

Closing Comments: Fire, Fuel Treatments, and Ecological Restoration—Proper Place, Appropriate Time

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Introduction

The title of this conference, “Fire, Fuel Treatments, and Ecological Restoration: Proper Place, Appropriate Time,” is indicative of a wide range of elements critically important to ecosystem management. While in general, it encompasses many attributes of a comprehensive fire management program, it is also specific to the recently emerging focus on fuel treatment and ecological restoration. This conference brings together an assembly of individuals to discuss the range of information currently available pertaining to the issues of treating hazardous fuel buildups and restoring healthy, functioning ecosystems. The enormity of these issues, the situation surrounding current and future activities, and the developing program to answer questions about these subjects cannot be overstated. These are indeed huge issues that have been developing for nearly a century and will take massive efforts, committed workforces, and large budgets to reverse the current state of both altered fuel complexes and ecosystem health and condition. So, this conference is not only timely, but significant in terms of the importance and quantity of information that has been shared and discussed here.

I feel very fortunate to be able to present the closing comments at this conference. First, I am privileged to be involved with such an important effort. Secondly, when presenting comments, one has the opportunity to discuss personal viewpoints and is not tied to interpreting actual data. In most cases, this tends to make preparation much easier. What I will discuss here and close this conference with are my personal perspectives and a summary of the three days of this conference.

The Nature of the Fuel Treatment and Ecological Restoration Problem

Are we facing a problem? I would submit that we are not facing just a problem, but an enormous one. All practitioners involved in wildland fire management, and even casual observers, can attest to the magnitude and harshness of the 2000 fire season. What has caused this problem? Nearly a century of fire exclusion combined with other land uses has served to greatly increase fuel accumulations. This, in turn, has promoted changes in fire behavior, fire severity, and frequency. These changes in fuel and fire dynamics have led to a general decline in ecosystem health, which in combination with an expanding

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wildland-urban interface, is seriously affecting our ability to protect both ecosystems and communities. After years of stating the compounding effects of uncontrolled fuel accretion, attention is now focused on this problem. Our credibility has come under scrutiny and we must demonstrate the ability to overturn the current direction that fuel and fire dynamics are following.

Have our fuel treatment and ecosystem restoration activities developed over the years? I would submit that yes they have developed and will continue to do so. Indicative of these developments are the accomplishments of this conference. While here, you have heard 35 presentations in the topics of:

- Fuel treatment performance – fire hazard reduction,
- Restoration case studies and ecosystem effects,
- Treatment economics and social issues,
- Fire regime considerations,
- Landscape planning, and
- Field trips and discussion.

Over 300 people registered for this conference, and at a related conference, the National Fire Plan Conference in Madison, WI, another 300 people were in attendance to discuss the current state and future of fuel treatment and ecological restoration. The response to these two conferences clearly demonstrates the importance of this subject, the changing nature of current knowledge, and the increasing demands for additional information.

Programmatic Development—Putting the Pieces Together

How have fuel treatment and ecosystem restoration activities developed? If we look at the past, present, and future attributes associated with our fuel treatment and ecological restoration programs, such as historical experience, new initiatives, application focus, changing needs, accountability and scrutiny, changing application focus, scheduling, scale, information acquisition, collaboration, and performance measures, we can begin to see what has shaped this program, what current influences are, and what the guiding principles of the future will be. If we accept these attributes as the pieces that will make up the fuel treatment and ecological restoration programs of the future, we must fully understand what they are and how they fit into the puzzle.

Historical Experience

Earlier in this conference, Phil Omi stated that fuel treatment began in the 1930s. The actual extent of the program at this time was limited to specific geographic areas and accomplished only localized treatments. This activity, however limited, provided a foundation for the future. We have built on this experience over the years, but our efforts have almost exclusively focused on the application of prescribed fire. Limited collective experience has been gained with mechanical treatments, but this has resulted from support of silvicultural practices rather than from treatment of fuels or restoration of ecosystems. Wildland fire use, formerly categorized as prescribed natural fire, has been a fire management strategy used by some federal agencies since 1970. This practice has served as a principal technique for ecosystem maintenance and restoration in undeveloped areas such as large national parks and wildernesses and represents an extremely valuable strategy for ecosystem maintenance and restoration.

New Initiatives

Both Lyle Laverty and Governor James Geringer have talked about the various initiatives and directives that are now driving fuel treatment activities. These initiatives are propelling this program to greater levels than ever before. These initiatives consist of numerous reports, reviews, directives, and other agency documents that describe the enormity of the problem and make recommendations for resolution. The most significant initiatives include the 1995 Federal Fire Policy and 2001 Review and Update; multiple General Accounting Office audits; the National Fire Plan; the combined federal Cohesive Strategy (Restoring Fire-Adapted Ecosystems on Federal Lands – A Cohesive Strategy for Protecting People and Sustaining Natural Resources); and the 10-Year Comprehensive Implementation Plan (A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment, 10-Year Comprehensive Strategy, Implementation Plan).

Application Focus

Fuel treatments and ecological restoration activities have historically been focused on remotely based treatments conducted away from population centers. As a result, treatments could be conducted in lower risk situations, with lower threats to values to be protected. These earlier treatments were conducted on a small-scale basis and achieved only highly localized, stand maintenance results. These treatments were conducted for resource management objectives, silvicultural support, and hazard fuel reduction around federal infrastructures and may be representative of the “passive restoration” described by Greg Aplet in his presentation.

Changing Needs

The ever-increasing complexities of these programs are now trending into areas where the needs warrant expanding our range of treatment techniques to fully accomplish objectives. Historical experience may not have given us the requisite tools and knowledge we need for the demands of today and tomorrow to keep pace with changing societal values.

In the rush to quickly implement these programs, assign funds, and obtain results, we have sought quick and easy solutions. A full range of treatment techniques is available, and no single treatment is best suited for all situations. Some techniques are not even possible in certain situations. Our fuel treatment experience has been primarily a result of past prescribed burning. Some limited experience in mechanical treatments has also been gained but is the result of activities completed in support of silvicultural applications and not specifically designed for fuel treatment or ecological restoration. We need to utilize the various treatment types at our disposal and maximize the application to the land use situation. Treatment types including chemical, biological, mechanical, pile burning, mechanical plus pile burning, other multiple treatment combinations, small-scale prescribed fire, landscape-scale prescribed fire, and wildland fire use are viable options. However, these treatments must be applied in the correct land use situation. For example, landscape-scale prescribed fire and wildland fire use are not realistic or feasible in the wildland-urban interface areas while such site-specific treatments as biological, chemical, mechanical, and pile burning are not economically efficient in wildernesses or other large undeveloped and inaccessible areas. There are optimal areas of operation for each treatment type. Windows of opportunity exist and must be capitalized on. In terms of treatment types across the diverse range of land use

situations, there is no panacea to the current issues of fuel reduction and management and ecosystem maintenance and restoration.

Accountability and Scrutiny

Now, probably more than ever before, accountability and scrutiny are forefront in the fuel treatment and ecological restoration programs. This is due to the potential outcomes of fuel treatments, outcomes of lack of treatments, values to be protected, recent occurrences (including Lowden Ranch, Cerro Grande, and North Shore of Kenai Lake prescribed fires), and the infusion of funding. Over the last several decades, land managers have stressed the changes that were occurring in fuel complexes and ecosystem health. After the 2000 fire season, the President and Congress listened and responded. The National Fire Plan was formulated and additional funds were provided to federal land managers to take action on reducing fuel accumulation and protecting ecosystems and communities. This development, though, is a double edged sword. The acceptance and endorsement of the problem by politicians and Washington level bureaucrats places it in a priority status and provides additional funding. This is one of the few times that partisan politics has not dominated the funding of strategic land management programs. The fuel treatment and ecosystem restoration program we are now embarking on is enjoying support from eastern and western Governors and Washington politicians, all with a common goal. We are seeing greater inter-departmental cooperation in the federal land management agencies, and markedly increased collaboration among federal and state agencies, tribal representatives, and local groups. However, with this increased support and funding comes additional scrutiny and attention. To maintain continued support, accountability and productivity are paramount. There will always be competition for funds and to maintain and continue to expand this program, we must make good decisions yet show sustained accomplishments with programmatic growth. We must reduce the barriers to implementation and avoid such issues like “analysis paralysis” that Tim Ingalsbee described in his presentation.

Changing Application Focus

The current need for fuel treatment and ecological restoration is shifting to include an area that we have not previously given full attention to. This is due, in part, to the fact that the wildland-urban interface did not always occupy such a prominent position in wildland areas. In addition, the wildland-urban interface is generally not on public lands, but on private lands and correspondingly has not been the subject of federal land management programs. Now, the wildland-urban interface requires significant attention and action. Our fuel treatment program is moving from one associated with remotely based treatments only to one having significant applications in both remotely based and population-based areas. Our fuel treatment program is also taking on greater levels of risk associated with this changing focus.

The enhanced focus that is being placed on wildland-urban interface area treatments does not mean a pendulum swing to the point where the goals of natural resource management and ecosystem maintenance and restoration will be minimized or ignored. Some very good points have been made during this conference about wildland-urban interface treatments versus ecological restoration. We have to continue to respond to both sets of objectives and we must fully understand that fuel treatment is not synonymous with ecosystem restoration.

External scrutiny over the wildland-urban interface is high and stems from recent General Accounting Office Reports and Testimony, Congressional

Hearings, budget hearings and language, accountability, and increased reporting requirements. Collaborative delineation and mitigation treatment development and implementation for wildland-urban interface areas is underway and providing a higher degree of local involvement. Reducing fuels in wildland-urban interface areas is about creating vegetative complexes that will burn with less intensity and severity and be less resistant to control. It is about protecting communities at risk. Wildland-urban interface treatments are being viewed by some as the priority. But, these types of treatments are very costly and labor intensive. Since the implementation of the National Fire Plan, wildland-urban interface treatments have required about two-thirds of the available funding and accounted for about one-third of the total acres treated.

You have heard earlier in this conference from Jim Menakis about using condition classes (fire regime condition classes) as a method to describe current conditions of vegetation and fuels. These classes depict the degree of departure from historical fire regimes resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, and canopy closure. Wendel Hann provided a description of the joint federal cohesive strategy for protecting people and sustaining natural resources (“Cohesive Strategy”) and explained the use of the condition classes to gauge the current status of ecosystem health across the country and to set long-term strategic goals for maintenance and restoration. When we look at the proportions of areas in the various condition classes, we can readily see the ongoing trend. Ecosystem health and condition is worsening. Without restoration treatments, the long-term prognosis is for continued worsening of ecosystem health and continued, if not increased, frequency, intensity, and outcome of wildland fire. Areas not classified as wildland-urban interfaces are in need of treatments. Remember during the last one and one-half years, fuel treatments and ecosystem restoration activities in non-wildland-urban interface areas have accounted for about one-third of expenditures and two-thirds of accomplishments.

How important are the condition class descriptions? A cursory response to this problem might indicate that we need to treat only the condition class 3 areas, those in the most degraded state. However, we must ask ourselves, Can we afford to not treat areas in all three condition classes? Greg Aplet of the Wilderness Society presented examples where lower intensity fires burning in the understory still were responsible for structural losses. Does condition class matter in the wildland-urban interface?

I submit that all these things are important to the future of this program. We need to develop a comprehensive fuel treatment and ecological restoration program that is responsive to both protection and restoration objectives. This program must closely depend on condition class designations, not focus on only the worst case, but provide for maintenance of the better situations while restoring the lesser situations to better conditions. It must effect change in the wildland-urban interface areas regardless of condition classes there. No matter what the vegetative condition is, the ability to control wildland fires and minimize burning intensity must be enhanced.

Scheduling

Scheduling affects both the proper place and the appropriate time for fuel treatment and ecological restoration. Scheduling determines the sequencing of projects (i.e., away from highest risk areas on continuing maintenance work), sets priorities, coordinates across jurisdictional boundaries, and influences long-term activities. Scheduling must be an integral part of fuel treatment and ecological restoration activities to ensure the maximum efficiency and productivity.

Scale

Scale is critically important. Bill Romme's presentation provided us with a solid example of the scale issues that face us and stand-versus-landscape considerations. We can no longer only deal with stand maintenance or site-specific treatments. We must now expand to landscape-scale fuel treatment applications. However, landscape-scale does not simply infer that larger treatments must be applied. A program of this scale will include a combination of site-specific and large-scale treatments using much of the full spectrum of treatment types to effect significant change over an entire landscape. This type of program, a comprehensive fuel treatment and ecosystem restoration program, must be developed and implemented. This type of program will be representative of "active restoration" carried out at the ecoregional level as Greg Aplet described in his presentation.

Information Acquisition

There are many unanswered questions involving fuel treatment and ecological restoration. Some you have heard during the last three days, some have not been discussed. Examples of the types of questions that have surfaced here include:

- What are we restoring the system to?
- What are the effects of treatments on fire severity?
- What are reference conditions?
- What are future conditions?
- What are the best restoration parameters?
- How do we treat the wildland-urban interface (you heard Mark Finney provide new information on this subject)?
- How can decision-making be improved?

Information acquisition is critical to maintaining and improving this program. Management must be dynamic and accept new developments and incorporate them into actions. The Federal Fire Policy stresses the importance of incorporating the best available science into fire management. Both Wally Covington and Greg Aplet reinforced this in their presentations. Wally Covington very succinctly summarized the importance of information acquisition by stating that without a sound understanding of the ecosystem that we are dealing with, our decisions will degenerate into ill-informed speculation, subjective judgment, bias, ideology, and personal policy viewpoints. Jim Menakis' and Wendel Hann's presentations provided examples of science-based management analyses and support to decision-making.

Collaboration

The future of this program is in collaboration. We must support collaboration at all levels but we must advocate and ensure local collaborative decision-making. Some examples exist of increased collaboration around the country but this must become a universal process. Tim Ingalsbee presented an example of successful local collaboration and how diversity and societal recognition helped implement a difficult project.

Performance Measures

What are measures of performance? These are standards that have developed in response to the new levels of accountability and scrutiny associated with the program. Performance measures have important value in that they

identify standards associated with the program that managers need to meet. Thus, they help to provide structure and framework for program implementation. However, in the haste to implement, we have begun to confuse performance outputs with performance outcomes. A performance output is something that occurs from short-term operational activity, such as numbers of projects proposed, numbers of projects completed, or numbers of acres treated. A performance outcome, the desired result of the activities, represents what has resulted from long-term programmatic execution, such as numbers of communities protected, values to be protected with changed fire protection capability, proportions of condition classes maintained and restored, numbers of areas influenced or affected from treatments, and sustained incremental increases in programmatic accomplishments.

Trying to describe performance in terms of outputs merely focuses on the short-term actions. Using performance outcomes provides a better description of long-term influences of programmatic activities and can offer a basis for program evaluation.

Measuring Success

How do we measure success? To do this effectively, we must review the goals of fuel treatment and ecological restoration and the program outcomes. Success cannot be measured in small-scale increments but in establishment and implementation of a long-term, pro-active restoration-based landscape-scale fuel treatment program. This program must be accountable and meet the scrutiny accompanying increased funding and attention. It must effect change in the form of increased protection capabilities and reversed ecosystem degradation. It must enact and utilize collaborative decision-making at all levels. It must be responsive to dynamic ecological situations and not be static in time. Research has been a fundamental component of such a dynamic program. I have talked about information acquisition, but its importance warrants repeating. We must learn more, acquire information, and apply this information. Additional topical areas that have not been discussed include:

- What are the interactions with climate change and fire season duration, fire severity, and changing vegetation?
- What is the relevance of historical reference conditions?

Information such as that which Mark Finney presented must be acquired and applied to produce the most efficient efforts.

Summary

It is certainly an exciting time to be involved in natural resource management. The advent of the National Fire Plan means many things but principally an effort to resolve a worsening problem in fuel accumulation and ecosystem health. The National Fire Plan is not the final answer, but a beginning. We have a long way to go; you know that this situation is the result of a century of actions based on 100-year-old state-of-the-knowledge. We have learned more during this time about fire, fuel, and ecosystem dynamics and believe that charting a new course is necessary. This program of action will not be easily or quickly achieved. Along the way, there will be much to learn and much to incorporate into actions.

Currently, we have three basic questions that have arisen at this conference to respond to. Information related to these questions has been pervasive to the various sessions of this conference. These questions are:

- What are we restoring the system to? What about permanently altered ecosystems? What about not restoring but defining and stabilizing permanently changed ecosystems into new resilient systems?
- Have we created a situation that will allow the program to succeed?
- Will our actions be sufficient to protect communities and ecosystems?

We must answer these questions and evaluate our actions in light of them. Defendable and supportable responses to these questions will facilitate our ability to proceed with a successful long-term strategic program of action to meet the objectives of fuel treatment and ecosystem maintenance and restoration.

I would like to thank all the organizers, speakers, and participants at this conference; it has been an exciting, worthwhile, and motivational undertaking. I hope everyone here will take the information and enthusiasm back to your job and channel them into our common goals of fuel treatment and ecological restoration.

This has been a great conference and I ensure all of you that this will not be the last one concerning this subject.

Thank you for this opportunity.