

Should Fire Managers have the Option of Using Modified Suppression Techniques on Fires Occurring Outside Wilderness?

A PANEL DISCUSSION

Moderator: Edward G. Heilman
Staff Director for Fire Management
USDA Forest Service Northern Region
Missoula, Montana

Panelists: John Crumb
Division Chief, Forest Fire Protection
Idaho Department of Lands
Coeur d'Alene, Idaho

Donald Wood
Research Associate
Department of Forestry and Outdoor Recreation
Utah State University
Logan, Utah

Hugh G. Pangman¹
Assistant Regional Planner
Regional Planning Office
USDA Forest Service, Intermountain Region
Ogden, Utah

¹Currently Deputy Forest Supervisor, Toiyabe National Forest, Reno, Nevada.

Richard Sandman
Chief, Fire Protection, Division of Forestry
Montana Department of Natural Resources and Conservation
Missoula, Montana

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Gustav Verdal
Assistant Forest Supervisor-Resources
USDA Forest Service, Northern Region
Idaho Panhandle National Forests
Coeur d'Alene, Idaho

Mr. Heilman: Most forested areas, most commercial timber volumes, and most privately owned lands are outside wilderness, so in the long run most nationally significant fire management decisions are those made outside wilderness.

Modified suppression techniques are those that differ from 10 a.m. control policy of Forest Service or comparable all-out control policies of other agencies.

Examples of modified suppression techniques in common or widespread use:

1. Thirty lightning fires with only 20 available fire fighters—those fires given delayed attack have had a modified (i.e., differs from 10 a.m. policy) suppression technique.
2. Some select, usually remote high country, early pre-season or post-season fires may be allowed to burn partially or entirely into surrounding snowbanks or other barriers.
3. Region 3 “loose herding” which evolved into a much more sophisticated, tightly controlled delayed attack system.
4. Large, Santa Ana or comparable conflagrations in southern California which have had flanks or portions which have had no attack, pending change in fuel, weather, or topography. In spite of this, most southern California fires are picked up by aggressive, direct attack—the trick is in knowing which is which.

There are other types of modified suppression techniques, but these examples can give us a beginning point for the panel discussion to follow.

Mr. Crumb: When asked by Bill Fischer to participate on this panel I said “Yes, but what do you mean by modified suppression techniques?” His answer was for the fire managers to be able to modify their attack on wildfire so as not to necessarily meet the 10 a.m. policy.

I won't go into the 10 a.m. policy, but it is a US Forest Service routine, and is a sound policy.

In the short time available I am going to change direction a couple of times.

My answer to the question is "Yes, but qualified by who can afford fire managers?" Obviously only the large landowner can afford one in the present concept. The owner should have a team of experts to help with the job which would include a man trained and geared to fire—a fire manager. However, there are very few landowners who have the size of ownership or can afford a fire manager. Namely the Federal Agencies, USFS, BLM, NPS as examples, and a couple of large industrial owners.

To change directions—As seen by most timber protective associations and states, we are limited by circumstances to being the suppression part of fire management. Thus the answer to the question is "No."

This morning Sandy Sanderson, ably presented some of the reasons for such an answer. I won't repeat them, but just point out a couple of our problems of converting from a policy of suppression orientation to one of fire management.

An example which is facing *all* of us, and I want to emphasize the ALL, is the thinning slash problem. My experience is that the fire people, both federal, state and private have not really been included in the management decisions which have led to thousands of acres of thinning slash throughout the West.

Locally, the Idaho Code declares that an uncontrolled fire is a public nuisance, by reason of its menace to life and/or property. It directs the person responsible to control or extinguish it immediately. Many states have the same type wording in their laws. Thus, as the prevention and suppression-force manager we don't work for a landowner as part of a management team, but rather as directed by our laws.

In Idaho alone, and our area of protection is small compared to many states, our protection agencies work for 26,000 landowners, of which, 25,000 expect us to put out as quickly as possible any fire which starts on their land or to keep any fire from getting to and thus damaging their land.

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A sideline and maybe a clue to difficulties in *change*, as described by Hank DeBruin, is the resistance by the general public to such things as land use planning, Wild & Scenic Rivers, Forest Service Unit Plans, when they affect private landownership. We have quite a selling job to do.

Now, to change direction again for the last time. The question “Should fire managers have the option of using modified suppression techniques on fires occurring outside wilderness?” is naive. Most of us have had this option all the time. We have gone about doing our job and used modified suppression techniques when the situation demanded or warranted.

One of the reasons for this is that all the many landowner bosses, many of them absentee, the legislature, and the legislative process and the general bureaucracy of governmental agencies has allowed this to happen.

In summary—I think that I will leave the job of summarizing this to the panel members that follow.

Mr. Wood: “Should fire managers have the option of using modified suppression techniques on fires occurring outside wilderness?” As an economist, I must answer, “of course they should!” Economic rationality says that when the marginal benefits of using a modified technique exceed marginal costs and damages, that technique should be preferred.

Let’s take a simple example to illustrate the marginal analysis technique. We’ll consider stumpage value and suppression costs the only relevant criteria for our analysis. Assume we have a good crown fire raging through a stand of overmature lodgepole. According to the Forest Service’s 10 a.m. policy, the fire boss would attack it with a full complement of ground crews, jumpers, helicopters and air tankers until it was contained. But what if the fire boss knew of an impending weather change or a natural fuel break that would tame the fire if he just let it run? Considerably more timber may be destroyed by letting it go but, on the other hand, he might be able to get along with a much smaller suppression force. *If* the value of the additional timber burned (the marginal cost) is less than the savings

in suppression costs (the marginal benefit), then I submit that following the 10 a.m. policy is economically irrational.

This little example is naive in many important respects but it does illustrate the marginal approach and the kinds of trade offs involved. Furthermore, I don't think it's an unrealistic or isolated situation. I've done my time fighting fires and I've seen fires stopping of their own accord 100 yards short of the fireline and others where hundreds of firefighters had to wait out the fire's run.

My purpose, so far, has been merely to establish that opportunities for improvement do exist and to introduce an economic technique for identifying these opportunities. I don't mean to belittle the current policy. Indeed, it's been a rational and good policy and should not be discarded until certain problems are solved.

First, let's go back to the fire boss in our example. If he *knew* that the fire was going to stop at a given time and place, following the 10 a.m. policy would, indeed, be irrational. Unfortunately, these events are probabilistic—and 100 percent probabilities are rare in nature. Realistically, the most he can say is that the fire will *probably* stop. He may *know*, however, that there's a small probability of fire escaping to an adjacent watershed causing unacceptable losses—and he does *know* that the probability of escape can be minimized by stopping the fire as soon as possible. In my opinion, this is the primary basis for the 10 a.m. policy—to minimize the probability of the maximum possible loss, the so-called Minimax Criterion. Minimax is a valid technique where probabilities of extreme losses are present and shouldn't be hastily abandoned. Its very success in drastically reducing the disastrous conflagrations of the past allow us the luxury of debating its modification.

Second, timber values, suppression costs and other dollar valued costs and benefits are not the only substantial fire effects. Ecological effects, erosion and water quality, wildlife, recreation, aesthetics, and others are affected both positively and negatively by fire. These are most difficult to measure but a benefit-cost analysis is incomplete without them. In fact, these intangibles may be primary criteria on some areas and sufficient to swing the balance on others.

Third, I don't believe that each fire situation can be considered

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exclusively on its own merits. For example, marginal benefits may exceed marginal costs for a given suppression alternative because the additional timber loss is partially compensated for by the creation of deer browse. At some point, however, additional deer browse will no longer be desirable. An appropriate mix must be maintained and this mix is defined by the goals of the administering agency.

In short, except for a few trivial situations, I don't believe the fire manager presently has the information he needs to deviate from present suppression policy. Furthermore, once a fire starts the fire boss has little time to evaluate its pros and cons—he must act quickly or risk losing the ballgame.

What is needed is a new suppression policy solidly founded in research and goal oriented. The decision, or at least the major elements in coming to a decision as to how to react to a particular fire, must be developed prior to ignition. I'm talking about fire management prescriptions like those developed in the Forest Service's White Cap Study. The result of this type of planning, I would think, would be the division of the forest into units, each with its own array of suppression alternatives. The choice of an alternative, given a fire, would then be based on weather, fuel moisture, and other variables affecting fire behavior and effects.

Development of good alternatives depends on the ability to predict fire behavior and effects—a difficult task. Fortunately, I believe we're on the verge of being able to do just that. Considerable progress has been made in the last year alone. I don't believe the research I'm doing on the economics of forest fuel management would have been possible a year ago—much of the data and many techniques I'm using are only now being completed. Of course, much remains to be done.

The elimination of large conflagrations will probably always be the heart of fire suppression policy and where such a risk exists the current policy is probably appropriate. The trick will be to identify those situations where there is little or no risk and to optimize net marginal benefits in those situations.

Before concluding, I must add that the question of suppression policy is only a segment of the larger question of fire management. Minimizing the risk of a big fire may become more a matter of fuel

treatment than suppression policy. A prescribed fire probably makes more sense than allowing a wildfire to burn in situations where fire is judged beneficial. Suppression is tightly interwoven with many other fire management options and, ultimately, I think we should consider the entire package as a unit.

In conclusion, yes, I believe modified suppression techniques should be used but only if the manager has sufficient hard evidence on which to base his decision. This evidence must be available in advance in the form of research developed, goal oriented, suppression prescriptions, based on marginal benefit-cost analyses. Modified techniques should be considered only where the probability of the fire reaching disaster proportions is very low or zero.

I would guess that there are limited areas obvious enough to apply modified techniques now but significant changes in policy await more sophistication in our predictive ability and will be related to advances on other fire management fronts. I have every confidence that these advances are not only possible, but will occur.

Mr. Pangman: Current fire suppression policies for National Forest lands call for fast, energetic action on all fires and planning control by 10 a.m. the following day, when initial efforts fail. High regard is to be given to environmental protection. Other policies indicate that action may be commensurate with values at risk. This suggests something other than an all-out effort when resource and property values are low. This does not imply that large amounts of acreage could be allowed to burn, or that the 10 a.m. policy be ignored.

Given this general expression of fire suppression policy for national forest lands, should fire managers have the option of using modified suppression techniques on fires occurring outside wilderness? There are at least two phases to this question. One concerns the 10 a.m. policy, and the other concerns the physical manner in which a fire is controlled. On the latter point fire managers have a wide discretion on selecting techniques whereby a fire will be controlled. The selection of fire suppression techniques is probably mostly controlled by environmental protection factors and the 10 a.m. policy. Balancing the two, in some situations, places considerable burden on the fire manager's decision making. Given a fast-moving fire in high value

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resource areas with unstable soils, the choice of suppression methods becomes difficult. Should the fire manager select bulldozer-line construction with wide clearing for burnout and holding? Each fire situation has to be decided on its own merits. Not all fires are this difficult to decide. Fire behavior factors often permit fighting the fire with techniques that afford a maximum of environmental protection. The choice of line construction techniques, selection of control lines, fire camp locations, access roads, fire retardant applications, and clearing for helicopters can be made in a way that will keep adverse environmental impacts to a minimum. Fire managers currently have this option in fire suppression and rightly so. The job can be made easier through pre-attack planning, coordinated with land use planning and multiple use management. More on that subject later.

The other phase of the subject is optional use of the 10 a.m. policy. It has been very popular these days to talk about “free fire” with a philosophy that all fire is good and should be unconstrained. It is also popular to criticize Smokey the Bear at the same time. The 10 a.m. policy goes a long way back in the history of wildfire suppression. We should not lose sight of the reasons why it was established, following many years of conflagration fires in the United States. At the present time, deviations from the 10 a.m. policy must be pre-planned and approved by the Regional Forester and Chief of the Forest Service.

This does not mean deviations haven't occurred without approval. They do, under extraordinary circumstances. Examples are isolated fires in steep, rocky terrain—usually single-tree- or in multiple fire situations when suppression resources are over-committed and priorities are set on which fires will be controlled first. Normally, the values at risk are low and the risk of a larger, more unmanageable fire also low.

Should fire managers have the option to deviate from the 10 a.m. policy where the expected results would be beneficial? Probably yes, in the long run, but not until some of the uncertainties about liberal use of wildfire are resolved. It is recognized that certain types of wildfires are beneficial in maintaining and perpetuating certain plant communities and wildlife habitats. It is also recognized

that fire and associated suppression practices can have adverse effects on soil stability, hydrologic characteristics, plant communities, wildlife and their habitats, esthetic qualities, and other values. Balancing the beneficial and adverse effects of wildfire must be done on a case by case basis. The benefits must exceed the costs, both environmental and economic, in each case. How do we determine this relationship? Part of the information needed is known, but there are still many difficult questions to be answered. Research is primarily needed in developing inventory and evaluation techniques whereby the effects of fire under varying intensities in different ecosystems can be predicted. Additional work is also needed in analytical methods for determining net fire benefits.

Perhaps the cornerstone for developing modified fire suppression practices is in the land use planning environmental statement process. In land use planning we are currently gathering information for specific units of land. As we evaluate this information in developing land use alternatives, we are also beginning to evaluate the role of fire in managing specific units of land. We do not, however, at this level of planning answer all of the questions related to fire management, but merely set the stage for more detailed fire management planning. We have probably made the most improvement in identifying the opportunities and constraints for various type of fire suppression practices, setting a framework for pre-attack planning in the more highly valued resource areas.

We have identified units of land where fire would be beneficial in perpetuating specific plant communities and wildlife habitats. This is about as far as we have gone in most cases, merely identifying opportunities. The actual prescriptions need to be based upon additional planning, using more comprehensive information and analysis. It is, however, a beginning, and by subjecting this level of planning to the environmental statement process, we should increase public awareness and understanding to the adverse and beneficial effects of fire in land management.

In summary, we should continue to work toward increasing the fire managers' options on using modified fire suppression techniques on fires occurring outside of wilderness. Until some of the uncertainties are resolved and proper planning procedures employed,

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we should adhere to current policies on fire management outside of wilderness.

Mr. Sandman: *Editor's Note*—Mr. Sandman presented a slide-tape program that could not be reproduced here. Included in this presentation were the following six specific comments that tend to indicate his feelings on the question before the panel:

Structure Firefighting: Created because of a need to save entire towns from fire. We have improved so today we save individual homes.

Forest Firefighting: Created because of a need to save peoples lives, entire towns, precious resources. We have improved so today we keep the majority of fires below $\frac{1}{4}$ acre in size.

Arbitrary Control Time: State and private fire agencies are not handcuffed by the Federal 10 a.m. Policy.

Fire: Friend and Foe. Fires if left alone do not always burn peacefully. They do destroy.

Prescribed Fire: The use of prescribed fire is necessary for proper resource management. Only through a strengthened protection arm can we possibly exercise the necessary uses of prescribed fire.

"Let Burn": Let Burn philosophy is not prescribed fire, and does not have a place in non-wilderness management on state and private lands.

Mr. Verdal: In preparing a response to this question, I didn't get past the first word of the question before I ran into problems. Do we all have a common understanding of the term "fire manager"? What does the term "fire manager" mean? Is there a specific accepted definition of a fire manager? Who is a fire manager and who isn't? What education, training, experience, and current practice is necessary to qualify as a fire manager? Is every smoke-chaser a fire manager? They fight most of the fires in this region!!

Fire manager is not a position in the Forest Service red card fire qualification rating system. If it were, and I agreed with the qualification criteria, I might find it easier to answer the question.

Because of heavy fuels, steep topography, hot and dry summers, difficult access, etc., firefighting in northern Idaho and most of the Northwest is very expensive. Our financial records point this out to

us very clearly. Assessing damages from fire is not as simple and easy to do as tabulating suppression costs. In fact, assessing damages is often quite controversial. Assessing benefits is the most difficult of all. At the present time, we are doing this on an individual judgment basis when it is being done. Yet it is necessary that a fire manager evaluate all of those factors and be able to support his decision in the public arena if modified fire suppression techniques is to be used on an extensive basis outside wilderness areas. Perhaps a few fire managers can properly integrate all of these factors but I suspect the number is rather small.

Program Chairman, Bill Fischer, defined modified fire suppression "to indicate less than all out attack to achieve control by 10 a.m. of the next burning period." Bill further explained that what he was asking in the question is "Should the fire manager be allowed to react to a fire suppression situation based on expected fire behavior, the values at risk (cost-benefit), and the objective of management for the particular piece of land involved." Bill also stated that the 10 a.m. policy completely ignores all of the considerations.

The policy of the Forest Service says in part to "Organize and activate sufficient strength to control every fire within the first work period. If the fire is not controlled in the first work period, the attack each succeeding day will be planned and executed to obtain control before 10 o'clock the next morning." The policy also goes on to say, "Deviate from the 10 a.m. policy only when exceptions are pre-planned and authorized subject to approval by the Regional Forester and Chief."

I don't interpret the 10 a.m. policy to ignore "all of these considerations" that Bill mentioned. The 10 a.m. policy is a good general policy. In northern Idaho under severe burning conditions, 10 a.m. is often too late. In off season fire conditions, it would often be ridiculously expensive and unjustifiable to hold to 10 a.m. as if it were sacred. In many cases the logistics of the situation make it impossible to comply even when we want to comply.

Fire managers who know what the policy is and the objectives behind the policy have been deviating from the 10 a.m. policy for years in situations such as these and to a limited extent to accomplish beneficial ends. They know that they can and often are required to

justify any deviation from the 10 a.m. policy and can be held accountable for unfavorable results.

This year reminds me of the fall of 1952. We got a slight break in the weather at the end of August. Then it got hot and dry and stayed that way all of September. When the break in the weather came in August, the Fire Chief in the region sent out a memo directing that no more fire preparedness funds be spent. We didn't spend any more on the district I was on and, of course, we weren't prepared for what occurred later. I reminded the regional fire chief of his memo at the board of review and I have never forgotten his terse reply. "That memo did not say not to use your head." He sat down and so did I. He had the perfect squelch!! I don't think the 10 a.m. policy should be or is being interpreted by fully professional fire managers to mean "don't use your head."

In summary, my answer to the question is yes, fully professional fire managers should have, and I think do have, the option of using modified suppression techniques on fires occurring outside wilderness. But, as Mr. Nixon discovered, there are limitations that properly apply to everyone — including presidents and fire managers.