Fire and Forest Management Policies on the Boreal Forest and Wildlife of Interior Alaska[1]

By Dale Haggstrom

WILDLIFE DIVERSITY AND ABUNDANCE ARE directly tied to the ever changing nature of the boreal forest (Kelleyhouse 1978). The diverse pattern of seral types and ages, and inter-associations provides habitat for a variety of wildlife. Historically, this diversity and productivity has been maintained primarily by two natural forces, wildland fire and fluvial action (Viereck 1973).

Settlement by non-Native peoples brought many changes to the boreal forest. Permanent villages were created where Native peoples had previously led more nomadic lifestyles. Non-natives built communities and roads, and imposed a new ethic upon the land. Unlike indigenous people who lived in relative harmony with the land, these newcomers felt a need to subdue the land to meet their needs. One of the values non-natives brought with them was the notion that fire was bad. Fire was perceived as a threat to people, their homes, and the forest itself. In contrast, many indigenous peoples of the boreal forest used to set fires to alter local habitats (Lutz 1959, Lewis 1982). This practice was discouraged by the early white settlers and eventually died out.

In Interior Alaska, organized fire control efforts began in 1940 with the establishment of the Alaska Fire Control Service (Barney 1971). Early efforts focused on fires near population centers, but were eventually extended to remote areas as the capability to do so was developed. As fire detection and suppression technology improved and funding levels increased throughout the 1950s, 60s and 70s, the number of acres burned annually was greatly reduced (Kelleyhouse 1979a, Foote 1983).

Concerned biologists and ecologists warned of the ecological consequences of attempted fire exclusion in the fire dependent boreal forest (Kelleyhouse 1978). Exclusion would result in increased predominance of fire-prone spruce forest, increased susceptibility to insects and disease among older stands of spruce, decreased presence of early seral stages and decreased forest diversity. These changes in the forest foretold eventual changes in wildlife abundance and diversity that would certainly not be natural (Kelleyhouse 1979a, Mutch 1970) and probably not acceptable to most residents of the region.

Fortunately, by the late 1970s it was becoming obvious to many people that fire could not be excluded from the boreal forest and aggressive fire suppression efforts were only delaying the inevitable to years with extreme burning conditions. Unfortunately, it was not the ecological consequences of attempted fire exclusion that forced policy makers to consider policy changes. Rather, it was increasing suppression costs that convinced most land managers and suppression staff to seek relief from existing policy (Kelleyhouse 1979b). This unfortunate reversal of priorities continues to haunt us to this very day.

In the late 1970s, cooperative fire planning was seen as the vehicle for obtaining relief from policy that mandated suppression of all fires. This effort, conducted under the auspices of the newly formed Alaska Land Managers' Cooperative Task Force, eventually resulted

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in cooperative fire management plans that placed Alaska's lands, irrespective of ownership, into four management categories where suppression response varied from all out aggressive attack to mere surveillance (Taylor, D., et al. 1983). These plans, implemented from 1982-86 and now consolidated into one (Alaska Interagency Fire Management Council 1993), have reduced suppression costs and have helped return fire to its natural role in most of the sparsely populated regions of Alaska.

However, challenges remain:

1. Fire policy behind the fire plans remains based on the outdated notions that wildland fires are "unwanted" and constitute "emergency" actions;

2. Fire management decisions continue to be based on economic and political considerations, and not the biology of the boreal forest ecosystem or the management needs of the land and resource agencies;

3. Most of the funding for fire management remains obligated to short-term suppression actions and cannot be used for management actions that extend the benefits of individual burns or reduce the long-term threat to communities;

4. Not enough is being done to change public attitudes towards fire that were entrenched by decades of well-meaning, but inaccurate, Smokey Bear public education efforts;

5. While we are making an effort to get homeowners to reduce the susceptibility of their homes to wildland fire, we still allow, and in fact promote through state land disposals, home construction in highly flammable black spruce stands and we do little to discourage urban sprawl; and

6. Sizeable portions of Alaska are "off limits" for continued, natural disturbance by wildland fire because of the presence of people, homes, privately owned land, scenic viewsheds, airports, and commercial interest in trees, and little is being done to mitigate this loss through management efforts such as prescribed burning and logging.

With this introduction, I'd like to go on to a discussion of some of these issues in greater depth from my perspective as a wildlife biologist.

WILDLIFE BIOLOGISTS HAVE long been frustrated by wildland fire policies that originated in the southern states and are inappropriate for Interior Alaska (Kelleyhouse 1978, 1979b). While attitudes within federal and state fire suppression and land management agencies have changed noticeably over the 20 years I have been involved in fire management issues for the Department of Fish and Game and these changes are often reflected in agency interpretations of policy, changes in the policy itself have been frustratingly few and slow in coming.

Federal policy still refers to wildland fires as "wildfires" and defines them as "free-burning and unwanted fires requiring suppression action." It then requires that "all wildfires be suppressed" (Department of the Interior 1990). By calling these fires "wildfires" and "unwanted," federal policy perpetuates the myth that wildland fires are always emergencies and undesirable, and thus "bad." In reality, the only unwanted or harmful aspect of naturally occurring wildland fires is the threat to human life, private property and forest resources that we wish to retain for their commodity value. Federal policy ignores the fact that, aside from these unwanted aspects, wildland fires are crucial to continued well-being of the boreal forest ecosystem and quality of life for Alaskans. In a way, existing policy is a self-fulfilling prophecy. If you keep fire out of a fire- dependent ecosystem long enough, you truly do end up with fires that are emergencies and undesirable, as we have seen this summer in the western states (Taylor, R. 1994a,b).

Federal policy also says that "wildfire may not be used to accomplish land use and resource management objectives. Only prescribed fires may be used for this purpose" (Department of the Interior 1990). This makes no sense at all. Why not take advantage of natural events to help attain land use or resource management objectives? Wildland fire is often the cheapest and most effective way to maintain or restore the natural ability of the forest to sustain an abundance of wildlife and meet people's needs. This policy is an arbitrary obstacle to good management which is long overdue for change.

In 1991, the Department of Fish and Game (Somerville 1991) sought relief from these unreasonable policy constraints by requesting that the Department of Interior either ex-

empt Alaska or revise its policy to accommodate the unique situation in Alaska. In response, Department of Interior (Spang et al. 1991) directors asserted that they did "not feel that it is appropriate to seek changes at this time." Let's hope that such changes will now be deemed "appropriate" in the new atmosphere of the current administration, as they struggle to meet the challenges wrought by years of mismanagement of our western forests (Thomas 1994).

SOME FEDERAL MANAGERS consistently interpret the portion of federal policy that states "wildfire may not be used to accomplish land use and resource management objectives" to mean they cannot base fire management decisions on the benefits that may accrue to wildlife or the forest. They feel compelled to decide whether fires should be put out or not in terms of suppression costs and the monetary value of the commercial timber that may be consumed, without consideration for longer-term benefits to the forest or wildlife and the people who enjoy them.

This attitude was clearly indicated in a 1991 staff memo from BLM State Director Edward Spang: "It is incumbent upon suppression personnel to make initial attack recommendations when they feel a Limited Suppression fire will not meet the objective of saving suppression dollars" (Spang 1991). Further, he wrote, "while it appears that the Department Manual allows surveillance as an appropriate action, it must be done because that is the most cost effective procedure." Essentially, this means fires are only allowed to burn when it is cheaper than putting them out, even in the Limited Action areas where fires can most clearly be allowed to function unimpeded as a natural component of the ecosystem.

Later in the same year, Spang and other state level agency heads in the Department of the Interior wrote the Department of Fish and Game, "as long as suppression decisions are based on sound suppression cost saving criteria, potential resource benefits can be recognized and attained" (Spang et al. 1991). Thus, for all practical purposes, ecological benefits, if derived at all, occur only incidental to the objective of fighting fire in a cost- effective way.

Suppression organizations were created and funded to put out fires, not manipulate them for management purposes.

Nowhere do our conflicting ideologies clash more than on this issue of management of fires in Limited Action management areas. It is long overdue for the federal government to "call a spade a spade" and change policy to fit ecological realities. Federal managers should be able to state up-front, like the State has in the Consolidated Interagency Fire Management Plan, that they "recognize the beneficial role of fire in the Alaska ecosystem and manage fire with this consideration in mind" (Alaska Interagency Fire Management Council 1993). It is a sham to hide behind the guise of saving money in these vast areas where clearly there is very little risk from allowing fire to resume its natural role in the environment and the preeminent objective ought to be to do just that, even if it costs more money than putting the fire out.

FIRE MANAGEMENT FUNDING, like policy, stems from the days when wildland fires were considered emergency actions. Suppression organizations were created and funded to put out fires, not manipulate them for management purposes. Now society better understands the role of fire in forest ecosystems and knows wildland fires are not always emergencies (Gardner et al. 1985). The mission of the suppression agencies has changed from strictly putting out fires, to providing services to the land managers and owners who see fire as integral to their land use and resource management programs. The management lines have blurred over time, but unfortunately the funding lines have not. There is a dire need today to build some flexibility into the system so that suppression and management needs can be more efficiently intermeshed.

I see three areas where this need is greatest. The first is the management of escaped fires in Modified Action areas. One of the original premises behind the Modified Action management option in the fire plans was that indirect attack tactics could be used to safely allow additional acreage to burn during the course of suppressing the fire. Wildlife managers saw this as an opportunity to extend the benefits of the fire for those species that thrive in early to mid-successional stages following burning, such as moose. Our management dilemma is that, paradoxically, the same human settlement that created the de-

mand for wildlife also created the conditions which make it difficult for managers to allow fire to function in the forest. The Modified Action option is considered crucial for the maintenance and restoration of diverse and productive habitats near populated areas, where wildland fires can not be allowed to burn unimpeded.

Unfortunately, policy and funding constraints limit our ability to actively manage these fires, especially at the federal level. Both federal and state suppression agencies can clearly "trade acres for dollars" if doing so reduces suppression costs and is not justified in terms of benefits to wildlife. However, problems arise when we ask that additional acreage be burned than is needed to safely employ indirect attack tactics in a cost- effective manner. For example, if we were to ask that indirect attack efforts be deployed at a creek 5 miles away from the front of the fire instead of only a mile away. Even if this second alternative is more expensive, it would be more cost-effective per acre treated than having to come back at a different time to attempt the same effort with a prescribed burn. Latitude to consider alternatives like this make good management sense. It is a tool managers need.

A second area where funding flexibility is needed is in the area of hazard reduction burns. It should be possible to use suppression dollars to conduct controlled burns near communities to reduce the threat from wildland fires in the future. This action is needed for two reasons. Most importantly, from a resource managers point of view, reducing the threat to communities increases the options for allowing wildland fires to burn in adjacent areas. However, this preventative action should also save money in the future when a wildland fire occurs adjacent to the community.

A third area that would benefit from a more flexible outlook on cost-efficiency is that of fire in Limited Action management areas. A very short-term view of cost-efficiency has been evident at times in the past. For example, it has been argued that it may be more cost-effective to extinguish a fire that

starts near a cabin, than to protect the cabin. This is because successful initial attack can be very cost-effective in the short-term (Hanson and Rowdabaugh 1989, Alaska Department of Natural Resources 1991). However, this view ignores the longer- term cost saving advantages of maintaining a mosaic of fuel types through periodic burning, and certainly ignores the ecological costs of precluding fire from a fire-prone and fire-dependent system in favor of short-term savings of fire suppression dollars (Obermiller 1992).

THE GREATEST IMPEDIMENT to fire management is public opinion (Kelleyhouse 1991). Past prevention efforts successfully convinced the public that all fires are bad (Hall 1972). However, by the 1980s public attitudes were changing; there was a growing awareness of the fact that fires have a beneficial role in forest ecosystems (Gardner et al. 1985). By refusing to recognize objectives other than reducing suppression costs, federal managers are failing to meet the expectations of a growing segment of the public who understands the role of fire in the forest and strongly rejects traditional suppression approaches. They are creating an ever-widening credibility gap with constituents at a time when public support for management is direly needed on many fronts (Thomas 1994). An informed, knowledgeable public is necessary to remove many obstacles to progressive fire management, such as inflexible air quality restrictions, inadequate funding, inflexible restrictions on funding, and outdated policy. Surely managers will make far greater headway if they pursue changes with the public as an ally than if they wait for a disgruntled public to force these changes on the professionals.

Given the credibility problems today that agencies have with their constituents, it is crucial that we acknowledge up-front our understanding of ecosystem relationships and begin to base our decisions on them. The management actions that are needed to undo the consequences of years of mismanagement in the western forests can only be done with public support and trust. We simply cannot afford to continue to let proper stewardship of fire-dependent ecosystems be incidental to decisions based on cost-effective suppression. We must seize every opportunity to inform the public on fire ecology and bring them along with us as partners in the management of public resources.

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LAND SETTLEMENT POLICIES have greatly influenced the pattern of wildland fire in Alaska. Settlement brings a lasting presence of people, homes, and personal property to areas where people had before only been passing visitors. This presence usually brings with it demands for protection from naturally occurring fire, a demand which gives rise to a whole host of management problems for the fire-dependent boreal forest.

As a whole, we Alaskans have not done a very good job of dealing with this issue. In our defense, perhaps we can rationalize that it was only fairly recently that anyone perceived a need to worry about haphazard settlement from a fire management perspective. After all, it was not too long ago that we accepted with little question the need to protect from fire and had unshakeable faith in our ability to do so.

Settlement in recent times has taken many forms. There has been a proliferation of remote cabin sites, both legal and in trespass. We have seen government land disposals, such as the one legislatively mandated for the Department of Natural Resources in 1979. Meanwhile, existing communities have spread outward in a manner best characterized as "urban sprawl." All have the same effect to varying degrees: they unnecessarily complicate and increase the cost for fire protection efforts, and they make it difficult for managers to allow fire to fulfill its natural and necessary role in maintaining the boreal forest ecosystem.

The economies and legalities of providing fire protection for remote cabins has been an issue of concern and much debate since the earliest days of our interagency planning efforts. I don't pretend to know the details of each agency's policies toward cabin protection, but I can say that based on our discussion at the last Fire Council meeting, they are less than clear and despite all the rhetoric probably provide the agencies with little actual relief from this protection burden. One represen-

tative said the Solicitor General advised his agency to notify a cabin owner when a decision is made to not protect the cabin. Thus, in practice, they end up protecting all cabins. Another representative said field staff often do not know the status of cabins encountered near a fire, so again they end up protecting them all. If this is the case, we have failed to address the issue at hand and more needs to be done.

Past land disposals by the state have been particularly troublesome from a fire management point of view (Welbourn 1983). They created new pockets of development far removed from existing settlement centers. It is inevitable that those building homes in these new areas will seek protection from wildland fire. In fact, the State anticipated this demand and changed the fire plans to reflect higher degrees of protection in areas containing these land disposals or slated for them. As if this were not bad enough, consider that many of these sites are in spruce-dominated areas of the boreal forest. Many are in black spruce stands, the most fire-prone and flammable of the forest types in Interior Alaska. It is imperative that we not keep repeating this mistake with future land offerings. Letting people build in black-spruce stands in akin to letting southern California residents build homes on Chaparral covered hillsides.

EFFORTS TO DEVELOP AN EXpanded timber industry in the Interior of Alaska present yet another challenge. Basic to this effort is the dedication of sufficient reserves of timber for commercial use such that business activities can be economically viable. Obviously, those wanting this activity do not want mature stands of trees recycled by fire; they want to log them instead. The decision to protect vast acreages from wildland fire poses suppression problems, which I leave to others to address, and it poses ecological ones.

Because our northern tree species have little resistance to fire, the natural pattern of burning tends to create a mosaic of even-aged stands. Clearcut logging is often used in the boreal forest to produce blocks of even-age regrowth similar to those occurring naturally. However, aside from this structural similarity, clearcut logging is not the functional equivalent of naturally occurring fire (Hammond 1992, Mallik 1992). Natural fires produce diverse results because of the randomness of ignition, fuel types and varying weather conditions during any given burn (Kelsall et al. 1977). Logging tends to be systematic and predictable; occurring on a predetermined schedule to optimize the desired product for people and conducted in ways that enhance efficient and cost-effective extraction of wood (Hammond 1992).

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One of the main differences between logging and burning is that a considerable amount of biomass is physically removed from the site during logging instead of being recycled by burning. To help offset this loss and lessen the ecological impact of logging on managed forests, broadcast burning should be conducted following clearcut logging (Haggstrom and Kelleyhouse 1994) to provide the flush of nutrients and other beneficial effects normally provided by wildland fire (Kelsall 1977, Viereck and Schandelmeier 1980).

The other action that can be undertaken to address the ecological needs of managed forests is to periodically burn those forest types with limited commercial value. These include shrub dominated areas and, probably, areas of black-spruce forest. In these areas, there should be active programs of prescribed burning to maintain structural and age diversity and, in the case of the black spruce, reduce the threat of unwanted fire in the adjacent commercial quality forest types.

Some changes are likely needed to do this on the scale that will be necessary. First, forest managers will have to accept a broader mission that extends beyond the harvest of commercial forest types (Dawe et al. 1994). If management for commercial uses impacts non-commercial portions of the forest, the ecological integrity and function of the whole forest suffers. It should be incumbent on those responsible for this impact to initiate and fund actions, such as prescribed burning, to mitigate forest impacts resulting from their management decisions.

Secondly, managers need to continue to work with air quality regulators to gain flexibility within law and regulation to use fire to maintain these fire dependent ecosystems. Logging alone will not be an adequate tool for meeting the ecological needs of those portions of the boreal forest where naturally

occurring fire is precluded. Prescribed burns will have to be an integral part of plans for managed forests or their character will, over time, be changed.

IN CONCLUSION, I OFFER MY observation that we are making progress on these issues, albeit slowly. In the 20 years I have been involved with fire management in Alaska for the Department of Fish and Game, I have seen drastic changes in the attitudes towards fire among the professionals who fight fire and manage the land and resources. Now, with new leadership at the national level, we are seeing a call for changes on a much broader level (Thomas 1994). In both cases, however, the impetus for change belies the real reason for change. In Alaska, for most everyone except wildlife biologists, the impetus for fire management planning was to reduce suppression costs. In the western states today, the impetus for change has been lost lives, burned homes and burned over commercial timber. The next step is to realize that we need these changes for the forest itself.

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First Announcement and Call for Papers:

The International Association of Wildland Fire is soliciting manuscripts for the conference:

Fire and Rare and Endangered Species and Habitats

Coeur d'Alene, Idaho, USA — November 13-15, 1995

Fire is a natural disturbance which plays a major role in ecosystems, as became dramatically apparent during the famous Yellowstone fires of 1988. However, our understanding of fire's role in the maintenance or destruction of habitats is limited. IAWF's goal for this conference is to bring together policy makers, managers of public lands, and conservation groups to promote dialogue and information sharing about the possible interactions between fire (both wild and prescribed) and rare and endangered species and habitats.

Abstracts should be submitted by February 1, 1995 to: Dr. Jason Greenlee, IAWF, PO Box 328, Fairfield, WA, USA 99012.

Early registration fee is $120.00 (until February 1, 1995). Late registration fee will be $145.00. Fee includes conference materials, refreshment breaks, lunches, banquet and proceedings. Extra banquet tickets may be purchased for $26.00 each. Accommodations are available at the Coeur d'Alene Hotel at a special conference rate of $59.00 per night (standard room). To register or for more information, call 1-800-697-3443.