

**The Methods and Motivation
for Changes in the National Park Service's
and U. S. Forest Service's Fire Policies**

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Barry-

Enclosed is the final copy of my paper which examined the causes for the shift of NPS and USFS fire policy in the 1960's and 1970's. I've continued to follow the developments of these two policies in light of the 1988 Yellowstone fires. I just read Peter Matthiessen's cover story for this week's The New York Times Magazine entitled "Our National Parks: The Case for Burning". It will be interesting to see if there are any policy revisions in response to these blazes.

Thanks again for your help. You may hear from me again with my senior essay next year.

Hedrick Belin

Traditionally the United States Forest Service (USFS) and National Park Service (NPS) had been rivals competing for federal lands and had different management strategies for their lands. These differences were inherent in their respective missions. The NPS was concerned with preserving unique scenic areas for Americans to enjoy, while the USFS concentrated on growing timber products for the lumber industry. But both agencies were united in their effort against fire as the NPS and the USFS attempted to prohibit all blazes from their lands until the 1960's. Each organization's regulations stipulated that all fires, whether of natural or of human origins, should be extinguished immediately. Then policy revisions occurred, first with the Park Service drastically rewriting its policy in 1968, followed by the Forest Service's more cautious shift during the 1970's. An increased awareness and understanding of fire ecology encouraged the policy shift. By 1978, both agencies began to allow some natural fires to burn under certain conditions on their respective lands.

Each government agency had different motivations and methods for revising its policy. The Leopold report of 1963 recommended a new goal in park management for the NPS, although the report did not specify the methods to attain this goal. The NPS's shift in 1968, based on this report,

was quite abrupt with little data on fire ecology to justify the shift.

Economic, not environmental, concerns directed the USFS switch in 1978, which was based largely on the USFS's 1977 policy analysis staff report.

The USFS conducted numerous experiments on its own lands before it officially allowed fires to be used as a management tool. It also took a more cautious route to its policy shift when compared with the NPS.

Yet with the different motivations and methods for changing, each agency concluded that fire could be an effective resource management tool. By 1978, both had once again adopted essentially identical fire policies where fire played a more 'natural' role in the ecosystems. Thus the ten year period from 1968 to 1978 was the only time when the policies diverged. By 1978, despite the different missions of both agencies, the NPS and USFS attempted to work in unison for the common goal of preserving whole ecosystems and viewed fire as a helpful land management tool at their disposal to attain this objective. With the shift, the ecosystems of Park and Forest Service lands have begun to change as periodic fires have burned the dense undergrowth that had accumulated. In this story, human's power to limit natural forces is seriously questioned. Before scrutinizing the policy shift of the NPS in the 1960's, we must first review the history of fires in the national parks.

When formed in 1872, Yellowstone maintained a policy of extinguishing all fires in the park, mainly to protect its visitors and preserve the aesthetic beauty of the area. But the efforts of civilian superintendents to control fires basically failed, and in 1886, the Army assumed the responsibility of fire protection.¹ Most of the suppression efforts were not that successful in the nineteenth century because of a lack of weapons to battle the great conflagrations. Following the creation of the National Park Service in 1916, the NPS relied heavily on the USFS for support with its suppression efforts, but the two agencies did not always get along. The general management philosophies of the respective agency heads highlighted the competition between the two services for federal lands. Forest Service director Gifford Pinchot sought to nationalize the forest resources, while Park Service head Steve Mather wanted to encourage popular use of the recreational resources. To prevent fires, the USFS tried to limit the public's access to their lands, while the NPS promoted access even at the risk of starting fires. Unlike the USFS, the NPS did not concern itself with economic values to justify its no-fire policy. The protection of parks were outside economic theory as T. H. Gisborne stated, "The inspirational and scenic values of park lands cannot be measured in dollars and cents."² All fires had to be snuffed out to

preserve the aesthetic beauty of these wilderness areas. The NPS followed the USFS's fire fighting example, but never contracted the USFS's services. This independence plus the Park Service's emphasis on people rather than resources made the revisions of the late 1960's much easier for the NPS than for the USFS.³

The first attack of the National Park Service's fire policy came in a government report entitled "Wildlife Management in the National Parks." (the Leopold report) which the Advisory Board on Wildlife Management submitted to the Secretary of the Interior, Stewart Udall, in 1963. A. Sarker Leopold, a wildlife ecologist and son of Aldo Leopold, chaired the Board. None were foresters, yet they felt qualified as scientists to comment on the way to maintain National Park forest areas. The Board visited many parks to familiarize itself with the actual conditions in parks, and based its recommendations mainly upon its own knowledge of park problems. The group also listened to other conservation groups and state game officials, but pointed out in the cover letter to Secretary Udall that "The conclusions represent our own collective thinking." as the Board took a conceptual approach, relying on data only to illustrate specific points.

Initially Udall had created the Board in 1962 to consider "...the

procedures of removing excess ungulates from some of the parks." as a method of wildlife management.⁴ The Board concluded that the way to sustain animal populations was to provide suitable habitats, an idea Aldo Leopold had proposed. It added that wildlife protection was not a substitute for habitat reconstruction. The very short report of the Advisory Board examined overall NPS wildlife management strategies and emphasis ecological principles to frame its report.⁵

The revolutionary report charged the NPS with a new goal, as the Board recommended:

...that the biotic associations within each park be maintained, or where necessary recreated, as nearly as possible in the condition that prevailed when the area was first visited by the white man. A national park should represent a vignette of primitive America.⁶

The Board presented an impressive goal for the NPS to attain and felt this goal would reestablish habitats for the various animals. To reach this end, the ecosystems had to be adjusted. By 1963, humans had prohibited fire and removed predators to protect the National Park ecosystems for over fifty years. The Board realized that some parks may not be able to return to the primitive condition, but could certainly approach it.

Yet in the new NPS mission, the Board defined the goal of earlier America as the area first visited by white men. This language was sexist as women also made the journey West, but it was also racist. The Indians who inhabited these areas had a sophisticated relation with the land. Indians had used fire as a land management tool to clear meadows and kill trees for firewood. Early inhabitants of North America were thought to have burned the forests in some regions for perhaps 10,000 years.⁷

The Leopold report cited the Sierra-Nevada mountains as an example to illustrate the new goal. Early travellers wrote about the wide-spaced columns of mature trees through which they had passed in their diaries. John Muir remarked, "The inviting openness of the Sierra woods is one of their most distinguishing characteristics. The trees of all of the species stand more or less in groves, or in small irregular groups, enabling one to find a way nearly everywhere along sunny colonades...."⁸ The vast space along the uncluttered forest floor changed over time as the Board's visit to the Sierra-Nevada woods revealed that tangled thickets of young white firs, pines, and other brush had replaced the open ground floor.⁹ The stifling undergrowth had been a direct result of a lack of ground fires to cleanse the area. The Board indirectly recommended a shift away from no-burn policy to return the parks ecosystem to its earlier state.

To attain this goal of returning to an earlier state, the Leopold report wrote that the "primitive" American appearance could be created using the "utmost skill, judgment, and ecological sensitivity".¹⁰ One of the methods to manipulate wildlife habitat that the Board proposed was fire, as it is "...the most 'natural' and much the cheapest and easiest to apply."¹¹ A debate arose over the Board's intent when it used the word natural. The Board espoused returning to an earlier state. Humans had interfered in park ecosystems in the past with the fire prevention efforts, and now they would manage the lands to return to the past condition. Was this human manipulation really natural? Once the managers had attained the previous appearance of the park, they were supposed to maintain the ecosystem. The parks would become scientific museum displays. But was this approach really natural? Most ecosystems are dynamic not static. The debate over these issues continues today as most park officials overlooked them in the 1960's. Determining the intention of 'natural' was quite important, as the goal had to be defined before the Park Service could decide on methods to attain it.

Before actually incorporating fire into its resource management strategy, the NPS had to increase its research on fire ecology to formulate a sound policy. Since 1951, data had been collected from experiments

using fire as a management tool to maintain subclimax pine forests at the Everglades national park.¹² The data indicated that fire could be employed as a tool for land management and that fire is a vital part of any forest ecosystem. Harold Biswell, a professor of range management, conducted experiments with controlled burns in the Sierra-Nevada region in the 1960's. ~~(13/20)~~ Other than these studies, little research on the effects of fire in forested areas similar to most national parks had been conducted. Therefore the NPS lacked data to justify the burning of wooded areas in most of the national parks.

Until the 1960's, park managers had overlooked the costs of prohibiting fires. By preventing forest fires on federal lands for over fifty years, the government had created a climax forest with shade tolerant trees dominating the forest which halted the trend of succession.¹³ Normally an area such as Yellowstone will progress from grasslands, to shrubs, to a deciduous grove of aspens, then to lodgepole pines, followed by spruces and firs. The whole process takes about 300 years, and fire is the only method to interrupt this process.¹⁴ Insects, disease, age, and storms may kill the trees, but in the arid West timber decays slowly. A severe blaze immediately returns the grove's nutrients to the soil. Once a grove has reached a climax state, the only way to start

the cycle again is to have a powerful blaze return the site to grasslands. Otherwise the area just stagnates and the number of different animal and plant species it can support gradually shrinks.

Researchers also discovered that fire had some beneficial effects, such as returning nutrients to the forest soil, enriching the soil and promoting more diverse wildlife with the varied vegetation.¹⁵ One of the most frequently cited fire effects is germination of some trees, like lodgepole pines. This species stores its seeds in cones that are usually too high for a ground fire to destroy, but the fire's heat causes the seeds to be released. Then they germinate in the nutrient rich soil.¹⁶ Periodic fires maintain the cyclical pattern of life in a forest, removing dead trees and allowing new ones to grow in their place. Finally, frequent fires reduce the amount of potential fuel and decrease the chances of having an exceptionally hot fire. The NPS also relied heavily on the USFS's fire data, which was much more extensive than the National Park Service's data, when considering fire's role in national parks.

The NPS took these ecological facts into account when attempting to follow the Leopold report mandates. The Board gave the NPS a new goal to attempt to achieve, but the NPS apparently lacked the ability to implement these changes. There were several options for future fire policy: the

current no-burn stand could be followed; natural fires could be allowed to burn in certain zones at certain times; human prescribed burns could be allowed under similar conditions; or permitting all fires to burn.¹⁷ The first option had proved to be counterproductive, and obviously the fourth choice had no realistic chance of being approved at this time. Politicians in Washington had to decide what path would be best to promote the return to a past ecosystem.

Despite a lack of research results to support any policy shifts, in 1968 the National Park Service forged ahead and announced a new policy which incorporated the mandates of the Leopold report. First, the NPS recognized that a natural fire should be allowed to run its course as long as it remained within predetermined boundaries and contributed to wildlife management objectives, "natural fire" referred to lightning-started blazes. Second, NPS managers could prescribe human-ignited burns to supplement a lack of natural fires. Finally, any blazes that crossed a boarder or threatened human lives and property would still be immediately suppressed, as would any unprescribed human-ignited fires.¹⁸ These policies were first implemented at the Sequoia and King Canyon National Parks, which already had existing fire research programs. Park research biologists began conducting studies on the historic role of

fire in a mixed conifer forest and on the frequency of fires.¹⁹ This research aided in formulating fire management plans at other parks. It also added to the scant data on fire's role in an ecosystem.

Other programs composed of one or more of the three components were implemented in eight major parks such as Grand Teton, Yellowstone, and Yosemite from 1968 to 1972. For example, Yosemite allowed both natural and human-ignited prescribed burns within its boundaries, while Yellowstone favored only natural fires to meet its ecological plan.²⁰ The smaller parks in terms of acreage still could not permit fires since human lives and property would be threatened immediately. Over three million acres were managed to have wildfires play a more active role in achieving wildlife management objectives. One drawback of permitting only natural fires is that they tend to only burn one quarter of an acre, a tiny amount. This type of fire did not alleviate the timber build-up that had accumulated in the park's boundaries. Therefore many National Parks also adopted the plan of permitting human ignited prescribed burns under certain conditions. Another twenty-six parks adopted some portion of the prescribed fire program over the next ten years. The policy proved successful as 274 fires covering 27,000 acres in nine national parks burned without any loss of human life or property.²¹ In the USFS

community, there was no consensus for such a shift; most personnel maintained that all fires were bad.

To attain the Leopold goal of reintroducing fire, many foresters felt further research would be needed to formulate the best policy, but the NPS rapidly forged ahead with its new policy. Some of the report's wording led to debates amongst NPS officials over the Board's intentions and the meaning of the new fire policy. One issue was determining fire's role in each park ecosystem. What was the ecological state of an area before Americans had interfered with fire suppression? If a fire only had taken place every hundred years, then no significant harm had occurred because of human interference. But if fires had occurred naturally every twenty years, then humans had obviously meddled with the natural process and steps had to be taken to rectify the involvement. Examining the tree rings could determine the fire history of a particular area.

The correction process generated a whole new debate about how to return to "the ecological scene as viewed by the first European visitors."²² Some managers maintained that fire was the best management tool available, while others were more wary over human's ability to control blazes. Based on the nineteenth and twentieth-century records, government troops still lacked the ability to totally control

forest fires. Thus the general policy had been issued at the national level, but each park manager decided on the appropriate role of fire within the park. Also the park itself was divided into specific management zones with a plan for each area. Much of the implementation power rested in the hands of the individual manager, not the national office. The debates over fire's role and the term "natural" were resolved at the park level. The national office continued to overlook these issues, but this leeway was necessary, however, as each park was unique and had to be considered on an individual basis.

The NPS's new mission still differed from that of the USFS. George Hartzog, Director of the NPS, best summed up the differences when testifying before a Congressional subcommittee in 1970. When talking about administering the nation's forests, he said that there was:

a fundamental difference of philosophy, because timberlands in national forests are managed on a sustained-yield basis for commercial purposes whereas those in National Parks are managed on the basis of preserving a whole natural environment in perpetuity.²³

Thus the USFS remained concerned with producing a crop and the NPS attempted to provide a natural museum where tourists could experience

the environment that the first American settlers had found. Historically the two agencies had the same 'no-burn' fire policy, yet the two branches finally diverged on the role of fire in the wilderness in 1968. The USFS experimented with permitting fires in some national forests during the 1970's, but the official policy, the 10 a.m. policy, remained intact despite several internal reviews. The USFS took the inverse approach to that of the NPS with its policy shift, first gathering research results that indicated the benefits of fires and then actually changing the policy in 1978.

With its 'zero-fire' policy, the Forest Service felt that all fires were bad and therefore had to be excluded to the fullest extent. In the 1900's, fires were omnipresent, but the means to fight them were limited. Timber companies wanted to cut as much wood as possible before a fire burned the timber grove. The emphasis on speed led to wasteful practices and many fires started with these byproducts.²⁴ Then in 1935 USFS adopted its official fire policy, the 10 a.m. policy. The idea was to attack the forest blaze each day with the intention of gaining control of the fire by 10 a.m. of the next day. The fire suppression was fast and energetic but conducted with personal safety at the forefront.²⁵

Yet the USFS planners never considered the economic worth of the

lands they protected. The 10 a.m. policy was a blanket plan covering all USFS lands even if the area was on an inaccessible mountain with little timber values. The policy was based on the assumption that quick action provided the cheapest option in the long run. Fire teams squelched conflagrations before they destroyed substantial amounts of timber. This ideal goal required numerous fire fighters, but during the depression many unemployed individuals were available. Congress never limited suppression costs until the 1970's when debates arose over determining a forest's value. Another problem was that most laws governing the USFS never mention the word fire. Instead management policies include such words as improvement and protect. These preconceptions about fire, which differed from the NPS's views on fire starting in 1968 continued to exist only as official policy until 1978.

Although no formal change of the 10 a. m. policy occurred, several adaptations were made. An internal review of fire policy occurred in February 1967, five months before the severe fires in the Rocky Mountain region. Then the summer of 1970 was one of the worst in terms of forest fire damage, and the USFS began to adapt its policies in response to these disasters. The new directives addressed the past inability of humans to control a powerful force in nature. Foresters in Washington realized the

10 a.m. policy did not make economic sense, so at the 1971 USFS Fire Policy and Procedure Review Committee meeting in Washington, exceptions to the 10 a.m. policy were now permitted. The USFS had been spending money to extinguish all forest fires. It also allocated funds to protect the national timber supply from disease and insects. This double expenditure made little sense. The fires that were being suppressed could often be used to control certain tree diseases, so fire could be used to manage and protect timber resources. Secondary reasons for the exception were to allow USFS researchers to study the effects of fire in the wilderness and to permit fire to play a more natural role in the environment. Now lightning fires were allowed to burn as long as the USFS Chief authorized the deviation in advance.²⁶

The first approved exception to the 10 a.m. policy occurred at the one-hundred-square mile White Cap Fire Management Area in Idaho and Montana in 1972. As with the NPS plan, the area was divided into regions based on management goals with fire permitted only in certain zones. If a blaze crossed a boundary it was extinguished immediately. The first fire in a study zone that year burned an area of only twenty-four square feet.²⁷ The Fritz Creek Fire was the first major test of the wildfire plan. The conflagration burned over 1,200 acres and some suppression along one

flank was needed to contain the fire. The blaze provided the USFS with the opportunity to do research on fire ecology, which would shape future fire policy adaptations. This fire amendment indicated the USFS's willingness to relax its fire regulations, but the exceptions were only approved for 5 national forest areas, which comprised less than one percent of USFS protected acreage.

But at the same 1971 Fire Policy meeting, the committee also strengthened its regulations when it issued the 10 acre policy. Once again economic concerns generated this new policy which was the cornerstone for fire presuppression efforts from 1972 to 1975. The idea behind this shift was to limit all fires to 10 acres or less through presuppression activities.²⁸ The USFS hoped to curb its rising fire fighting costs if it could keep all conflagrations under ten acres. William Beaufait, a research forester in Montana, stated that, " We have reason to believe that wildfires will not only be more frequent, but also more intense than at present."²⁹ It was necessary to reduce the fuel supply, if the USFS wanted to avoid the economic costs associated with more frequent, intense fires. The federal government had been constantly increasing allocations to the USFS for presuppression, yet the new regulations had the opposite effect, as costs for preventive actions

continued to spiral upward. In 1975 \$92 million went to presuppression costs.³⁰ A USFS evaluation of fire management activities in 1977 stated, "The source of the 10 acre objective is not clear. It probably represents the judgement of fire experts as the 'best' all-around size objective for which to plan..."³¹

The actual policy was vague and defined presuppression as "work done in advance of fire occurrence to ensure effective suppression action."³² This included training of fire fighters and maintaining fire equipment to permit a quick response which would limit the damage. Another goal of the 10 acre policy was to reduce the amount of fuel present in the wooded areas. Although not official policy, this order implied that the forest manager could employ either natural or human-ignited prescribed fires to meet the new management directive; the manager simply had to get permission in advance.³³ But the USFS wanted all fires to be limited to 10 acres, so fire could not be used as a management tool. Unlike the NPS, the USFS managers had to appeal to the national office for a burn in their regions. This centralized approach made little sense as the officials in Washington were not familiar with regional conditions. The USFS progressed slowly, testing new fire ideas in several areas, but never changing the overall national policy.

The NPS was quite vocal about its new policy and tried to put pressure on the USFS to adopt a similar policy. At the "Fire in the Environment Conference" in May 1972, fire specialists from around the world met. At this conference, both sides of the fire debate voiced their opinions as the NPS cited examples of park fires burning for weeks, which helped the ecosystem. The park service used evidence from the Tall Timbers research station for fire ecology and university ecologists. The NPS's militant position towards the use of fire as a management tool surprised many of the participants.³⁴ The NPS had plunged ahead, almost recklessly to implement this new position in all its parks. It was reckless because the NPS had little hard fire data on which to base its decisions.

Those who expressed more caution towards permitting fire on federal lands relied on the argument that fire research had not yet been completed and that like the weather, fire behavior could not be predict accurately. The USFS pointed out that the "let-burn" policy implied that the NPS could keep control of the fires at all times. In the opinion of the Forest Service, humans had no right to play with such a volatile, unpredictable force. Responding to the charges, the NPS claimed that it constantly monitored each blaze, and once the fire left prescribed boundaries, it implemented suppression forces. Yet the NPS had few large blazes it cold site to

support its case at this time.

The level of uncertainty of predicting fire actions continued to exist, but now there was an increase in cooperation between the NPS and the USFS. Research efforts were coordinated through the National Wildfire Coordination Group and the Boise Interagency Fire Center. One of their main goals was to determine the fire history of various areas. The wilderness fire management plan of the USFS allowed for natural prescribed fires based upon fire history, ecological analysis and seasonal weather patterns. Once again policy makers and researchers had to struggle with determining what a natural area was.

At the Tall Timbers Fire Ecology Conferences, another forum for exchanging ideas between agencies, a tremendous amount of knowledge about fire was brought together. In 1974 meeting, the USFS started to talk about the shift from fire control to fire management.³⁵ This was another partial shift that was finally incorporated in the 1978 policy reversal on forest fires. Fire management was a more scientific approach based on utilizing fire as a tool as compared with straight forward fire-control policy. The 10 a.m. policy exemplified the fire control approach with all fires suppressed. With fire management, the blazes were utilized to prevent the spread of insects and diseases, remove debris

to reduce the threat of large fires, and improve wildlife habitats. Many of the resource management objectives mirrored those of the NPS. With all the information exchanged, the NPS fire regulations definitely influenced those of the USFS. Yet the shift in attitudes from fire suppression to fire management was very slow and difficult for many USFS personnel.

The switch to fire management did not rule out the need for fire suppression; if a blaze in a remote wilderness area crossed the prescribed boundaries, the need to extinguish it still existed. The goals of these two divisions differed, but they had to work together as a complete unit. Thus the USFS slowly shifted away from official policy in certain areas, but the 10 a.m. policy still remained intact at the national level.

By the mid 1970's the costs of suppressing fires had risen dramatically. The budget for fiscal year 1969 allocated \$2.8 million for fire control but in just five years, that figure had risen to \$4.3 million.³⁶ Usually the USFS had to request supplemental appropriations because of its inability to predict the fire season accurately. Many of the increased expenses came in response to the newly adopted 10 acre policy. The USFS estimated it would have to increase expenditures ninety percent to reduce the number of fires over 10 acres by two percent.³⁷ This drastic rise in spending prompted the Office of Management and Budget to have the USFS

internally audit itself to explain the increase. The report completed in 1977 examined the cost-effectiveness of fire management procedures and also evaluated the decision making process of the USFS Fire Management division.

By 1976, many resource managers and personnel questioned the validity of the 10 acre policy and with the demand for change, some new policy had to be implemented. The 1977 evaluation of fire management activities felt there was a tendency to use public safety for high fire management in areas where resource values did not justify the high protection level. The report recommended that the USFS use a cost/benefit analysis when evaluating its fire policy, and base the analysis on real rather than emotional needs.³⁸ Now the USFS was considering the expense of fighting fires by the supposedly most cost-effective approach. The report went on to state that fires had some ecological benefits, such as returning nutrients to the soil. Many researchers had already stated this, but the 1977 report was the first time that the USFS officially recognized that fire could be good for the ecosystem.

For an effective cost/benefit analysis, values had to be assigned to the wilderness areas. Apparently the 1972 National Fire planning process had designated seven classes of timber values ranging from \$250 to

\$3,000 per acre. Yet the 1977 evaluation report maintained that fire management rarely used these values in its planning and evaluation activities. Problems with determining the exact values also existed, as potential damage costs usually exceeded the actual damage and instructions for categorizing the damages were vague.³⁹ Also a fire does not always completely damage a tree. Often the faster moving fires burn just the branches, leaving most of the tree intact and harvestable for timber. Another problem with employing the value system determining the worth of intangibles such as esthetics. Individuals value an area differently. A person who travels a great distance from a city to reach the wilderness will value a USFS wilderness area more than the person who has a house nearby. The problem was that the 10 a.m. and 10 acre policies were applied to all USFS lands regardless of their economic worth. The 1977 report attacked this practice; apparently some change in official policy would have to occur if the report's recommendations were followed.

Based on the reports findings, the USFS officially replaced the 10 a.m. and 10 acre policies in 1978. The new policy stated that natural fires started in an area where fire was permitted to improve natural conditions, such as controlling a tree disease, would be allowed to burn to attain that purpose. This new fire role had been used since 1971, but now the USFS

recognized it as official policy, not as an exception to the rule. Little debate about the new policy occurred. Some were still opposed to the shift, but most foresters had come to recognize the economic benefits of fire. Most of the controversial issues had been studied in the 1970's and a consensus had been reached on most of them. The USFS reaffirmed its objective of protecting all life and property with quick, effective suppression efforts when needed.⁴⁰

At this point the USFS's policy resembled that of the NPS, but the USFS did not permit its managers to start blazes to achieve management goals. The economic motivations for this policy differed greatly from the environmental motivations of the NPS. Now the USFS wanted to have the most cost-effective approach to resource management. The methods of policy shifts were also quite different. The Park Service changed its policy at the national level and then implemented it at the individual park level. The USFS permitted exceptions in some wilderness areas and then revised the national policy. Before implementing this broader, more flexible approach to fire, the USFS had to establish fire management areas. For the Forest Service the main goal of burning is:

The perpetuation of the process or the restoration of the conditions under which natural fires have always burned.

The primary objective cannot be the enhancement of other values such as wildlife, forage or other commercial uses.⁴¹

The Yellowstone fires this summer revived the debate, which had ended when the USFS adopted a policy similar to the NPS's, on fire's role on government lands. A human cigarette started one of the blazes, which was out of control when fire fighting troops responded. Lightning ignited the other fires on both NPS and USFS lands. Naturally started fires earlier in the spring were allowed to burn, and eventually put themselves out. But the dry summer presented unprecedented conditions, which contributed to the extensive fires. As noted earlier, most lightning-started fires burn less than a quarter of an acre. Therefore, much fuel still remained in the Yellowstone ecosystem, and the summer fires cleansed the area of dead timber. Opponents of the current government policy pointed out that scientists still cannot accurately predict fire behavior. They also raise the point that fire is too powerful a tool for man to play with. Since it took another act of nature, snow, to allow fire fighters to gain control over the blazes, humans still cannot completely control fire to use as a tool. These issues echo the USFS's arguments against the NPS's "let-burn"

policy of the 1970's.

Proponents of the current policy indicate that the government followed its regulations and exciting times lie ahead. Ecology scientists consider this a golden opportunity to study the effects of fire on an ecosystem and observe the regeneration process. Yellowstone will supposedly return to the condition which existed when fires acted as a natural force, thus following the mandates of the Leopold report. The system worked, but the only fear remains man's ability to control forest fires. Since the troops had a difficult time initially suppressing the human caused fire, proponents wonder if the same thing would have happened if there had been a 'no-burn' policy. If nothing else, these fires attained management goals by reducing the fuel supply; it will be many years before fires of such intensity can occur again. Also researchers have begun setting up experiments to study the effects of fire on an ecosystem. Initial studies indicate that the fires often moved too fast to destroy all signs of life, but none the less blackened some areas.

We still do not know enough about fire ecology, but the Yellowstone fires will provide researchers with lots of new data. The government should restrain itself from shifting its fire policy. There has not been enough time to prove its effectiveness. Part of the problem is public

opinion. Politicians will decide the fate of an ecosystem, but hopefully they will wait for the scientific results before acting. The main problem remains that man cannot control fire. As Director of the NPS George Hartzog said, "We talk about putting out fires, but most of the fires I have experienced in my ten years in the field, the good Lord put out either through rain or they just kept burning until they ran out of fuel."⁴²

Endnotes

- ¹ Stephen J. Pyne, Fire in America: A Cultural History of Wildland and Rural Fire (Princeton: Princeton University Press, 1982) p. 295.
- ² Pyne, p. 299.
- ³ Pyne, p. 297.
- ⁴ A. Starker Leopold et al., "Wildlife Management in the National Parks" (Washington D. C.: GPO, 1963) p. 3. (now cited as Leopold report)
- ⁵ Leopold Report, p. 4.
- ⁶ Leopold Report, p. 4.
- ⁷ Harold K. Steen, The U. S. Forest Service: A history (Seattle: University of Washington Press, 1976) p. 8.
- ⁸ Verna R. Johnston, "The Ecology of Fire," Audubon, No. 5 (1970), p. 102.
- ⁹ Leopold Report, p. 6.
- ¹⁰ Leopold Report, p. 5.
- ¹¹ Leopold Report, p. 13.
- ¹² Bruce Kilgore, "Restoring Fire's Natural Role in America's Wilderness," Western Wildlands, Fall 1984, p. 3.
- ¹³ Bruce Kilgore, "Restoring Fire in the Sequoias," National Parks and Conservation Magazine, No. 227 (1970), p. 20.

¹⁴Miron Heinselman, "Preserving Nature in Forested Wilderness Area and Natural Parks," National Parks and Conservation Magazine, No. 267 (1970) p. 10.

¹⁵Alston Chase, Playing God in Yellowstone: The Destruction of America's First National Park, (New York: Atlantic Monthly Press, 1986), p. 93-4.

¹⁶Chase, p. 93.

¹⁷Heinselman, p. 8

¹⁸Bruce Kilgore, "Fire Management in the National Parks: An Overview," from the Proceeding of the Tall Timbers Fire Ecology Conference No. 14, (1976) p. 56.

¹⁹Kilgore, "Restoring Fire in the Sequoias," p. 21.

²⁰Kilgore, "Restoring Fire's Natural Role in America's Wilderness," p. 3.

²¹Kilgore, "Fire Management in the National Parks: An Overview", p. 50.

²²Leopold Report, p. 21

²³U. S. Congress, House subcommittee on National Parks and Recreation, Policies, Programs, and Activities of the National Park Service and Bureau of Outdoor Recreation 92nd Cong., 1st session (Washington:

GPO, 1971), p. 50.

²⁴Policy Staff Analysis Report, "Evaluation of Fire Management Activities on the National Forests" (U. S. Forest Service, 1977) p. 17.

²⁵Policy Staff Analysis Report, p. 7.

²⁶Kilgore, "Restoring Fire's Natural Role in America's Wilderness," p. 4.

²⁷Robert Mutch, "I Thought Forest Fires were Black," Western Wildlands, No. 1 (1977), p. 70.

²⁸Policy Staff Analysis Report, p. 15.

²⁹Policy Staff Analysis Report, p. 45

³⁰Policy Staff Analysis Report, p. 47.

³¹Policy Staff Analysis Report, p. 13.

³²Policy Staff Analysis Report, p. 18.

³³Kilgore, "Restoring Fire's Natural Role in America's Wilderness," p. 4.

³⁴James Craig and Irene McManus, "Fire in the Environment," American Forest No. 8 (1972), p. 26.

³⁵Henry DeBruin, "From Fire Control to Fire Management" from the Proceeding of the Tall Timbers Fire Ecology Conference No. 14, (1976) p. 13.

³⁶U. S. Congress, House subcommittee of the committee on Appropriations, Dept. of the Interior and Related Agencies Appropriations for 1983, 97th Cong, 2nd session (Washington D. C.:GPO, 1982), p.362

³⁷Policy Staff Analysis Report, p. 19.

³⁸Policy Staff Analysis Report, p. 25

³⁹Policy Staff Analysis Report, p. 25

⁴⁰Kilgore, "Restoring Fire's Natural Role in America's Wilderness," p. 4.

⁴¹Kilgore, "Restoring Fire's Natural Role in America's Wilderness," p. 3.

⁴²U. S. Congress, House subcommittee on National Parks and Recreation, Policies, Programs, and Activities of the National Park Service and Bureau of Outdoor Recreation 92nd Cong., 1st session (Washington: GPO, 1971), p. 50.

Bibliographical Essay

The most helpful secondary source that I used was Steven Pyne's Fire in America: A Cultural History of Wildland and Rural Fire (1982) especially the chapters which dealt with history of the USFS and NPS fire policy. Anyone who is writing about any aspect of fire in the environment should come to this source first; it covers everything about fire in America and has great notes to send you elsewhere. I also got some initial ideas from Alston Chase's Playing God in Yellowstone: The Destruction of America's First National Park (1986) This book examines the overall park management strategy and included the role of fire. This book was very controversial and the NPS attacked it for the lack of facts to support many of his points. Other secondary sources include: Robert Foresta's America's National Parks and Their Keepers (1984), Arthur Brown and Kenneth Davis' Forest Fire Control and Use (1973), Michael Frome's The Forest Service (1971), and Harold Steen's The U.S. Forest Service: A History (1976)

One of the most important documents for the whole NPS fire policy shift was the Advisory Board on Wildlife Management report entitled, "Wildlife Management in the National Parks" (1963) The Leopold report was incredibly short, only 23 pages, but in that space, a whole new mission for

the park service was spelled out. I also checked the Congressional records for debates about the policy shifts, but found very little. I do not think the general public was that involved in the whole policy debate. More information would have come from the USFS and NPS reports issued at the time, but Yale does not have many of these documents. One important USFS report that I found was the policy staff analysis report, which was the basis for the final USFS shift in 1978.

The rest of my data came essentially from magazines such as American Forest, National Parks and Recreation, Western Wildlands, and Audubon. One of the main writers and researchers was Bruce Kilgore. Initially he started as a research biologist with the NPS and then later transferred to the USFS. He was a major force in shifting policies for both government agencies.