

Economic and Environmental Issues in Arkansas: A Policy Perspective

Identifying and Addressing Social Constraints Involved with the Use of Prescribed Fire in Forest Ecosystems of the Ouachita and Ozark Regions of Arkansas

Executive Summary

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Introduction

Fire, as a result of natural or human causes, has shaped the plant and animal communities in Arkansas. In many natural communities, fire is required to regenerate the plants that live in these communities. Natural resource managers frequently use prescribed fires or controlled burning to maintain or restore fire-dependent prairies, forests and glades that occur in Arkansas. Prescribed fire is also used to reduce wildfire hazards, prepare areas for tree planting, and increase accessibility or appearance of land.

Although prescribed fire has many beneficial uses, it can also have some unintended impacts. Smoke from fire contains particulate matter that can reduce air quality, reduce visibility and cause human health problems. The increased use of prescribed fires by land managers combined with increased population in the Ouachita and Ozark Regions during the past 20 years has brought to the surface the inherent conflicts among stakeholders with regard to the use of fire as a land management tool.

Some stakeholder groups within this region have voiced concerns related to the actual need for prescribed fire, the health risks associated with prescribed fire and the potential danger in using fire in close proximity to population centers. Unresolved disputes arising from these conflicts could limit the ability of land managers to use prescribed fire to meet land management objectives. A better understanding of stakeholder concerns, attitudes and beliefs relating to prescribed fire is needed to minimize potential disputes among stakeholder groups. In addition, dissemination of this information is needed to create a foundation upon which open discussions among divergent stakeholder groups can take place and provide infrastructure for solving disputes related to the application of fire as a land management tool.

The goals of the research project were to:

- assess the viewpoints of the various stakeholders
- develop educational materials concerning the use of and issues related to prescribed fire
- provide an opportunity for discussions among stakeholders

Methodology

The project was organized in a number of specific phases. The first was to delineate important social issues associated with prescribed fire by facilitating stakeholder focus group meetings in the Ouachita and Ozark Regions. Focus group methodology provides insights that a quantitative survey may not generate. Participants can elaborate, expand upon and react to comments and responses raised during a session that could not be discerned through a survey. This is especially important in public policy research in which issues might not be clearly identified beforehand. A total of six focus group meetings were held, with participants representing a wide range of stakeholders (Table 1). The second phase was to develop a mail survey to substantiate and better quantify the findings from the focus group meetings. An additional survey was developed to gain a better understanding of public knowledge, attitudes and beliefs surrounding prescribed fire, for comparison against stakeholder issues and concerns. Surveys were mailed to approximately 100 households in each of the 21 counties for a total final sample size of 2,000. These counties were located within or adjacent to the Ouachita and Ozark Regions. The third phase involved developing and disseminating educational fact sheets to the public concerning prescribed fire and social issues involved with prescribed fires. Information generated by the surveys and focus groups was used to select topics for the fact sheets. To address some of these issues two University of Arkansas Cooperative Extension Service (CES) fact sheets were published: *Why We Burn: Prescribed Fire as a Management Tool* and *The Clear Air Act and Prescribed Fire: What it Means to Arkansas*. Lastly, stakeholders in the Ozark region were invited to a discussion forum held in May 2007.

Key Findings

Focus Group Meetings

Stakeholders were identified based on researcher experience, participation in previous natural resource management programs and participant input.

Table 1. Organization and Stakeholder Groups Participating in Six Focus Group Meetings

<u>Land Management</u>	<u>Environmental</u>
US Forest Service	Arkansas Dept. of Environmental Quality
Arkansas Forestry Commission	Sierra Club
Weyerhaeuser Company	The Ozark Society
The Nature Conservancy	Audubon Society
National Park Service	<u>Health</u>
Kingwood Forestry Services	American Heart Association
Arkansas Fish and Game	American Lung Association
International Paper Co.	University of Arkansas for Medical Sciences
Arkansas Natural Heritage	Rural Health Care
Arkansas Natural Heritage	<u>Local Government</u>
Arkansas Forest Association	Mena Mayor's Office
<u>Other</u>	Mena Fire Department
Private Landowners	Hot Springs Village
UA Extension Service	
Local Citizens	

Focus group participants were asked to discuss:

- personal experiences with prescribed fire
- perceived impacts on air and/or water quality
- advantages and disadvantages of and barriers to use of prescribed fire
- issues related to prescribed fire
- overall public awareness regarding prescribed fire

The focus group discussions were open-ended to allow themes and issues to emerge. Each meeting was videotaped, with permission from the participants.

The concerns of stakeholders attending focus group meetings can be summarized into three main categories:

- smoke
- risk
- public acceptance

Smoke from prescribed fires was one of the foremost issues mentioned by stakeholders. Primarily, stakeholders indicated that they were concerned with the impacts of smoke on visibility, health and air quality. The effect of smoke on human health was a predominant point of discussion during all meetings.

Stakeholders named numerous potential risks associated with the use or lack of use of prescribed fire. Participants noted that there is a risk of litigation involved with the application of prescribed fire. Land managers voiced concerns about unintended visibility problems created by smoke which settles over high traffic areas such as highways and airports. For others, the risk of a prescribed fire becoming a wildfire and the potential damage to property, life, biota and ensuing litigation was of great concern. Likewise, the risk of ecosystem damage through fire suppression and the increased risk of catastrophic wildfire due to the lack of controlled burning were also mentioned by some participants.

Participants also articulated a concern about the public perception of prescribed fires in Arkansas. The participants perceived a difference between rural and urban communities regarding the acceptance of controlled burning, with rural communities having a higher degree of acceptance. They suggested that these differences would become more polarizing as urban sprawl increases in the rural areas of Western and Northern Arkansas.

Participants felt that the public-at-large was generally unaware of potential health problems associated with smoke from prescribed fires. Eight specific barriers to the use of prescribed fire were developed through discussions in the focus group meetings. These barriers were:

- expanding urban-rural interface
- increased mix of ownership types
- public pressure to reduce prescribed burns
- insufficient public notification prior to a burn
- health risks to the public
- lack of public awareness about prescribed fire
- influence of groups with “anti-fire” message
- traditional “fire is bad” messages (i.e. Smokey the Bear)

Negative health impacts from prescribed fire smoke, especially on the elderly and individuals with respiratory problems, emerged as an important and previously-unidentified issue during several focus group meetings. An additional focus group meeting targeting public health care professionals and organizations was held to gather more information. Questions regarding health impacts were incorporated into the mail survey targeting stakeholders as a result of these findings.

Stakeholder Survey

A mail survey was mailed to 650 stakeholders throughout Arkansas. Stakeholders included those indicated in Table 1. A total of 42 percent of stakeholder surveys were returned and summarized. The majority of the respondents (65 – 70 percent) worked in careers that were directly involved with natural resource management. Most (> 90 percent) of the respondents strongly agreed that prescribed fire is an essential tool for land management and that the

benefits of prescribed fire outweigh its potential negative impact to air quality. In addition, a large percentage of the respondents (> 74 percent) strongly agreed that it was becoming more difficult to use prescribed fire in Arkansas. Survey respondents were presented with the list of barriers to the use of prescribed fire that were developed from the focus group meetings. They were then asked to rank, in their opinion, the degree of influence that each barrier had to the acceptable use of prescribed fire. Respondents ranked “expanding urban-rural interface” and “the lack of public awareness about prescribed fire” as the two most important barriers. Finally, respondents were divided as to who – either individual citizens or land managers – was responsible for protection against the adverse effects of smoke generated by prescribed fires and to what degree they were concerned with the loss of control of prescribed fires. Survey findings corresponded to the issues identified in the focus group meetings.

Public Survey

In an effort to determine the level of awareness and existing knowledge of the public-at-large regarding prescribed fire, an additional survey was mailed to 2,000 randomly-selected homes in 21 counties bordering or located within the Ozark and Ouachita National Forests. A total of 394 usable surveys were returned for an adjusted response rate of 22 percent. Of those responding to the public-at-large survey, 74 percent were male with a median age of 57 years. Seventy percent indicated that they had resided in their present county for more than 10 years, and 57 percent currently lived in an area with a population of less than 1,000 people. Ninety-four percent of respondents indicated some familiarity with the term prescribed fire, and 15 percent remarked they had been negatively impacted by wildfire at some point in their lives. Seventy percent of respondents felt that prescribed burns had affected the air quality in their county to a small or moderate degree and 56 percent of the respondents had been aware of a prescribed fire in their county in the preceding two years prior to the survey. Only 4 percent of the respondents felt that their quality of life had been strongly affected, while 20 percent indicated it had been somewhat affected by smoke from prescribed fire. A total of 31 percent of the respondents had encountered reduced visibility while operating a vehicle from prescribed fire smoke at least once, and 14 percent had restricted outdoor activities because of prescribed fire smoke.

Interestingly, the public-at-large and the stake holder surveys, with the exception of instances, showed a similar level of response for questions concerning the benefits, risks and abilities of forest managers (Table 2). The public-at-large respondents were less convinced than stakeholder respondents that the benefits of prescribed fire outweighs the negative effects of air quality, but surprisingly they thought that individual citizens were more responsible for protecting themselves from the negative effects of smoke than did the stakeholder respondents. The similar responses to questions on the surveys suggest that many stakeholders and the public-at-large share common ground.

Table 2. Proportion of Respondents Who “Strongly or Somewhat Agree” with the Following Statements from the Public-at-large and Stakeholder Surveys

	Public (%)	Stakeholders (%)
Benefits of Rx ¹ fire burning outweigh negative effects to air quality.	74	94
I trust any decision made to use Rx fire as a means to maintain forest health is based upon solid science.	95	90
Rx fire is necessary in order to prevent future catastrophic fires.	84	90
Risk of catastrophic fire does not compare to health risks from Rx fire	41	37
I have confidence in the ability of forest managers in Arkansas to maintain control of Rx burns.	86	95
The individual citizen is responsible for protecting themselves against the negative effects of smoke from Rx fire.	54	39
During an Rx burn event, I am often concerned that the fire will become uncontrollable.	41	44

¹prescribed fire

Discussion Forum

The final phase of the project was a collaborative learning workshop held in Harrison, Arkansas in early 2007. This workshop was developed to provide an effective way to involve the public, stakeholders and natural resource agencies in a constructive dialogue surrounding the use of prescribed fire in their communities and to encourage meaningful public participation in decisions processes. Summaries of survey results and the fact sheets developed were presented to the attendees to facilitate discussions. A total of 18 stakeholders attended the one-day forum. Participants were randomly assigned to one of three groups. Each group appointed a recorder and was led by a trained facilitator from the U of A Division of Agriculture Cooperative Extension Service. Each group was asked to identify issues concerning prescribed fire and to review the preliminary results from the surveys. Each groups' responses were summarized into categories and themes.

The first set of responses can be summarized as “public understanding and acceptance of prescribed fire.” Land managers and agency personnel were concerned with identifying and communicating effectively with “the public.” Several agency representatives mentioned attending meetings held for the express purpose of public input that no one attended. The key concern for forest managers is the key or “hook” needed to attract an audience. Will the public-at-large only pay attention when mistakes or problems with prescribed fire occur or will they seek out information about prescribed fire for their own knowledge?

Participants offered ideas to address the issue of public involvement and notification. Suggestions ranged from a one-stop information center to automatic phone messages during smoke incidences. Several suggested that simply having information on the Internet was insufficient given that the majority of rural residents, especially rural elderly residents, do not have adequate access to the Internet.

Participants also suggested steps towards increasing public understanding and acceptance of prescribed fire. Suggestions ranged from establishing advisory groups to fostering citizen monitoring and data collection. Participants suggested that mistrust between agencies and the public-at-large was perhaps the greatest challenge to effective communication. Non-agency

participants mentioned their deep distrust of “science,” including university research, especially research funded by land-management agencies like the US Forest Service. Providing access to data and developing “citizen science” was mentioned as a solution to mitigating the distrust.

The mechanics, timing, and research findings of the two surveys were discussed. Some participants expressed concerns over the wording of the questions and actual research findings. Participants recommended that future public policy research focus on smoke management issues in the Delta region of the state.

Attendees were asked to discuss future projects and activities. Most agreed that continuing the dialogue was important. Suggestions included fostering a collaborative working group around prescribed fire issues, holding pre-fire season informational meetings and expanding research studies to include public attitudes about controlled burning in the agriculture area of the state.

Conclusion

Agency personnel and public land managers are generally aware that different stakeholder groups and the public-at-large either view prescribed fire as “bad” or do not understand the purpose of controlled burning. One state-wide consortium developed a public relations program in an attempt to educate the public about prescribed fire. However, the message of science-based decision making or “fire is good” appears to fall on doubtful ears. Land managers using prescribed fire might need to develop more efficient communication tools that incorporate local situations and context into public relations campaigns. For example, in the Ozark National Forest area, long a battleground over natural resource management, a more efficient strategy might involve data-sharing meetings and stakeholder workshops, as opposed to public forums.

Fire is an important management tool in forest resource management. However, smoke management issues and public perceptions limit the ability of managers to use this tool. In many cases, the public-at-large is not aware of the very strict guidelines under which forest

managers use prescribed fire. Agencies and forest managers need to educate stakeholders and the public-at-large about these guidelines. They also need to increase awareness about recent efforts to manage smoke from prescribed fires across agencies and with private landowners through the AFC's Dispatch Center. The challenge will be to incorporate agricultural interests into these efforts. Currently, Arkansas state law concerning prescribed fire applies only to controlled burning in forests—not on agricultural lands. However, smoke from agricultural burning can potentially impact air quality in expanding urban areas where non-attainment of air quality standards is highly likely, especially in the West Memphis-Memphis area.

The state-prescribed Fire Committee and forest managers recognize that in some cases, fire is not the appropriate management tool. Alternative tools, including herbicide and/or mechanical treatments, should be explored in rapidly-developing urban areas, in areas where the use of prescribed fire is limited and when prescribed fire is likely to impact public health and the environment. In other parts of the country, citizen groups are using livestock to control highly-flammable vegetation. Perhaps these and other innovative methods should be investigated as alternatives to prescribed fire in Arkansas.

State and federal agencies need to coordinate with public health officials to protect public health problems arising from smoke. Although respondents to the public survey suggested that individuals were responsible for protecting their health during a prescribed fire, land managers believe otherwise. Most agencies presently contact nearby residents with known respiratory problems to provide information and assistance. However, when changes in fire behavior result in unanticipated smoke, the public-at-large do not know who to contact for information and assistance. One participant representing public health interests has been contacted by people suffering with respiratory problems asking for information on smoke from forest fires or prescribed fires; she herself is uncertain about where to find information.

Agencies and forest managers therefore need to develop a more systematic approach to protecting public health. One suggestion from the forum was to develop an automatic telephone messaging system similar to those currently used by law officials. The best

approach would be a combination of online information and personal and telephone contact from land managers conducting the burn.

Prescribed is an important management tool. However, unless public health issues, citizen concerns and a more integrated approach to managing smoke are addressed, the ability to apply the tool will be limited. Forest managers recognize this reality and have set forth guidelines in the new Smoke Management Guidelines. The challenge is to extend this information to others.