

Impediments to Prescribed Burning on Private Lands: A Synthesis of Surveys from 2012-2015

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Introduction

Over the last decade, the Southeast has successfully increased the application of prescribed fire on state and federal lands for ecosystem management. Efforts such as the American Longleaf Restoration Initiative (ALRI) have sparked collaboration among state and federal agencies across the Southeast region to promote a resilient ecosystem through the use of strategies such as prescribed fire. Currently, it is estimated that there are 4.7 million acres of longleaf pine across the Southeast (ALRI Longleaf Partnership Council, 2014) with more than half (approximately 2.9 million acres) occurring on private lands (ALRI Longleaf Partnership Council, 2014). The Initiative's range-wide conservation plan calls for an increase of longleaf pine habitat to 8 million acres by 2025. This will require a significant increase in the amount of burning being conducted on private lands since the longleaf pine ecosystem is fire-dependent and a majority is privately owned. In addition to longleaf pine, many other fire-dependent forests in the Southeast are also privately owned and also need an increase in prescribed fire to meet their ecological needs.

To ensure that the aforementioned goals are met, it is important to identify the impediments currently restricting prescribed fire implementation across the region, especially on private lands. The results of a survey of fire management officials containing historical (1985-1994) and projected prescribed fire activity in the South, including barriers to expanded burning, was reported by Haines et al. in 2001. The objective of their study was to assess prescribed burning programs on USDA Forest Service and private and state owned lands in the South. From their survey, the four most significant barriers to burning on private lands in the South were reported to be negative public opinion, risk of liability, air quality and smoke regulations, and residential development in close proximity to areas in need of burning. While this article provides insight into historical limitations affecting prescribed fire use, it is important to use current research to ensure that communication and outreach efforts are appropriate for situational needs. The purpose of this paper is to synthesize recently published research studies, unpublished outreach evaluations, and organizational scoping studies to understand the current barriers, challenges, and impediments that exist across the Southeast.

Five surveys are known to have been conducted regarding impediments to prescribed burning on private lands (industrial or non-industrial) for the Southeast region, and are included in this paper:

- National Prescribed Fire Use Survey (Melvin, 2012)
- North Carolina Prescribed Fire Use Survey (Wallace & Livingston, 2014)

- Perspectives on Trends, Effectiveness, and Impediments to Prescribed Burning in the Southern U.S. (Kobziar et al. 2015)
- Prescribed Fire on Private Lands (Association of Fish and Wildlife Agencies, 2015)
- Texas Prescribed Fire Workshop Evaluation (North Carolina State University, 2015)

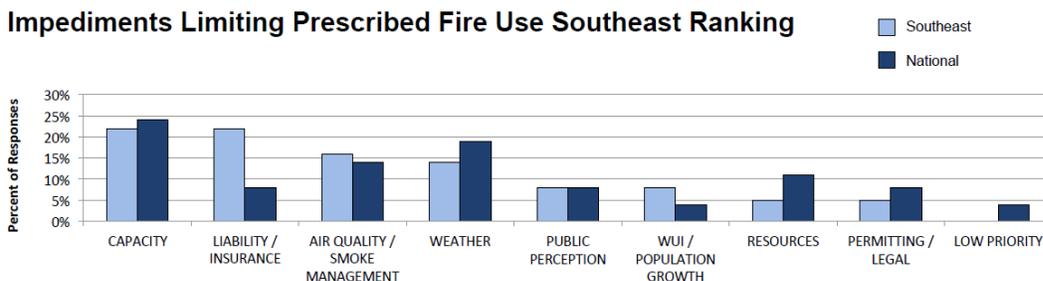
The focus of this paper is to build an understanding of the impediments facing prescribed fire on private lands, however, it will also help readers gain a holistic view of the challenges to prescribed fire regardless of jurisdiction. While the impediments of prescribed fire may exhibit similarities across national, regional and state levels; it is important to understand the specific impediments that exist in your area. This can be determined through surveys, evaluations, or other methods. Becoming familiar with the impediments specific to your region will allow for strategic messaging that is valuable to the intended audience and builds the necessary knowledge, skills, attitudes and aspirations to become an active participant in prescribed fire implementation. It will also allow communication to serve as a bridge between landowners, resource agencies, and organizations that may support prescribed fire on private lands.

What is currently limiting use of prescribed fire across the Southeast?

In 2012, the National Coalition of Prescribed Fire Councils and the National Association of State Foresters collaborated to conduct a survey focused on providing insights into prescribed fire use across the country (Melvin, 2012). They surveyed all of the state agencies responsible for prescribed fire activity. One of the objectives included in the study was to determine major impediments that limit prescribed fire use. Nine broad categories emerged following data analysis with capacity, weather, air quality/smoke management, and resources being the national issues of highest importance.

Capacity ranked as the number one impediment nationally, as well as within the Southeast. Melvin (2012) explained that “the lack of trained prescribed fire managers, training opportunities, private contractors, and partnerships appears to be the major bottleneck for prescribed fire implementation” (p.18). Liability/insurance concerns were of unique significance to the Southeast as it tied with capacity for the number one impediment in the region (Figure 1). To stay abreast of possible changes to prescribed fire use and impediments, The National Coalition of Prescribed Fire Councils recently completed another survey in 2015; data and results will be available later this year.

Figure 1: Impediments Limiting Prescribed Fire in Southeast (Source: Melvin, 2012)



The Association of Fish and Wildlife Agencies (AFWA) conducted a similar study in 2015 to determine what was limiting state fish and wildlife agencies in their ability to burn on private lands. In the

Figure 2: Overall Barriers to Prescribed Fire (Source: AFWA, 2015)

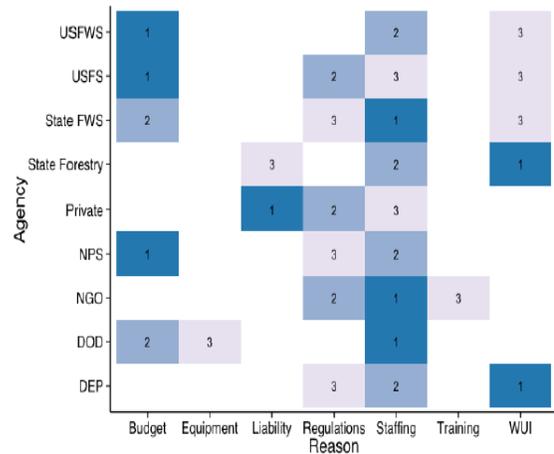
Rate the importance of BARRIERS to prescribed fire on private lands in your state?	MAFWA	NEAFWA	SEAFWA	WAFWA
Concerns about community reaction	7	6	4	3
Concerns about smoke management	4	5	1	3
Insufficient capacity to prepare burn plans	5	5	6	4
Lack of funding to conduct prescribed burns	1	5	3	3
Lack of landowner interest	2	4	5	5
Lack of necessary equipment	6	2	5	5
Lack of trained personnel/volunteers	3	1	2	2
Liability/ legal issues	8	4	1	2
Unsuitable weather conditions during burn windows	3	3	3	1

Average ranking:
1 = greatest barrier;
9 = lowest barrier.

Southeast, state fish and wildlife agency representatives from Arkansas, Florida, Georgia, Louisiana, Mississippi, Missouri, North Carolina, Tennessee, and Texas responded to the survey. The nine agency representatives identified both liability/legal issues and concerns about smoke management as their greatest barriers toward the application of prescribed fire on private lands, followed by lack of trained personnel (Figure 2). The study also identified liability issues as a barrier for using United State Department of Agriculture (USDA) financial and technical assistance in the Southeast for prescribed burning on private lands.

Kobziar et al. (2015) conducted a comparable study but focused only on the southern states, providing both state and regional level insights. Respondents included representatives from state and federal agencies as well as private landowners and consultants. Private landowners identified liability as the primary factor to the reduction of prescribed fire in the region, which aligns with Melvin’s 2012 findings and the Association of Fish and Wildlife Agencies’ (2015) study. Both North Carolina and Mississippi identified Wildland-Urban Interface (WUI) as limiting prescribed fire use, which was unique to those states. State Forestry and Department of Environmental Protection respondents viewed WUI as a top consideration. Other agency respondents across the region identified budget and staffing limitations as the most significant barriers for prescribed fire. Federal agencies were more likely to identify budget as a limiting factor, while management entities view staffing as one of the most influential factor towards a decrease in prescribed fire (Kobziar et al., 2015).

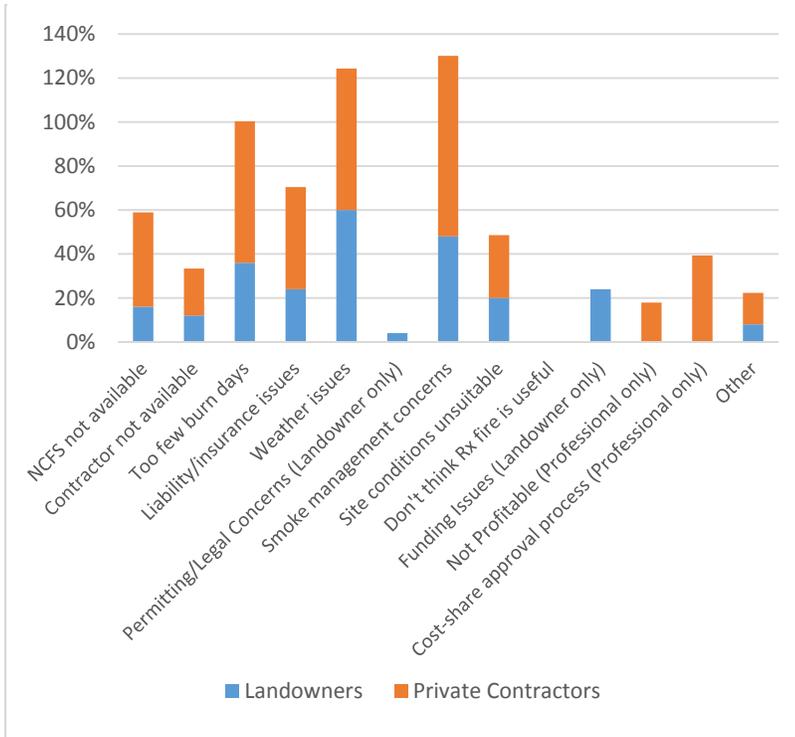
Figure 3: Impediments to the use of prescribed fire in the Southeast (Source: Kobziar, 2015)



Efforts at the state level helped to provide additional insight into the impediments that both North Carolina and Texas faced. From multiple conversations the North Carolina Forest Service had with various stakeholders, the single largest barrier to burning that emerged was smoke management and the number of viable burning days in a given year. They conducted a survey of landowners and consultants (Wallace & Livingston, 2014) that later confirmed these barriers (Figure 3). Wallace

and Livingston (2014) explained that of the Southeastern states, North Carolina has the most restrictive smoke management standards resulting in a narrow range of only 15 to 40 viable burning days a year depending on weather. They state,

Figure 4: Impediments to the use of prescribed fire in the Southeast (Source: Wallace and Livingston, 2014)



“Even the most aggressive burners tend to average less than 20 days of burning a year in NC based on conversation we have had with certified burners throughout the state” (Wallace & Livingston, 2015; p. 3).

Finally, North Carolina State University assisted the Texas Longleaf Taskforce and numerous partners to conduct an introductory prescribed fire workshop for landowners on May 21, 2015 in Woodville, Texas where 144 participants (agency personnel, landowners and consultants) were asked to identify what has prevented them from burning their land in the past and/or hiring a contractor to burn their land. Of the 27 landowners that

responded to this question, their answers were lumped into the following categories (*note that some respondents provided answers that fell into more than one category; all answers were included in the percentages shown below):

- Lack of knowledge and familiarity in prescribed fire (41%)
- Lack of resources (time, money, or equipment) (33%)
- New landowners (15%)
- Liability concerns/risk (11%)
- Other (19%)

The evaluations from this workshop also found that landowners and consultants identified many factors that may motivate them to burn on their land or hire someone to assist on burns. These factors fall into the following three categories:

- Confidence in successful outcome and benefits to property
- Knowledge: prescribed fire, liability/insurance, and assistance
- To acquire enough help and people with knowledge to perform tasks

Discussion and Conclusion

Various agencies and organizations throughout the Southeast are working to increase prescribed fire implementation on private lands and have identified a range of barriers relevant to specific regions and states. Melvin (2012) believes that particular challenges “extend beyond state boundaries and are greater than any single state, agency, organization, or landowner can address alone” (p. 19). Based on the current known literature, Table 1 outlines the primary impediments to prescribed burning in the Southeast.

Table 1: Most Significant Impediments to Prescribed Fire Use on Private Lands as Identified Through Existing Surveys

Survey	Area(s) of Interest	Impediments/Limitations
Melvin, 2012	National/Southeast	Capacity Liability
AFWA, 2015	Southeast	Liability
Kobziar et al. 2015	Southeast	Liability WUI Budget Staffing
Wallace & Livingston, 2015	North Carolina	Smoke Management/Air Quality Amount of Burning Days
North Carolina State University, 2015	Texas	Lack of Knowledge Liability Concerns Lack of Resources New Landowners

As shown in Table 1, when survey data are provided at a regional level, liability emerges as a recurring limitation for the use of prescribed fire. However, there were barriers that were more specific and tied to state regulations for the two the individual southeastern states surveyed (i.e., North Carolina and Texas). Those working to increase the application of prescribed fire must take into account the “complex web of policy, legal statutes, and liability, as well as public safety, health, and acceptance” (Melvin, 2012; p. 19). For example, in North Carolina, smoke management and air quality are a major concern because of the stringent air quality policies that ultimately limit the amount of burning days available.

Kobziar (2015) explains that prescribed fire use continues to increase, but the rate of increase is slowing across the region. While increasing populations and wildland urban interface have traditionally been cited as barriers, they were consistently ranked behind other factors surveyed. Kobziar believes that it signifies a “greater level of public acceptance of the role that fire plays in ecosystems across the Southeast and/or the effectiveness of recent regional public education campaigns communicating the benefits of prescribed burning” (p. 577). Even though previous studies (i.e. Outcalt & Wade, 2004; Kennedy & Johnson, 2014) have linked the use of prescribed fire with reductions in structure loss and wildfire severity, Kobziar (2015) believes that documenting the positive effects of prescribed fire “should continue given the uncertain future of regulations and the need for increased support if prescribed fire is to remain a major management activity” (p. 577).

Due to the reported impediments to burning on private lands, including liability concerns, effective extension of prescribed fire results to the public will be needed to safeguard a sustainable future for this important fuels reduction and ecosystem maintenance tool. While regional studies provide an initial

frame of reference for understanding the impediments to prescribed fire use, it is also important to focus efforts at the state and local levels to understand the specific needs of the community. Communication and outreach efforts should be managed for a collaborative approach that allows for multi-channel strategic messaging that will resonate with the target audience by addressing their concerns as well as providing them with valuable information based on their needs.

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