

PREScribed FIRE BARRIERS AND SOLUTIONS FOR MANAGING SUSTAINABLE FORESTS: FORUM DISCUSSION

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EXTENDED ABSTRACT

A virtual forum for land managers to provide feedback on barriers to, and opportunities for, the increased use of prescribed fire in the United States was held in June 2021. The session included a series of case studies illustrating barriers and opportunities in different ecosystems as well as key findings from recent research on prescribed fire use. In Eastern U.S. forests, where fire has long been excluded from multiple fire-adapted forest types including oak-pine (*Quercus* spp.-*Pinus* spp.) forests, woodlands, and savannas, ongoing research demonstrates that prescribed fire can be implemented while retaining timber value of commercially important hardwoods (Ryan and others 2013). In the Western United States, where prescribed fire is a critical restoration tool in fire-adapted forests, shrublands, and grasslands, the “modeling-monitoring-messaging” framework has been used to increase public acceptance of smoke impacts from prescribed fire, particularly in contrast to wildfire smoke impacts (Stotts and others 2018). In grasslands of the southern Great Plains, where fire exclusion is associated with encroachment of cedars (*Juniperus* spp.) and woody shrubs, ongoing research is demonstrating that the expansion of prescribed burn windows into the growing season can enhance desirable fire effects including improved forage productivity and increased cedar mortality (Weir and Scasta 2017). Currently, success stories in prescribed fire management often occur at local levels and are seemingly random, dependent on local personalities and relationships. The fire message can be confusing, with language targeting “fighting” fire, and the public is not well educated on the ecological role of fire in forested ecosystems.

For the forum, nearly 100 individuals from more than 20 diverse agencies and organizations participated in a day-long event. Participants included individuals representing Federal and State agencies, local units of government, Tribal governments, nongovernmental organizations, academia, other research institutions, and industry. Fields of forestry, fire ecology, wildlife, biology, economics, and others were represented. In addition, approximately 47 written responses were collected. Participants

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were asked to respond to questions about four key topics. Questions addressed 1) delineating the barriers to planning, implementation, and monitoring the use of prescribed fire at the desired pace, scale, and seasonality; 2) proposed solutions to the identified barriers; 3) additional information needed to implement proposed solutions; and 4) new barriers likely to arise to proposed solutions.

During the feedback portion of the session, managers identified prevalent barriers to prescribed fire use. These included narrow burn windows, limited resources and capacity (both for planning and implementation), and the complexity associated with large-scale burning. Much discussion centered on a “culture of burning” that is often lacking, in both leadership and management, along with a limited understanding of fire among nonfire staff; however, it was noted that southern forest managers understood the application of fire and were talented at using fire as a tool to meet management goals. A general lack of incentives and limited capacity to work across ownership boundaries was also identified as a common barrier, along with the ubiquitous lack of funding and other resources. Less commonly identified barriers varied among regions and land ownership and included air quality restrictions, lack of confidence in consistent leadership support, social license, suppression culture, and conflicts with timber and other resources.

Opportunities to overcome these barriers included resource sharing and leveraging multistakeholder partnerships, the potential to create larger scale prescribed burning organizations, and building trusted relationships among practitioners and the public. Collaborations among many partners in prescribed fire is crucial in all aspects of planning, implementation, monitoring, and science. Incorporating different voices, ideas, and perspectives are important and contribute to better plans and decision making and increases capacity by sharing of resources. Tools used to promote and form collaborations may include all types of agreements (cost-share, participating, interagency, cooperative) and Federal authorities such as the Wyden Agreement and Good Neighbor Authority. Existing entities such as fire councils and associations and fire-learning networks help facilitate partnerships in science delivery collaborations. Learn-to-burn workshops, organized by a conglomerate of extension agencies, State forestry agencies, local resource and conservation councils, and others, bring landowners together as active participants in learning how to plan and implement prescribed fire on their land. Other noted collaborations focused on using prescribed fire as a resource tool include those with professional societies such as the Society of American Foresters and The Wildlife Society, and nongovernmental organizations including The Nature Conservancy, National Wild Turkey Federation, The Rocky Mountain Elk Foundation, American Forest Foundation, and Quail Forever.

To further define and implement proposed solutions, participants highlighted the need for research to incorporate social, physical, and ecological approaches. Participating managers emphasized the need for additional information to implement proposed solutions effectively. They highlighted the importance of tailored research and products specific to

prescribed fire, including improved fire behavior and effects models. They also expressed the need for information on climate change impacts, fire history across ecosystems, fire effects on various resources, and trends in fire frequency. To better educate the public on the benefits of prescribed fire, programs need to investigate how people prefer to be informed and design training and education that target those preferences. Increased disciplinary integration in education, training, and certification programs for fire, silviculture, wildlife, hydrology, and other resources would encourage greater acceptance and use of prescribed fire.



Figure 1—A prescribed fire on the William B. Bankhead National Forest, AL, conducted during the dormant season, has short flame lengths and creeps along in the understory of the forest, consuming mostly leaf litter. (USDA Forest Service photo by Callie Schweitzer)

Ecological modeling that incorporates scenarios and outcomes for various disciplines, including timber, regeneration, wildlife, recreation, water, and soils, that are germane to specific forested systems have tremendous utility and are often lacking, requiring adaptation from dissimilar systems which results in divergent outcomes. Predicting where prescribed fire would result in the most desired outcomes and what kind of tradeoffs in terms of resource benefits are to be expected is ongoing research with much anticipated outcomes.

Managers expressed a need for landscape models to help identify priority areas to be treated by prescribed fire and to target deployment of resources. Identifying the best use of prescribed fire on the landscape, in the context of maintenance burning to reduce wildfire risk and maintaining this fire return interval, or moving to untreated areas, was a key issue of concern. Although information regarding the implementation of, and science behind, prescribed fire, abounds, there remains a lack of a repository for these resources. Additionally, as prescribed fire science and use increases, incorporating new research and outcomes into planning will continue to be a challenge. Communicating anticipated fire, ecological, and smoke impacts from a range of fire scenarios will remain a struggle, and resource availability may limit broad-scale applications.

Overall, the forum provided valuable insights into the barriers and opportunities for increased use of prescribed fire in the United States. Land managers expressed the need for collaborative efforts, improved resources, and increased awareness to effectively overcome these barriers and implement prescribed fire as a restoration tool.

LITERATURE CITED

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