

# TRENDS IN PUBLIC ATTITUDES TOWARDS THE USE OF WILDLAND FIRE

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## ABSTRACT

This paper summarizes a select set of research studies conducted over the past 40 years, drawing conclusions on trends in public attitudes about the use of wildland fire in federally-designated Wilderness. The research includes trend studies conducted with visitors to Wilderness areas in Washington, Oregon, California, Idaho and Montana. Each research study used a unique method for measuring and tracking change in visitor attitudes towards fire in Wilderness. Across all studies, results indicate a trend toward more positive and supportive visitor attitudes about the use of fire in Wilderness. This information is important for understanding if, and how, public attitudes might be changing over time.

## INTRODUCTION

Management use of wildland fire (wildland fire use and prescribed fire) is a social issue as well as an ecological issue. Ecologically, the use of fire has the potential to reduce hazardous fuels and restore fire as a natural process at a large scale on Wilderness and surrounding lands. Socially, the use of fire has the potential to affect (positively and negatively) human uses and relationships associated with the same lands. Since the mid-1960s, there has been a growing body of social science research related to fire management. Social scientists have explored public perceptions, beliefs, attitudes, and behavioral intentions towards different fire management strategies in a variety of contexts and geographic regions. A minor subset of this literature has focused specifically on public attitudes towards the use of fire in federally-designated Wilderness.

Four specific sets of studies have tracked changes in Wilderness visitor attitudes over time (Cole et al. 1995; Dear et al. 2005; Hendee et al. 1968; Lucas, 1980; Lucas, 1985; McCool and Stankey 1986; Stankey 1976; Watson et al. 1996; Whitmore et al. 2005). By bringing these research results together, it is possible to better understand if, and how, Wilderness visitor attitudes towards the use of fire have been changing in the western United States over the past forty years.

## METHODS

Each set of studies was conducted with a sample of visitors to a specific Wilderness area. Three of the sets of studies collected a broad suite of information about visitor characteristics, use, attitudes and management preferences (Cole et al. 1995; Dear et al. 2005; Hendee et al. 1968; Lucas, 1980; Lucas, 1985; Watson et al. 1996; Whitmore et al. 2005), while only one set of studies focused on collecting this information specifically in relation to fire (McCool and Stankey 1986; Stankey 1976). In all of the studies, a visitor sample was drawn from trailhead

self-registrations, onsite contacts, visitor permits, outfitter guest lists, or some combination of these. A mailback survey was sent to each visitor sample, and each survey included one or more unique items used to measure visitor attitudes about fire in Wilderness.

A study of visitors to three Wilderness areas in the Northwest (Glacier Peak Wilderness, WA; Three Sisters Wilderness, OR; Eagle Cap Wilderness, OR) was conducted in 1965 (Hendee et al. 1968). In 1993, a portion of the study was replicated in the Eagle Cap Wilderness only (Watson et al. 1996). One survey item was included in each study to measure visitor attitudes about fire in Wilderness, providing trend data. The item specifically measured visitor agreement/disagreement with the statement, "Lightning-caused fires should be allowed to run their course in wilderness."

Visitors to the Bob Marshall Wilderness Complex in Montana (Bob Marshall Wilderness; Great Bear Wilderness; Scapegoat Wilderness) were surveyed in a study in 1970 (Lucas 1980). This study was replicated in 1982 (Lucas 1985) and 2003 (Dear et al. 2005). Due to fire occurrence in the Wilderness during the 2003 sampling period, the study was replicated again in 2004 (Borrie et al. 2006; Whitmore et al. 2005). In these studies, trend data were produced from one survey item that specifically measured the desirability/undesirability of "natural forest fire started by lightning." This same survey item was used to provide trend data for a study of visitors to the Desolation Wilderness in California conducted in 1972 (Lucas 1980) and replicated in 1990 (Cole et al. 1995).

A study of visitors to the Selway-Bitterroot Wilderness in Idaho and Montana was conducted in 1971 (Stankey 1976) and replicated in 1984 (McCool and Stankey 1986). In each of these studies, an attitude scale based on the Social Judgment Approach (Sherif et al. 1965) was used to evaluate a range of Wilderness fire management statements that visitors judged acceptable/unacceptable. The scale was anchored at either end with "It is absolutely necessary that all forest fires be put out as soon as possible in our wilderness areas," and "It is absolutely necessary that we allow all forest fires to burn in our wilderness areas."

## **RESULTS**

In the 1965 Eagle Cap Wilderness visitor study, only 3% of respondents agreed with the statement, "Lightning-caused fire should be allowed to run their course in wilderness," while 94% of respondents disagreed with the statement and 3% of respondents indicated a neutral attitude. In the 1993 visitor study, attitudes differed dramatically as 44% of respondents agreed that lightning fires should run their course in Wilderness, while the rest of the respondents were split on whether they disagreed (28%) or had a neutral attitude (28%).

In the 1970 Bob Marshall Wilderness Complex visitor study, only 26% of respondents indicated "natural forest fire started by lightning" was desirable, while 45% indicated it was undesirable. In the 1982 visitor study, the percent of respondents who indicated natural forest fire was desirable increased to 49%, while those indicating it was undesirable decreased to 32%. There was not much change in visitor attitudes between 1982 and 2003, as 49% of respondents in 2003 also indicated natural forest fire in Wilderness was desirable, while 28% of respondents indicated it was undesirable. There was some change, however, in 2004 when 68% of the visitor

sample indicated natural forest fire was desirable and only 12% of the sample indicated it was undesirable. It is possible that the difference in visitor attitudes between 2003 and 2004 is attributable to the occurrence of fires in the Wilderness in 2003.

Results of the Desolation Wilderness visitor studies were separated out by day-users and overnight visitors, and mean desirability was reported rather than percent of response. Desirability of “natural forest fire started by lightning” was measured on a 5-point scale ranging from “very undesirable” (1) to “very desirable” (5), with a “neutral” (3) midpoint. In the 1972 study, the mean desirability of natural forest fire in Wilderness was 2.5 for both day users and overnight visitors. In the 1990 visitor study, the mean desirability increased to 3.0 for day-users and 3.2 for overnight visitors. Mean differences in visitor attitudes between 1972 and 1990 were statistically significant for both day-users and overnight visitors.

In the 1971 Selway-Bitterroot Wilderness visitor study, a slight majority of respondents (56%) indicated suppression-oriented statements regarding Wilderness fire management were most acceptable, with 31% of respondents indicating the total fire suppression statement was the most acceptable. In the 1984 visitor study, visitor attitudes were vastly different as over 70% of respondents indicated fire use-oriented statements regarding Wilderness fire management were most acceptable, with only 5% of respondents indicating the total fire suppression statement was the most acceptable.

## **SUMMARY AND CONCLUSIONS**

The results of this select set of trend studies conducted with visitors to Wilderness areas in Washington, Oregon, California, Idaho and Montana indicate that visitor attitudes towards the use of wildland fire in Wilderness have changed over the past forty years. In all cases, visitor attitudes have become more positive and supportive. This trend was consistent across Wilderness areas, methods of visitor sampling, and attitude metrics.

As the use of fire becomes more common in Wilderness, there will be a need for continued measurement and evaluation of these trends in visitor attitudes. Future research, however, should also consider attitudes of other members of the public, as their attitudes may differ from those of Wilderness visitors. In addition, future research should be focused specifically on fire, like the Selway-Bitterroot Wilderness studies, in order to increase the amount and quality of metrics used to measure public attitudes. Three of the trend studies reported here included only one simple attitude metric, because they were focused on visitor attitudes towards Wilderness management issues in general and not on fire specifically.

Finally, the research summarized here only considered visitor attitudes towards the use of lightning-ignited fire in Wilderness. Future research should consider public attitudes towards the use of management-ignited fire in Wilderness, as well. Additionally, as both the ecological and social importance of the use of fire across the interface of Wilderness and non-Wilderness lands becomes more widely recognized (i.e., use of prescribed fire inside and along Wilderness boundaries and wildland fire use outside Wilderness boundaries), there will also be a need to understand public attitudes towards the use of fire in this interface area.

## References Cited

- Borrie, W.T., McCool, S.F. and J.G. Whitmore. 2006. Wildland fire effects on visits and visitors to the Bob Marshall Wilderness Complex. *International Journal of Wilderness* 12(1): 32-35.
- Cole, D.N., Watson, A.E. and J.W. Roggenbuck. 1995. Trends in wilderness visitors and visits: Boundary Waters Canoe Area, Shining Rock, and Desolation Wildernesses. Research Paper INT-RP-483. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station.
- Dear, C.E., McCool, S.F. and W.T. Borrie. 2005. Bob Marshall Wilderness Complex 2003 Visitor Study, Final Report. College of Forestry and Conservation, University of Montana, Missoula, MT. 49 p.
- Hendee, J.C., Catton, Jr., W.R., Marlow, L.D. and C.F. Brockman. 1968. Wilderness users in the Pacific Northwest – their characteristics, values, and management preferences. Research Paper PNW-61. Portland OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station.
- Lucas, R.C. 1980. Use patterns and visitor characteristics, attitudes and preferences in nine wilderness and other roadless areas. Research Paper INT-253. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station.
- Lucas, R.C. 1985. Visitor characteristics, attitudes, and use patterns in the Bob Marshall Wilderness Complex, 1970-82. Research Paper INT-345. U.S. Department of Agriculture, Forest Service, Intermountain Research Station.
- McCool, S.F. and G.H. Stankey. 1986. Visitor attitudes toward wilderness fire management policy – 1971-84. Research Paper INT-357. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station.
- Sherif, C., Sherif, M. and R.E. Nebergall. 1965. Attitude and attitude change: the social judgment involvement. Philadelphia, PA: W.B. Saunders Co.
- Stankey, G.H. 1976. Wilderness fire policy: an investigation of visitor knowledge and beliefs. Research Paper INT-180. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station.
- Watson, A.E., Hendee, J.C. and H.P. Zaglauer. 1996. Human values and codes of behavior: changes in Oregon's Eagle Cap Wilderness visitors and their attitudes. *Natural Areas Journal* 16(2): 89-93.
- Whitmore, J.G., Borrie, W.T. and A.E. Watson. 2005. Bob Marshall Wilderness Complex 2004 Visitor Study, Final Report. College of Forestry and Conservation, University of Montana, Missoula, MT. 160 p.