Barriers to Wildland Fire Use
A Preliminary Problem Analysis

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Wildland Fire Use in Wilderness in the United States

American society has a general cultural bias toward controlling nature (Glover 2000) and, in particular, a strong bias for suppressing wildfire, even in wilderness (Saveland et al. 1988). Nevertheless, the Federal Wildland Fire Management Policy directs managers to "allow lightning-caused fires to play, as nearly as possible, their natural ecological role in wilderness" (FWFMP 2001). Each year, however, approximately 85% of natural fire ignitions in national forest wilderness areas are suppressed (Sexton 2004).

Roughly 20% of all national forest wilderness lands have been significantly altered from historical ecological conditions (Miller 2003), and the risk of losing key ecosystem components within these altered landscapes is high (Schmidt et al. 2002). Current management practices favoring suppression of natural ignitions cannot sustain the functional role of fire in wilderness areas (Cole and Landres 1996). Although concerns and issues that influence fire management decisions on U.S. federal lands have been identified (Miller and Landres 2004), to our knowledge there has not been a systematic national assessment to identify and measure Wildland Fire Use (WFU) barriers.

Three requirements must be met in order to manage a natural ignition as WFU in national forests. Managing a natural ignition as WFU requires a land and resource management plan (LRMP) that authorizes WFU, a fire management plan (FMP) that authorizes WFU, and a recommendation to manage a fire (i.e., natural ignition within the WFU management zone) as WFU (USDA/USDI 2005). If the fire management plan authorizes WFU, it is still possible that the majority of natural ignitions may be suppressed. The fire manager—the individual who counsels or provides advice to the responsible line officer, usually the forest supervisor—must make a recommendation that the fire be managed as WFU (USDA/USDI 2005). The line officer then must accept the fire manager's "go" recommendation. The line officer is ultimately responsible for all fire management decisions within the scope of the two plans. When the plans authorize WFU as an option, the line officer usually decides to accept the fire manager's advice (Sexton 2004).

We used an Internet-based questionnaire (see www.cnr.uidaho.edu/wildernessfire) to collect data from fire managers in national forest wilderness areas covering the 2002–2004 period, sent electronically to all Forest Service units with wilderness responsibilities. These years were selected because of substantial policy changes in 2001. A total of 72 wilderness fire managers responded to the questionnaire, with at least one response from all nine Forest Service regions. The response rate is estimated at only 14% of potential respondents. We relied on the agency's administrative hierarchy to identify the target group of managers and invite questionnaire responses from them. This approach was not effective in generating the response needed to generalize to all wilderness areas, but does provide insight into how these managers describe barriers.

Those responding indicated that 25% of the total natural ignitions in the 2002–2004 period were within wilderness areas that have been approved for WFU; and only 40% of this 25% received the "go" recommendation. These results suggest that even if WFU is authorized by plans, the majority of WFU opportunities may likely be suppressed.

Managing fire to attain wilderness objectives through WFU is likely constrained by five categories of factors: (1) organizational culture, (2) political boundaries, (3) organizational capacity, (4) policy directives, and (5) public perceptions (Doane et al. 2005). In this summary we focus only on barriers rated important by managers that can be mitigated by the agency, which includes factors related to organizational culture, capacity, and policies originating within the agency that influence WFU

planning and implementation decisions (see table 1). Results are based on responses from managers who identified and rated the importance of factors posing barriers to WFU on national forest wilderness areas. Political boundaries are important barriers but cannot be addressed by the agency, and results suggest that public perceptions can pose barriers, but not to the same extent as other factors (Doane et al. 2005).

Recommendations for Mitigating WFU Barriers

Eight general themes were developed from the 69 suggestions received from 38 wilderness fire managers (see table 2). Based upon managers' suggestions and recent literature, we developed seven recommendations for mitigating WFU barriers:

1. Encourage WFU at all levels within the organization in ways that provide support for managerial actions and decisions,
2. Provide district- or forest-level fire managers with greater flexibility in managing WFU in wilderness,
3. Emphasize the national directive to manage natural ignitions as WFU so as to increase awareness of it and clarify ambiguity,
4. Increase land areas available to WFU,
5. Increase the organization's knowledge of WFU,
6. Use management ignitions to support WFU efforts, and
7. Periodically assess and monitor the barriers to WFU.

Conclusions

Suppression of wildland fire alters ecological processes and conditions, often in ways that are counter to maintaining wilderness values. Results of our study identify many factors that make it difficult for managers to allow fires to burn freely in national forest wilderness. Other agencies may have similar problems, and

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Table 1. Internal Factors Posing Barriers to Wildland Fire Use.

Planning factors preventing WFU from being an option:

1. WFU is not the cultural norm of the forest and/or the region
2. Lack of time and resources to conduct a sufficient analysis to incorporate WFU into the LRMP or the FMP
3. Insufficient natural ignitions to justify the planning effort
4. Managing for wilderness objectives is not a priority for the forest and/or the region
5. The planning team's discomfort with the uncertainty associated with managing a WFU event, including political consequences
6. Lack of memorandum of understanding with adjacent landowners to transfer WFU fires across the boundary
7. Insufficient qualified personnel to manage a WFU event

Implementation factors leading to the suppression of candidate fires:

1. The regional directive was to suppress all ignitions regardless of whether or not a natural ignition could have been managed as WFU
2. Lack of qualified personnel to make the decision to manage the fire as WFU
3. Personal discomfort with the political consequences associated with managing as WFU
4. The likelihood that the line officer would accept the recommendation to manage as WFU was low due to his or her discomfort and the political consequences associated with managing as WFU

Table 2. Managers' Suggestions for Increasing Wildland Fire Use Organized by Themes and Percent Responding.

Increase training and education (22%)
- Educate the agency and the public on WFU
- Provide more WFU training and experience with WFU in the agency
- Evaluate the adverse effects of suppressing natural ignitions

Provide institutional support (19%)
- Provide encouragement for WFU from higher levels in the organization
- Support and protect the wilderness fire manager and his or her decisions
- Provide managers an incentive

Increase management flexibility (13%)
- Increase management flexibility for the wilderness fire manager

Increase lands available to WFU (12%)
- Increase the lands available for managing natural ignitions as WFU via memorandum of understanding (MOU) with Bureau of Indian Affairs, Bureau of Land Management, Forest Service, etc.
- Purchase private inholdings (private property within wilderness areas)

Change organizational culture (7%)
- Revise *Forest Service Manual* 2320 (Wilderness section) to emphasize WFU
- Emphasize the national directive to manage natural ignitions as WFU and managing for wilderness objectives
- Make WFU fires equal to suppression fires when ordering resources

Utilize management ignitions (6%)
- Utilize management ignitions to support WFU efforts
- Minimize impacts from smoke by treating fuels through management ignitions

Prevent negative outcomes from WFU events (3%)
- Prevent negative outcomes (e.g., destruction of private property) from WFU events

Miscellaneous (18%)
- Amend plans to make WFU an option
- Forest is looking at WFU
- Eleven other miscellaneous suggestions that do not fit any general theme

Results of our study identify many factors that make it difficult for managers to allow fires to burn freely in national forest wilderness.

managing natural ignitions as WFU is likely even more challenging on nonwilderness lands. The Federal Wildland Fire Management Policy directive to restore natural fire regimes applies not just to national forest wilderness, but to all lands administered by the federal government (FWFMP 2001). Restoring fire will require cooperation among various levels within an individual agency, along with various federal, state, and local governments, and local and national communities (DellaSala et al. 2003).

Learning to live with fire is a social issue (Dombeck et al. 2004). Wilderness can be a proving ground for demonstrating the benefits of restoring fire across the landscape. Suppression, however, is likely to remain the cultural norm unless barriers to managing natural ignitions as WFU can be overcome. This research suggests that viable options for mitigating these

barriers do exist, and we recommend systematic and periodic assessments of the factors influencing WFU implementation as part of program evaluation. A better understanding of the factors that influence managers is a meaningful complement to accountability measures of the number of fires allowed to burn freely and acres subjected to WFU. **IJW**

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