



SOUTHERN Fire Exchange

Uniting Fire Science and Natural Resource Management



FIRE LINES

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Southeastern Section of the Association for Fire Ecology

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Prescribed Fire Reduces Wildfire Activity over Time

A new article in the *International Journal of Wildland Fire* (Addington et al., 2015) addresses the question of prescribed fire effects on wildfire incidence and extent. The study used 30 years of wildfire, prescribed fire, and weather records from Fort Benning, Georgia to answer two questions: Are wildfire incidence and area related to prescribed fire activity? And how is that relationship influenced by drought?

The results demonstrated a strong trend between an *increase in annual prescribed fire acreage over the 30-year period and a decrease in the number of wildfires*. The trend in wildfire-burned acres was more variable, partly as a result of drought (measured as annual average KBDI), along with other factors unaccounted for in the models, such as suppression tactics, fuels, and topography. In the statistical analysis, the strongest explanation for fewer wildfires with more prescribed fire acres included prescribed fire acres for both the current and previous year, previous wildfire incidence, and drought. In years with the least prescribed fire acres and

drought conditions, wildfire incidence increased substantially. This study strongly supports previous research on prescribed fire impacts in the Southeast and provides a scientific underpinning to all the observational and anecdotal information about impacts on wildfire occurrence and spread.



A prescribed burn conducted at Fort Benning in 2012.

Photo: United States Army

Addington, R. N., Hudson, S. J., Hiers, J. K., Hurteau, M. D., Hutcherson, T. F., Matusick, G., & Parker, J. M. (2015). *Relationships among wildfire, prescribed fire, and drought in a fire-prone landscape in the southeastern United States*. *International Journal of Wildland Fire*, 24, 778-783.

Season of Burn in Longleaf Pine Plantations

A study recently reported in *Forest Science* addressed fire regime and stand density management scenarios for young longleaf plantations established on former industrial loblolly and sand pine plantation sites. The plantation, located in west central Georgia, contains typical sandhill soils and had no record of previous prescribed burning. Half of the plots were uniformly thinned from approximately 450 to 225 trees per acre to provide 2 overstory densities. One third of the plots were left unburned; one third were burned in the winter (February 2003, March 2008, December 2009); one third were burned in the summer (June 2003, August 2008 and 2010). The plots were measured in 2011.

As expected, hardwoods in the midstory were significantly reduced by fires in either season as compared to the no burn treatment; however, most of the hardwoods remained in the understory as sprouts. In addition, herbaceous ground cover increased four-fold after burning. Differences in overstory density did not influence these results (with the exception of slightly higher herbaceous cover in lower density plots), nor did season of burning. The latter might be attributed to the fact that the last two summer prescribed burns were conducted in mid and late August.

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Continued—Season of Burn in Longleaf Pine Plantations

Mortality and growth were measured on a plot mean basis rather than tracking individual trees through time; the results indicated that there were no differences between the unburned and burned plots, which is often a concern of those managing plantations for timber production. The only noticeable season of burn effect was the occurrence of more grass cover after winter burns, and more legumes after summer burns.

The authors' conclusion reaffirms the importance of maintaining frequent fire for restoration goals: ***“Overall, our study highlights the importance of regular burning regardless of overstory density in young longleaf pine plantations to advance restoration goals for vegetation structure across overstory, midstory, and understory strata.”***

Addington, R. N., Greene, T. A., Harrison, W. C., Sorrell, G. G., Elmore, M. L., & Hermann, S. M. (2015). Restoring longleaf pine: Effects of seasonal prescribed fire and overstory density on vegetation structure of a young longleaf pine plantation. *Forest Science*, 61, 135-143.



Photo: David Godwin

Burn Season and Interval: A Long Term Look

A recent evaluation of two of the oldest, continuous fire regime studies in the South looked at key stand structure and composition characteristics influenced by fire return interval (FRI), and season of burn in one of the studies (Hermann et al., 2015). The Stoddard fire plots at Tall Timbers Research Station in North Florida were installed in mature, naturally regenerated loblolly-shortleaf pine on old fields. They have been regularly burned in February-March at 1, 2, 3, 5, 9, and 20-year FRIs. After 35 years, overstory cover was 25 to 50 percent with the 1 or 2 year FRI and 70 percent or higher for the other four treatments. Only the 1 or 2-year FRIs resulted in average grass and hardwood/shrub heights that would characterize a natural fire regime with short FRIs (Figure 1). A detailed evaluation of ground cover species composition was described in a *Forest Ecology and Management* article in 2012.

At the Escambia Experimental Forest in southern Alabama, three fire return intervals (2, 3, and 5 years) have been maintained in naturally regenerated longleaf pine and native ground cover, with no previous agriculture. Plots were either burned in dormant or growing seasons. The number of hardwood stems >1" dbh was evaluated 25 years after the first burns. Although the 2 to 3-year cycle in winter decreased hardwood encroachment more than the 5-year cycle, dormant season burns were still far less effective for reducing hardwoods than spring season fires in all three FRIs (Figure 2).

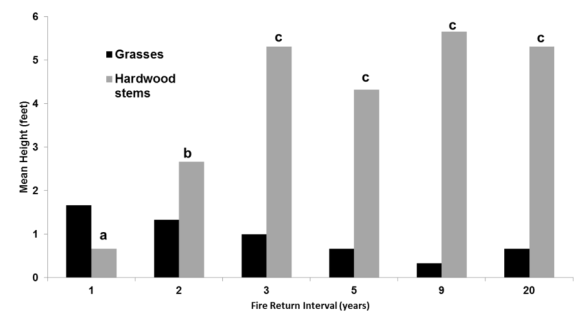


Figure 1. Effect of fire return interval on average grass and hardwood/shrub heights in Stoddard fire plots (figure from GTR SRS-203, p 167).

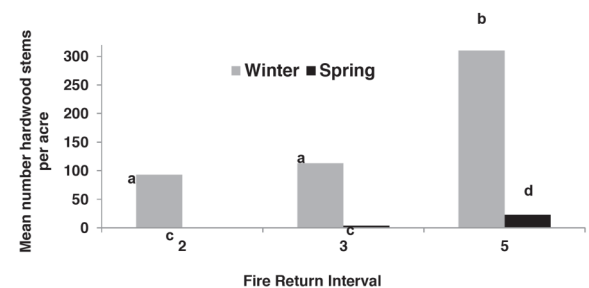


Figure 2. Effect of fire return interval and season of burn on hardwood stems in naturally regenerated longleaf pine (figure from GTR SRS-203, p 169).

From evaluating both study sites, the authors' provide the following key conclusions:

- * Short and consistent FRIs are necessary for key stand objectives, such as understory or midstory hardwood composition.
- * Spring burns are much more effective for hardwood control.
- * Other non-fire treatments may periodically be necessary to “boost the effectiveness of fire” (adaptive management!) with longer FRIs.

The full report is available online at <http://www.treearch.fs.fed.us/pubs/47518>.

Hermann, S. M., Kush, J. S., Gilbert, J. C., & Barlow, R. J. (2015). Burning for conservation values: Should the goal be to mimic a natural fire regime? In A. G. Holley, K. F. Connor, & J. D. Haywood (Eds.), *Proceedings of the 17th biennial southern silvicultural research conference* (pp. 164-171). e-Gen. Tech. Rep. SRS-203, Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station.

SFE Events This Fall

Take a Break, Eat Lunch, and Learn about Chinese Tallow!



Join us online Wednesday, September 30 from 1pm to 2pm eastern, as Lauren Pile from Clemson University discusses recent research that investigated the integrated use of prescribed fire, mechanical treatments, and herbicide as ecologically based management approaches for the control of Chinese tallow. The webinar is free, registration is required, and CFE credits are available. [Click here](#) for more information.

SFE Tours the Southeast PFC Meetings



We've enjoyed attending and presenting at Prescribed Fire Council meetings this fall, and look forward to the meetings lined up for October and November. We hope you have enjoyed hearing snippets of recent research from the Southeast (some of those results are presented in this issue on pages 1 and 2) and learning what the SFE is up to this year. Thanks to everyone who has completed our short survey; this information is extremely valuable for our program planning.

Upcoming Field Tours



Upland Ground Cover Restoration Workshop and Training
October 28, 2015; 8:30AM to 4:00PM | Bristol, FL
Registration is free, but limited! Register today at <https://northfloridagroundcover.eventbrite.com>. CFE credits are available.

Ordway-Swisher Biological Station Workshop and Field Tour
December 9, 2015 | Melrose, FL
Registration Coming Soon!

2016 JFSP Research Funding Opportunity Solicitation

The 2016 Joint Fire Science Program (JFSP) Research Funding Opportunity Solicitation is now open. [Click here](#) to view the announcements for

- * 8 primary research topics—including a regional research need for the Southeast (see below),
- * the Graduate Research Innovation Awards (GRIN),
- * a new science initiative on ecological and social dimensions of resilient landscapes, and
- * 5 tasks related to the Fire and Smoke Model Evaluation Experiment (FASMEE).

Of particular interest to researchers and fire professionals in the Southeast, one of the task statements (16-1-08) focuses on compiling data on prescribed fire occurrence and investigating contributions of prescribed fire to local smoke emissions. This topic has been identified by the southern fire community as an important research need in our region, and we look forward to working with the funding recipients.

If you plan to submit a proposal, we are available to help you plan for science delivery and outreach. If requested, we can discuss formalizing our support for your proposal in a letter. Please email us at contactus@southernfireexchange.org at least two weeks prior to the date you would like to have the letter in hand and include additional time for discussions of science delivery planning.

If you are a manager with ideas for research fitting within this funding announcement, please let us know and we'll extend the request to the appropriate people within our network.

Proposals are due by November 13, 2015 (Friday at 5 PM Mountain Standard Time).

UPCOMING EVENTS

Visit the [SFE Calendar](#) and the [JFSP Calendar](#) to learn more about upcoming events. To add an event to our calendar, send the event information to contactus@southernfireexchange.org.

Webinars

The Value of Firewise Renewal
September 29, 1pm ET

Integrated Management for Control of Chinese Tallow
September 30, 1pm ET

Prescribed Fire and Bats
October 13, 2pm ET

PFC Meetings

South Carolina Prescribed Fire Council
September 23-24, 2015 | Beaufort/Waterboro, SC

Louisiana Prescribed Fire Council
September 24, 2015 | Alexandria, LA

Central Florida Prescribed Fire Council
September 25, 2015 | Kissimmee, FL

Georgia Prescribed Fire Council
September 29, 2015 | Tifton, GA

Kentucky Prescribed Fire Council
October 5-6, 2015 | Land between the Lakes, KY

North Florida Prescribed Fire Council
October 20, 2015 | Tallahassee, FL

Mississippi Prescribed Fire Council
November 12, 2015 | Hattiesburg, MS

Workshops and Trainings

Fire History in the Appalachians
October 20-22, 2015
Pembroke, VA

Upland Ground Cover Restoration Workshop
October 28, 2015
Bristol, FL

Ordway-Swisher Biological Station Workshop and Field Tour (Registration Coming Soon; Check SFE website)
December 9, 2015
Melrose, FL

Introduction to State-and-Transition Simulation Modeling of Landscape Vegetation Dynamics
December 8-9, 2015
Durham, NC

Conferences

6th International Wildland Fire Conference
October 12-16, 2015
Pyeongchang, Gangwon, Republic of Korea

Backyards & Beyond: Wildland Fire Education Conference
October 22-24, 2015
Myrtle Beach, SC

Natural Areas Conference: Conservation through Collaboration
November 3-5, 2015
Little Rock, AR

Society of American Foresters 2015 National Convention
November 3-7, 2015
Baton Rouge, LA

6th International Association for Fire Ecology Congress
November 16-20, 2015
San Antonio, TX

NEWS AND REMINDERS

FLORIDA FOREST SERVICE BREAKS NATIONAL PRESCRIBED FIRE RECORD

In August, the Florida Forest Service announced the agency had **treated more than 246,000 acres of state forests with prescribed fire** during the last year. This is the highest number ever reported by any state forestry agency in the country.

AUGUST ISSUE OF FIRE ECOLOGY NOW AVAILABLE

Check out the most **recent issue of Fire Ecology journal**. All articles are available for viewing online, and you can also access past issues through the Association of Fire Ecology's website.

SAVE THE DATE

The **5th International Fire Behavior and Fuels Conference** will be held April 11-15, 2015 in Portland, Oregon with the conference theme "Wicked Problems, New Solutions: Our Fire, Our Problem."

PRESCRIBED BURN ASSOCIATION SURVEY RESULTS

Results from a **survey of prescribed burn associations** located in five Great Plains states show that the associations have conducted a total of 1,094 prescribed burns on 472,235 acres since their establishment. While many of the existing associations are very active and new associations are forming, the survey identified the following needs: training, means of limiting liability (e.g., insurance), and recruitment of new members.

FIRE LINES CONTRIBUTIONS

Send your fire-related news, field stories, or photos to Annie Oxarart (oxarart@ufl.edu) to be included in future issues of Fire Lines.



The Southern Fire Exchange is funded through the Joint Fire Science Program, in agreement with the United States Forest Service, Southern Research Station. This institution is an equal opportunity provider.

Recap of the Prescribed Fire Communications Summit

By Kristen Kunkle, University of Florida

In July 2015, approximately 67 people representing 33 agencies, organizations, and universities gathered at Tall Timbers Research Station in Tallahassee, Florida for the Prescribed Fire Communications Summit. This two-day event offered speakers, expert panel discussions, group dialogue, and opportunities to synthesize information.



Photo: Jennifer Busam, NCSU

The presentations and discussions highlighted the current state of prescribed burning on private lands throughout the Southeast, methods for increasing private forest landowner participation in burn programs, strategies for enhancing communication with target audiences, and lessons learned from participants' experiences in prescribed fire communication. Summit participants examined impediments to burning on private lands and avenues for overcoming them, developed communication strategies and appropriate messaging for private landowners and consultants, established objectives and action items for future efforts, and discussed how to implement effective, coordinated communications.

The presentations and discussions revealed successes and challenges of efforts to improve prescribed fire communication throughout the region. The group concluded that three primary impediments prevent landowners from burning:

- 1) financial concerns,
- 2) liability issues, and
- 3) insufficient technical assistance or capacity.

Participants felt hopeful that several opportunities exist to overcome these barriers. The group suggested that one key step is to create a central repository where landowners can explore and utilize information and resources necessary for drafting a burn plan and initiating fire as a management strategy, find information that answers their questions and addresses their concerns, contact agencies or organizations that offer technical or financial assistance, and facilitate peer-to-peer dialogue among landowners with a range of experience using prescribed fire. Participants agreed that many landowners understand the importance and benefits of prescribed fire but lack the capacity, resources, or sense of efficacy to implement the management strategy.

The group agreed that coordinated efforts are critical for effective messaging and that an important first step is to identify messages and communication channels that are appropriate for the intended audience. In breakout discussion groups, participants consulted the **Tools for Engaging Landowners Effectively** handbook to better understand various landowner segments throughout the Southeast and used that information to craft messages and communication strategies that appeal to the landowners' values and address their priorities. The dialogue culminated in a list of seven best practices for the communication and delivery of prescribed fire messaging among private forest landowners (described in this **2-page SFE summary**), as well as fifteen operational methods for increasing prescribed fire on private lands.



Photo: Jennifer Busam, NCSU

Find archived summit presentations, landowner resources, communicator resources, and more on the **summit website** and video recordings on the **SFE YouTube** page.