

Prescribed Fires in Wilderness - case study

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Introduction

Despite increasing awareness of the historic role of fire in many wilderness ecosystems, lightning fires continue to be suppressed even in large wilderness areas. The ability of the Forest Service and other wilderness management agencies to let fires burn unimpeded is constrained by air quality issues, potential damage to private property, and financial resources needed to fight fires. Thus, despite 30 years of policies encouraging natural fire in wilderness, most fires continue to be suppressed. Managers are responding by proposing manager-ignitions, otherwise known as prescribed fire, to pave the way for the restoration of fire's natural role. These proposals are not without controversy, however, and are challenged by critics on a number of grounds. The handful of people interviewed for this case (please see **Glossary of People** for details on interviewees) had widely diverging opinions on the appropriateness of prescribed fire in wilderness.

The following case study details some of the key points in the debate over manager-ignited fire in federally designated wilderness. The Bob Marshall Wilderness Complex (BMWC), regarded by many as the symbol of big wilderness and the "crown jewel" of the National Wilderness Preservation system (Stokes, 1990), provides a unique symbolic and geographic location for the exploration of the potentials and pitfalls of manager-ignited fire in a wilderness.

The History of US Fire Policy

As early as 1886 the U.S. government began a program of fire suppression on public lands. That year the U.S. Cavalry moved into Yellowstone National Park to fight fires. In 1908 the *Forest Fires Emergency Act* authorized any necessary Forest Service spending on fire fighting activity. The 1910 fires in the Northern Rockies sparked national debate on fire policy. During this time fires were widely perceived to be destructive and undesirable. By the 1930s fire suppression was relatively effective on most public lands, including remote wilderness areas. The Forest Service icon *Smokey the Bear* was created in 1943 to increase public awareness about fire prevention and the harmful effects of forest fires, educating generations of Americans about the negative effects of forest fires (Pyne, 1994).

Public attitudes toward and ecological understandings of fire began to radically change during the 1960s. Ecologists began to realize and discuss the importance of fire in many ecosystems. The Forest Service began to see fire as necessary and beneficial. Policy changes were implemented which enabled the Forest Service to use fire as a management tool and the agency began deliberately lighting fires on non-wilderness lands (Morton, 1999).

New fire policies for wilderness, often referred to as *Let it Burn* policies, allowed natural fires (lightning ignitions) to burn in wilderness if Forests had fire plans that outlined specific objectives and criteria for allowing fires to burn. Guidelines required Forests to consider ignition source, threat to life or property,

proximity to boundary, regional preparedness level, drought indexes, and air quality in decisions to let wilderness fire burn or to suppress (Tomascak, 1991).

Changes in fire policy and terminology have resulted in confusion for both managers and the public (please see the **Glossary of Terms** for clarification on current agency terminology). Current fire policy considers all manager-ignited fires, those fires deliberately lit by managers, to be *prescribed fires*. Any fires that have non-human ignitions, like lightning fires, are considered *wildland fires*. (*Prescribed natural fire* is now an obsolete term.) *Planned wildland fires* are fires with natural ignitions for which the Forest has an adequate fire plan which considers the above factors. Those wildland fires for which the Forest has no plan are considered unplanned and are suppressed. While *Let it Burn* policies have increased the number of lightning ignitions in wilderness that burn unsuppressed, many fires continue to be actively put out.

In fact, the intense fire season of 1988 put *Let it Burn* policies under severe pressure. According to Tomascak (1991), "in the aftermath of the severe fires in the Greater Yellowstone Area and the Bob Marshall Wilderness Complex in 1988, the Chief of the USDA Forest Service put all Forest Service prescribed natural fire programs on 'hold' until each fire plan allowing their use was reviewed." Public outcry over the Yellowstone fires combined with damage to private property at the local level threatened to instigate a political backlash against *Let it Burn* policies. Furthermore, it came to light that many wilderness areas did not (and still do not) have adequate fire plans to allow fires to burn unchecked.

According to Aldo Leopold Wilderness Research Institute Director David Parsons (1998/99) "the average number of natural ignitions allowed to burn and the acreage burned per year in national parks has been less than 50% of that prior to 1988" and "at the beginning of the 1988 fire season, only 58 of 398 Forest Services wildernesses had approved fire management plans that permitted natural ignitions to burn." Parsons believes that "the vast majority of natural ignitions in United States wilderness continue to be suppressed."

Wilderness fire is a struggle for managers on a number of fronts. While wilderness managers want to let fires burn, they are required to take non-wilderness values and resources into account, including institutional capacity for dealing with intense fire seasons. According to Don Black (1999), Fire Program Leader for the Flathead National Forest and lead fire management officer for the Bob Marshall Wilderness Complex:

Wildland fire use, where nature gets to pick the time and the place, is quite demanding. Sometimes we just don't have the organizational capability to respond to fire inside and outside of wilderness simultaneously. Last year, we were on the margin of our capability, but did not want to pass up opportunities presented by natural ignitions inside of wilderness. The Northern Region had to put 7 incident management teams on fires the same day the Bowl Mountain fire blew up. If we had had more than one problem like Bowl Mountain at that time, we may have had another 1988. We just aren't deep enough in our organizational capability to do what we want to do. Nature presents these fires on her schedule and terms and once we commit, we're along for the ride.

Initially, most lightning ignitions are small and easy to suppress. However, when dry hot windy weather

causes a fire to "blow up," it can become incredibly challenging and, in some cases, impossible to put out. While managers may desire to let natural ignitions burn in wilderness, they have to deal with unpredictable conditions and a limited institutional capacity.

The Ecological Impacts of Fire Suppression

While agencies struggle with lack of resources and conflicting values, our understanding of the ecological impacts of fire suppression is becoming increasingly sophisticated. Most ecologists now agree that fire exclusion and suppression has had a marked effect on many ecosystems in North America and led to invasion of forests into grasslands, and increases in tree density, shade-tolerant species, and fuel loads.

In the Northern Rockies Western larch and ponderosa pine are being replaced by douglas fir and other shade tolerant species (Black, 1999). This represents a change in species composition and forest structure, and creates ladder fuels that facilitate higher intensity fires. Steve Morton, Northern Region Wilderness Coordinator, believes that from an ecological perspective "we're out of sync from what's been happening for the last 500 years."

Historically, Northern Rockies ecosystems have been characterized by three types of fire regimes. Low intensity "nonlethal" fires are typical of lower elevation ponderosa pine forests and occur every 5-30 years. Stand replacement fires characterize some higher elevation lodgepole pine forests and occur every 100-400 years. Mixed-severity fire regimes, which involve some stand replacement and some nonlethal burns, occur every 30-100 years. Mixed-severity fire regimes contribute to diversity and are the most common fire regime in the BMWC (Arno, Parsons, and Keane, 1999).

To some, the ecological changes caused by fire suppression indicate long term damage to forests and possible local extinctions (Black, 1999; Morton, 1999). Fire historian Stephen Pyne claims that "biodiversity can be lost in overgrown woodlands as surely as in savaged rain forests." Morton cites the example of Big Nell's geranium, which was thought to be extinct until several populations were discovered in the wake of the Canyon Creek fire in the BMWC. Seed viability for the geranium was declining and the Canyon Creek fire may have been one of the last opportunities for this rare plant to propagate.

The decline of whitebark pine is also of particular concern in Northern Rockies ecosystems, including the BMWC. According to Keane, Morgan and Menakis (1994) Whitebark Pine "provides important food for wildlife and important cover for snow retention and watershed protection in high-elevation ecosystems in the northwestern United States." Whitebark pine populations are declining in the Northern Rockies due to blister rust, mountain pine beetle, and advancing forest succession caused in part by fire suppression.

Stands that were previously composed of whitebark pine are being replaced by supalpine fir and spruce because of fire exclusion. Low intensity ground fires historically maintained park-like stands of whitebark pine by killing understory spruce, fir, and young whitebark pine. At the same time stand replacing fires created open areas where Clark's nutcrackers cached seeds that led to significant

whitebark pine regeneration. Keane, Morgan, and Menakis believe that

The consequences of whitebark pine decline in the BMWC could be devastating for some animal and plant species. The BMWC is one of the few remaining ecosystems with substantial number of grizzly bears that historically depended on abundant whitebark pine cone crops. As the cone crops dwindle, bears must either migrate or find a new source of prehibernation food stuffs. Squirrels and Clark's nutcrackers will also need to find alternate food sources, as will those animals that depend on them.

The combination of disease and fire suppression is thought to be particularly harmful to whitebark pine populations (Keane and Arno, 1993).

Some ecologists and managers are concerned that the higher intensity fires resulting from increased fuel loads because of historic fire suppression will cause significant ecological damage, sterilizing soils with hot temperature and increasing the frequency of stand replacing fires. However, others have more faith in nature's ability to deal with human efforts to put fire out. Bill Worf, President of Wilderness Watch, believes that "if we really let nature have its course, whitebark pine is going to be alright." George Nickas, also from Wilderness Watch, echoes a similar perspective and argues that allowing natural fires to burn is not going to result in any catastrophe. He feels that "the impacts of fire suppression are overblown." Both point out that modern humans have been effectively suppressing fires for less than a century.

The Role of Anthropogenic Fire

To complicate matters, our knowledge of the role of Native American burning has also become more sophisticated and entered into the debate on manager-ignited fire in wilderness. Fire expert Pyne (1995) argues that "anthropogenic fire has reshaped every terrestrial biota" on the planet and that:

much of the natural world that preservationists seek to protect coevolved with anthropogenic fire. To remove that fire regime may be catastrophic; to replace anthropogenic fire with lightning fire alone does not restore a natural, prehistoric state but more likely fashions an ecosystem that has never before existed.

Denevan (1992) also presents compelling evidence that portions of North America were significantly modified by Native American burning. Declining Native American populations and relocation of tribes to reservations virtually eliminated Indian ignitions in the late 1800s.

Rolston (1991) and Vale (1998) argue, however, that Native American burning influenced only low elevation ecosystems, and that Western wilderness, being primarily high elevation is relatively pristine and unmodified by humans. Vale's research demonstrates that Native Americans modified certain areas of Yosemite Valley, but that higher elevation areas were little affected.

Lack of site specific research makes Native American burning difficult to estimate. And, current research techniques provide limited information on historic anthropogenic fire. In the Northern Rockies, fire histories typically go back only 500 years, a fraction of human and environmental history.

According to fire ecologist Ron Wakimoto, anthropogenic fires had a big impact on the East side of the

BMWC (commonly known as the Rocky Mountain Front). Historical photos of the Front show large areas with no trees. Native Americans likely lit fire to grasslands, and these fires migrated into higher elevation forests under certain conditions. Historical accounts from the Northern Rockies also indicate that Native Americans lit higher elevation forests by placing punky logs in meadows, and lighting them in the Fall, where they smoldered through the winter and ignited larger areas in the Spring when conditions were right (Wakimoto, 1999).

Fire ecologist Steve Arno points to evidence of frequent Native American fires in the Seeley Lake area, not far from the BMWC. And, according to Arno, the presence of numerous 250 year old Indian peels on ponderosa pines indicate that Native Americans used the interior of the BMWC. Arno believes that ponderosa pine forests in the Big Prairie and White River Park areas are the result of Native Americans burning. The historical fire frequencies in these areas are unusual for such a wet and cool microclimate. While these forests might have established during a warmer period, Arno believes they required anthropogenic fire to be maintained.

Both Wakimoto and Arno argue that Native American fire clearly affected areas of the BMWC. According to Arno, "you can't determine a natural fire regime by pulling Indians out... they were probably burning for several thousand years in some areas. Fire was a management tool for them."

Manager-Ignited Fire in Wilderness is Proposed and Implemented

By the early 1980s a heated debate over the role of fire in wilderness had begun to rage amongst scientists and managers. At the 1983 *Symposium and Workshop on Wilderness Fire* in Missoula, Montana many of the papers focused on whether managers should be allowed to light fires within designated wilderness. Manager-ignited fire was defined by one author as fire for which the "the manager chooses the location, timing, intensity, and size." (Towle, 1983) There was much disagreement amongst the participants on the ecological, legal, and philosophical appropriateness of prescribed fire in wilderness.

In 1985 the Forest Service set forth specific guidelines allowing for management-ignitions in wilderness with the Chief's approval (Wakimoto, 1999). During the 1980s there were 5 manager-ignited fires in wilderness in various regions, none in the Northern Region. In 1995 the National Forests of Florida received special permission to use manager-ignited fire in wilderness to mimic historical lightning fires in an effort to restore natural processes and protect private property (Parsons, 1998/99). At this time wilderness areas were thought to be some of the most unnatural Forest Service lands in Florida due to the lack of fire. Because of their small size and proximity to private land nearly all fires in these wildernesses were suppressed.

By the 1995 *Symposium on Fire in Wilderness and Park Management* debate about manager-ignited fire was more limited with only one paper specifically addressing the topic. In this paper Mutch (1995) claims that "there are certain conditions where manager-ignited fires are the only acceptable way to restore fire and reduce risk."

The first manager-ignited fire in wilderness in the West occurred in the Apache Kid Wilderness Area on the Cibola National Forest in New Mexico, and was approved in 1997 to "reduce fuel" and allow "fire to

play a more natural role." In the Northern Region there are a number of manager-ignited fires currently proposed for wilderness. A burn in the Lee Metcalf Wilderness Area focusing on restoring natural conditions has been approved but not yet implemented. A 8,800 acre burn in the Elkhorn-Jersey area of the Frank Church River of No Return Wilderness Area was proposed in 1999 to reduce the need for fire suppression by creating a fire break near the wilderness boundary. Elkhorn-Jersey was appealed by Wilderness Watch on the grounds that it was manipulation and violated the naturalness mandate of the Wilderness Act. The Forest Service has since reworked the Elkhorn-Jersey proposal and subsequent appeals have been denied by the Regional Forester.

An Environmental Assessment will be released in June 1999 for a proposed 10,000 acre manager-ignition on the upper South Fork of the Sun River in the BMWC. According to the pre-Draft "the objectives of this burn are to allow lightning-caused fires to play a more natural role in this area...and to make the wilderness boundary more defensible against the risk of wildfire escaping the wilderness." The Forest Service is in the fact-finding stage for a proposal on the Spotted Bear Ranger District, also in the BMWC.

Legal Ambiguity

Whether managers can legally light fires in wilderness under the Wilderness Act is undetermined. Authority for manager-ignited fire in wilderness has been handed down to Forest Supervisors, who can now grant approval provided actions correspond with Forest Plans (Morton, 1999). According to Chris Ryan, Forest Service Representative to the Arthur Carhart National Wilderness Training Center, Forest Service policy does allow manager-ignited fires in certain situations. However, Wakimoto believes that manager-ignited fire is not allowed by the Wilderness Act. He says that the Act only allows humans to be more than visitors and engage in activities such as manager-ignited fire in the case of insects, disease, and fire hazard. Wilderness Watch also believes manager-ignited fires are not in keeping with the Wilderness Act.

While there has not been litigation on manager-ignited fire in wilderness to date, the Forest Service believes that a lawsuit is a real possibility (Black, 1999). However, according to Steve Morton, "if all of the laws are followed and it comes down to a philosophical difference, most judges will defer to the agency's expertise."

Legal constraints, however, may account for the focus on creating defensible boundaries as the primary objective for prescribed fire, as opposed to ecological restoration. Nearly everyone agrees that the Forest Service cannot legally propose to light a fire for the explicit purpose of restoring whitebark pine or enhancing elk habitat (Black, 1999; Nickas, 1999; Ryan, 1999; Wakimoto, 1999). Either the Wilderness Act or Forest Plans or both are believed to currently prohibit restoration objectives. However, the agency can propose a manager-ignited fire to reduce the risk of "fire hazard," that is to limit the chances that natural fire will escape from wilderness boundaries, or damage inholdings or historical structures. The Forest Service can enhance opportunities for lightning ignitions to burn, but they cannot attempt to replicate natural conditions, except indirectly (Ryan, 1999).

According to Morton, proposed prescribed fires are "boundary ignitions" on "political not biological lines,

where fires cannot be stopped." The two goals of manager-ignited fires in the Northern Region are: (1) to fire proof boundaries in order to allow fires to burn without suppression, and (2) to protect inholdings and significant historic structures. Fire proofing boundaries involves significantly reducing fuel loads in a large enough area to create conditions under which a large fire would go out when it reached the treated area.

Agency staff and environmental assessments make it clear, however, that the ultimate goal is to restore naturalness or natural conditions. While this may be done indirectly, through prescribed burns which allow lightning ignitions to go unchecked, the goal of restoration is still clear in these documents.

Critiques are Leveled

George Nickas argues that manager-ignited fire creates non-wilderness buffers inside of wilderness. According to Nickas, "every acre of wilderness should be treated as wilderness," and fire breaks or buffers should be outside of wilderness. Morton acknowledges that the Forest Service must pursue all available options outside of wilderness, but feels relatively constrained in creating external fire breaks because of timber values, homes, trailheads, and campgrounds.

Critics also wonder if the Forest Service can and will really mimic natural processes. Worf questions the nerve of the Forest Service to light fires when nature would normally light them, during dry, hot, windy days in August and September. Morton acknowledges that Spring ignitions are less risky, but Worf worries that these "safe" fires will have unnatural ecological consequences. He also points out that because some Native American ignitions occurred in the Spring, Spring manager-ignited fires in wilderness may not be out of sync with historical conditions.

Furthermore, Wakimoto questions the Forest Service's courage to light stand replacing fires. He argues that the agency has overemphasized low intensity "friendly fire" -- safer, easier to control, socially acceptable fire that does not kill trees. Wakimoto does not "think we have enough courage to light the whitebark pine fires," that are typically high intensity, stand replacement fires.

Whether or not fire breaks will be effective is another major question. Wilderness Watch has pointed out that the Forest Service does not have any specific criteria with which to evaluate the efficacy of manager-ignited fire. Furthermore, critics wonder how long a program of manager-ignitions would last. According to Morton, the Forest Service is "trying to clear the way to allow more natural fires to burn" and they "certainly don't want to get into long term repetitive use of manager-ignitions."

"More Philosophical than Scientific"

Chris Ryan of the Carhart National Wilderness Training Center and Carol Eckert, Spotted Bear District Ranger, agree that the heart of the issue is philosophical. According to Ryan, the philosophical dilemma is what makes manager-ignited fire such a challenging dilemma. Eckert agrees, saying that "the issue is more philosophical than scientific because we are dealing with a wilderness area. No amount of data is going to change how people feel about wilderness and whether they think that more

aggressive management is right."

Interpreting the Wilderness Act

Varying interpretations of the specific language of the Wilderness Act contributes to the philosophical split over manager-ignited fire. The Forest Service often equates historic conditions with naturalness. However, Ryan wonders what point in history was natural - the point in time when white people arrived or the point in time when the area was designated as wilderness or some other point? Whether or not human actions are natural or can be natural is also a major question, in light of the Act's focus on humans as visitors. This question is further complicated by the history of Native American burning in many places.

While restoration of *naturalness* or *natural conditions* is often the stated goal of manager-ignited fires, the Wilderness Act also requires that wilderness be *untrammelled*. According to Worf *untrammelled* means that "you don't control it, you don't net it. You let nature's processes go wherever you can." There is clear agreement that past fire suppression represents trammeling of wilderness. According to Arno a mixed-severity fire region is "absolutely incredible for biodiversity," and taking it away is trammeling, "a much greater trammeling than most other things you can do in wilderness." Morton also agrees that suppression of fire has been a form of trammeling.

Nickas and Morton agree that manager-ignited fire also constitutes a trammeling. Morton claims that they are trammeling to restore naturalness. Eckert calls this the "double trammel" and considers it the crux of the issue. Do we trammel wilderness again to reduce the effects of previous trammeling? For Morton "natural and untrammelled are 180 degrees apart," meaning that they are in conflict with one another regarding the issue of fire. Another trammel is required, in Morton's view, to make wilderness natural again.

Restoration and Manipulation

The philosophical debate over manager-ignited fire also involves broader questions about restoration and human manipulation of nature. Critics of restoration argue that the basic assumptions of these efforts are faulty. According to Katz (1991):

Policies of restoration rest on the assumption that humanity can, and should, repair the damage that human intervention has caused the natural environment...The idea of restoration is the same kind of "technological fix" that has engendered the environmental crisis - the notion that science and technology will repair and improve natural processes.

Nickas argues that "the system is so complex, so dynamic, so beyond our understanding. The idea that we can recreate natural conditions is absurd. How can humans create a non-human influenced system?"

Nickas also questions wilderness ecosystems as a target of restoration efforts. He points out that the Interior Columbia Basin Ecosystem Management Project identified wilderness and roadless areas as the most ecologically intact public lands. Nickas wonders why restoration money would be spent in

such places, as opposed to non-wilderness ecosystems.

Nickas argues that wilderness, as defined by the Wilderness Act, is the absence of human influence. For Nickas "that's the beauty of wilderness. It provides a control of some sort, not an absolute control, but an ecosystem that is the least manipulated by humans." He says that

If you believe we should be lighting fires in wilderness, you don't believe in wilderness. It's a rejection of wilderness as defined by the Wilderness Act. It's an attitude that we should be out there manipulating. It's going to be a real battle to keep them from changing landscapes into manscapes.

Katz (1991) echoes a similar sentiment in his critique of restoration, saying that

A "restored" nature is an artifact created to meet human satisfactions and interests...it is an unrecognized manifestation of the insidious dream of human domination over nature. Once and for all, humanity will demonstrate its mastery of nature by "restoring" and repairing the degraded ecosystems of the biosphere.

According to Nickas, "wildness is something that Forest Service staff have been trained to resist. They can't stand wild systems and seek to bring them under their control. Thus, they argue that it takes human manipulation to make wilderness wilderness." And Vale (1999) points out that "the assertion that people, prior to European contact, humanized the landscape reinforces the argument favoring active ecosystem manipulation and discourages 'natural regulation.'"

Ryan has a similar concern. She asks managers to think about the purpose of proposed manager-ignitions and to consider why they feel they need to do anything. According to Ryan, "managers often jump to manipulation because they desire instant gratification. Instead of considering the long term, the multiple generations wilderness is managed for, they are in a hurry and are worried about losing soils and natural conditions." Ryan believes managers have a tendency to want to manipulate nature to fix perceived problems and that it's human nature to want to do something in these situations.

What Does the Future Hold?

The Forest Service is planning to address the issue of manager-ignited fire in wilderness in the next round of Forest Plans, within a few years for the Bob Marshall Wilderness Complex. Both Carol Eckert and Don Black believe that the issue of manager-ignited fires dealt with during this process. These Plans, according to Black, should provide specific direction for manager-ignited fire in wilderness. He believes the next round of Forest Plans will open a door for management-ignitions that the Forest Service can comfortably walk through.

In thinking about the future of fire in wilderness, Carol Eckert urges people to make a conscious choice and acknowledge that even no action is an action with regard to wilderness fire. She wants opponents of manager-ignitions to accept that we may lose some mixed-severity fire regime forests and the species that depend on them, certain habitat types, big trees over 600 years old, and cultural history. Eckert wants decision-makers and the public to realize that the status quo has certain consequences

and that letting nature take its course will change the character of the forest.

The Northern Region stands poised at the point of a significant policy decision that will dramatically affect the way wilderness, including the Bob Marshall, is managed.

Epilogue:

The Many Possible Futures for Prescribed Fire in Wilderness

There are many possible futures for manager-ignited fire in designated wilderness. Because the outcome of each is unknowable at this point, several are put forth here. The level of scientific uncertainty on this topic, combined with differing interpretations of wilderness and the intellectual infancy of this debate make decision-making in this arena particularly challenging. Consider the scenarios described below. Some are obviously undesirable, while others are imperfect, but appealing. Which would you choose?

Scenario One:

Wilderness Watch successfully sues the Forest Service over manager-ignited fire in wilderness. The court rules that prescribed fire in designated wilderness represents trammeling and is illegal under the Wilderness Act.

Outcome One

Because of political and social pressure, fear of litigation, and economic concerns, the Forest Service continues to suppress most lightning ignitions in wilderness. While some fires are allowed to burn, those that cover the most acres are stand-replacement fires that burn too quickly for suppression to be effective. The historic fire regime has been dramatically altered in places like the Bob Marshall Wilderness Complex, where mixed-severity fire has been virtually eliminated. Some stands of 500 year old ponderosa pine have been killed by fires, and whitebark pine is almost gone. Grizzlies in the BMWC are clearly feeling the effects of fewer whitebark pine, as are Clark's nutcrackers. Both have had to search elsewhere for viable food sources during tough years, and grizzly-rancher conflicts have increased on the plains. Nell's geranium is believed to be extinct.

Outcome Two

While some lightning ignitions in wilderness continue to be suppressed, more effective fire fighting technology and changing public attitudes toward fires have allowed the Forest Service to increasingly let fire burn. Most fires in places like the BMWC continue to be stand-replacement fires. However, there are signs that many ecosystems are slowly returning to more historic fire regimes, including mixed-severity fires. Whitebark pine decline appears to have been arrested and stands outside of wilderness are being successfully restored.

Scenario Two

The Forest Service implements a large scale manager-ignited fire program to create fire breaks with the goal of allowing lightning ignitions to burn unsuppressed in designated wilderness.

Outcome One

Creation of fire breaks is highly successful and results in many more lightning fires being allowed to

burn in wilderness. While most fires in places like the BMWC continue to be stand-replacement fires, there are signs that many ecosystems are slowly returning to more historic fire regimes, including mixed-severity fires. Because fire breaks have been so successful, the Forest Service has discontinued the prescribed fire program for wilderness so that all fires in wilderness will have nonhuman ignitions.

Outcome Two

The results of the fire break program have been mixed. While some breaks have been somewhat effective, others have not resulted in any change in the suppression of lightning fires. The Forest Service, however, is proceeding with unimpeded zeal, and manager-ignitions are being done in most corners of the wilderness. There are serious concerns that safety precautions, including lighting fires during cooler and wetter conditions, are resulting in ecological effects that are not in keeping with historical fire regimes.

Scenario Three

Forest Plans in most regions have been amended to legally allow for full-scale restoration efforts in wilderness. Managers have proceeded with a number of restoration projects in places like the South Fork of the Flathead River in the BMWC.

Outcome One

Restoration, primarily through the use of manager-ignited fire, is proceeding in most wilderness areas. Managers have selected specific vegetative conditions as the objective of these projects. Some of these mimic historic conditions, for instance the year Lewis and Clark went through the area, while others create environments based on the aesthetic preferences of the public. Other projects maintain conditions believed to benefit rare or endangered species. Results have been mixed and, by most accounts, meeting objectives will require long term human manipulation.

Outcome Two

Because of public pressure, managers have proceeded conservatively with restoration in wilderness, and reserved manager-ignited fire for situations where species extinction is likely to occur. A few short-term restoration projects have moved forward with the objective of kick starting a more historic fire regime.

Discussion Questions

1. In a less than perfect world, where wilderness fire will continue to be suppressed for a variety of non-wilderness values, is manager-ignited fire our best hope of restoring naturalness?
2. Are human actions by definition unnatural? How are we defining natural in the wilderness context?
3. Are we ready to accept potential local extinctions, loss of habitat types, and decreased diversity for the sake of wilderness?
4. Will wilderness managers be able to stop at a few fuel breaks, or will Forest Plan amendments open the door for large scale ecological manipulation?
5. How should managers involve the public in the issue of manager-ignited fire in wilderness?

Glossary of Terms

Manager-ignited fires (same as prescribed fires) are fires that are planned and intentionally lit by

managers for specific and explicit objectives.

Natural fires are fires that are not lit by humans. They are almost always lightning fires.

Prescribed fires (same as manager-ignited fires) are fires that are planned and intentionally lit by managers for specific and explicit objectives.

Prescribed natural fire is an obsolete term that was previously used to refer to natural fires for which the agency had a plan that allowed the fire to burn. This is no longer the official term for these fires (which are now called planned wildland fires), and is not used in this paper.

Glossary of People

Steve Arno was a Research Forester at the Intermountain Fire Sciences Lab in Missoula, Montana, which is part of the Forest Service. He has published widely on the history of fire and effects of fire suppression in the Northern Rockies and is considered an expert in his field. Steve works primarily as a scientist providing information rather than an advocate of a specific management agenda. He retired in June of 1999.

Don Black is the Fire Program Leader for the Flathead National Forest and the Lead Fire Management Officer for the Bob Marshall Wilderness Complex. In this role he is responsible for managing fire, both natural and prescribed in the BMWC. Don wants to see manager-ignited fire to become a tool for federal managers in wilderness.

Carol Eckert is the District Ranger for the Spotted Bear Ranger District on Flathead National Forest, part of the Bob Marshall Wilderness Complex. Carol is in the fact-finding stage regarding fire in the South Fork of the Sun River, a popular recreation destination in the BMWC where stands of old growth ponderosa pine are of concern. Carol believes that the FS needs to get good scientific data, but that ultimately this is a philosophical debate.

Steve Morton is the Wilderness Coordinator for the Northern Region of the US Forest Service. Steve argues that manager-ignited fire in wilderness is necessary to create fuel breaks that will allow natural fires to burn uncontrolled.

George Nickas is the Executive Director of Wilderness Watch, an advocacy group focused on protection of designated wilderness. They consider themselves "strict constructionists" and advocate strict adherence to provisions in the Wilderness Act.

Chris Ryan is the Forest Service Representative for the Arthur Carhart National Wilderness Training Center in Missoula, Montana. The Carhart Center is an interagency organization and does not take formal positions on issues like manager-ignited fire in wilderness. Until Chris was part of an interagency team to formulate new fire policies, she did not believe that manager-ignited fire had a role in wilderness. How she thinks it does, but, like Carol, she is conscious of the philosophical components of the debate.

Ron Wakimoto is a Professor of Wildland Fire Management at the University of Montana's School of Forestry. Ron is a fire scientist with extensive experience with fire policy.

Bill Worf is the President and Founder of Wilderness Watch.

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