first let’s get our professional-technical-technological act together by following the interagency fire management policy review team’s recommendations (USDA/USDI 1989):

- (1) Review fire management plans to be sure they agree with current policy and that weather and fuel prescriptions place reasonable limits on fire management decisions. In addition, use interagency planning along common boundaries. Clearly identify areas needing protection from fire—including developments within or adjacent to wilderness. Reduce fuels around these developments before natural fires start.
- (2) Use a certification process so the line manager confirms each day that enough suppression resources are available to assure that a prescribed natural fire will remain in prescription, given reasonably foreseeable weather conditions and fire behavior and suppression resources availability. If this is not possible, the fire will be declared a wildfire and appropriate suppression initiated.
- (3) Strengthen training programs.
- (4) Strengthen professional staffing in regions, parks, and Washington offices.
- (5) Strengthen interpretation and public information before, during, and after fires.
- (6) Support joint National Park Service-Forest Service research on predicting severe fire behavior, on long-term fire weather, and on prescribed burning in lodgepole pine and other stand-replacing fuel types, like pinyon-juniper and chaparral.

Once the above goals have been achieved, then we need to generally follow management option 3, meaning that we accept some high-intensity fires whenever our study of the natural system says they belong and are needed to achieve our objectives for a given ecosystem, and when we can do so realistically. This means to me that we must temper altruistic policies about natural ignition sources with some realism about the impacts on our neighbors who have a different policy. We also must work out ahead of time realistic joint fire plans across boundaries which can achieve both of the following.

- (1) A semblance of the frequency, spatial extent, and intensity of fires which constituted the “natural” fire regimes of a given ecosystem. This must include the considerable variability and continuing changes of such natural regimes and processes noted earlier and discussed by Johnson and Agee (1988).
- (2) A reasonable expectation that we will not have adverse impacts on the safety, homes, and livelihood of our neighbors with policies that find the results of high-intensity fire unacceptable. We can minimize risk here by doing research on natural fire patterns in a given location and fuel

type, and by carrying our prescribed burning in advance where this is appropriate to reduce fuel accumulations.

Where size of wilderness or park precludes allowing such fires to burn naturally, then we need to consider prescribed burning or other fuel management measures, especially near area boundaries and developments. We have much to learn about this, however (Brown 1989).

We need to be very careful that we do not suppress all fires that would be ecologically significant in park and wilderness ecosystems, as exemplified by our efforts to be cautious and reasonable in the aftermath of the Greater Yellowstone fire experience. Our job is to be expert managers of the public's national parks and wilderness, not simply no-risk managers.

There are times when taking reasonable, calculated risks is the best course. Allowing certain high-intensity fires to burn in parks and wilderness units falls in this category of management decision. A program of prescribed fire—particularly one with high-intensity fire—needs management commitment to make it work! We have two examples of managers in 1988—in both the National Park Service (NPS) and the USDA Forest Service (USFS)—who were so committed to the program of wilderness management and restoration of the natural role of fire, that they were willing to allow certain fires to burn. They did so, even though this involved more management and political risk than the simpler, higher-cost total suppression decision. As government agencies and as a society, we need to be sure to reward and not penalize reasonable risk taking by NPS superintendents and USFS supervisors and Regional Office staff, provided the prescription process is developed and followed professionally and not on blind faith.

At the same time, we must use the best possible information and tools in making these decisions, including:

- (1) Information on the role fire has played in the past, contrary to what some of us thought from our earlier studies; Witness recent innovative studies in the sequoia-mixed conifer forest presented at this meeting by Parsons and colleagues, that point out the apparently very important role of high-intensity or high severity fires—at least in patchy areas.
- (2) The best possible information on changes related to fire suppression in the 1900s;
- (3) Determining how best to restore or simulate the primeval conditions and processes in park and wilderness ecosystems.

With this information and these tools in hand, we then need to move ahead with all deliberate speed to implement fire management plans for parks and wilderness units which will allow us to come as close as human managers can to achieving those “natural” wildlands and processes envisioned by Leopold et al. (1963). These must not be static “vignettes of primitive America.” Rather they would be in concert with the broad dynamic philosophical concept that, “Above all other policies, the maintenance of naturalness should prevail” (Leopold et al. 1963).

In this conference, Christensen noted the great diversity of conditions this should encompass, and the heterogeneity of process, both spatial and temporal. I feel that the concept of “natural” has validity. It’s just that as we learn more about how fire operates, the story of “naturalness” becomes more complex (a little like developing an early model and later discovering you have left out a number of important variables).

Along with more detailed planning and research, we still need a lofty concept about maintenance of naturalness as a basis for evaluating the results of our detailed technical prescriptions. If not, we will have lost it all! It may be difficult to define such concepts as “wilderness,” “wildness,” and “natural,” but the management objectives for parks and wilderness require that we try.

We need to be humble in our approach to such objectives and realize that whatever we thought we knew from the research of the past may be supplanted by newer knowledge. We need to be continually open to the best and latest thinking about the more complex role that fire and fire suppression have had on the given ecosystem we deal with.

By all means, let’s be reasonable in implementing our plans to allow high-intensity fires to burn in parks and wilderness—particularly immediately in the aftermath of the 1988 fires! And by all means, let’s carefully take into account the good judgment implied by the recent report of the interagency fire management policy review team. But let’s not forget what this whole thing is all about. It’s about perpetuation of processes that are vital to the credibility and survival of park and wilderness ecosystems and the National Wilderness Preservation System.

I agree with Howard Zahniser (1963) that conceptually we must be guardians, not gardeners; but, in my opinion, responsible guardianship in many cases requires the application of carefully planned prescribed fires, even if this feels like we are tending toward gardening. This is true only in those ecosystems where research indicates there has been a major change because of human-caused fire exclusion or where other values require the substitution of planned prescribed fire for natural fire. We must realize, for example, that in small parks and wildernesses, of which there are many, planned prescribed fire may be the only acceptable approach, now and forever.

In larger parks, like Sequoia-Kings Canyon and Yosemite in California, use of prescribed fire to restore more natural fuel and vegetation conditions may be temporary. But the change may also be permanent if condominiums and other human developments take the place of forest vegetation adjacent to designated wilderness. In some high-risk locations along boundaries and near developed areas, where no reasonable manager could accept allowing natural ignitions—or where former ignitions or spread in adjacent lands are now blocked by human developments—we’ll always need to depend on skillful use of mechanical fuel reduction and prescribed burning.

Managers and scientists need to work together in the next few decades to assure that our management decisions for parks and wilderness encourage

the maximum possible role of natural fires, while still giving reasonable consideration to safety of human life and property.

Fire has always been a part of most park and wilderness ecosystems. It is our job to see that fire—including high-intensity fire—remains as much a part of those systems as modern human society can allow.

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