



SOUTHERN Fire Exchange

A JFSP Knowledge Exchange Consortium



FIRE LINES

A Joint Newsletter of the Southern Fire Exchange and the Southeastern Section of the Association for Fire Ecology

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SFE Spotlight on Fire and Wildlife

In July and August, the Southern Fire Exchange Spotlight Series focuses on fire effects on wildlife. This issue of *Fire Lines* highlights the results of some recent research in the Southeast related to reptiles, amphibians, Sherman's fox squirrels, and birds. On July 25th at 1 PM EDT, you can learn more about recent research investigating the response of wildlife to prescribed fire when Dr. Chris Moorman of North Carolina State University presents a webinar entitled [Fire and Fauna in the Southeast: Lessons Learned from Recent Research](#).

Check out our new [Spotlight on Fire and Wildlife](#) webpage for related products, events, and resources.

Amphibian and Reptile Responses to Thinning and Prescribed Fire

In comparison to many other terrestrial species, there is limited information regarding the effects of prescribed fire and other land management practices on amphibians and reptiles (herpetofauna). In a recent study reported in the journal *Forest Ecology and Management*, Dr. William Sutton and fellow authors used a combination of drift fences and triangular box traps to assess amphibian and reptile population responses to six treatments (control, burn no thin, light thin no burn, heavy thin no burn, light thin with burn, and heavy thin with burn). This research was conducted over a four-year period in loblolly pine and mixed hardwood forests in the William B. Bankhead National Forest in northwest Alabama.

Results showed that reptiles and amphibians responded differently by species to the treatments. For example:

- Green anole populations increased in number in response to thinning, and eastern fence lizards increased in response to thinning with prescribed burning. However, little brown skinks decreased in all managed stands one year after treatment.
- Mississippi slimy salamanders decreased after all treatments, which may have been due to decreased rainfall between pre- and post-treatment surveys.
- While snake results were limited by low sample sizes, North American racer captures increased in heavily thinned treatments, but not within thin + burn treatments. The authors suggest that reduction in vegetative cover and litter depth in the thin + burn treatments may have been too extreme for North American racer colonization.
- Ephemeral pool-breeding amphibian abundance was related to pre-treatment stand conditions (i.e., closed canopy and relatively greater litter depth) and the presence of aquatic breeding habitats in study stands.

These research results suggest that prescribed burns conducted during the dormant season (February-March, when the burns in this study were conducted) have minimal effects on herpetofaunal populations, and that thinning can positively affect some reptiles and have limited negative impacts on amphibians. Further research is needed to understand the long-term implications of repeated prescribed burning and thinning management on amphibian and reptile populations.

For the full article, see Sutton, W.B., Wang, Y., and Schweitzer, C.J. 2013. [Amphibian and reptile responses to thinning and prescribed burning in mixed pine-hardwood forests of northwestern Alabama, USA](#). *Forest Management and Ecology*, 295: 213-227.



This study found that green anole populations increased in number in response to thinning. Photo by Larry Korhnak.

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Learn more about our [Partners](#) and the [JFSP Knowledge Exchange Consortia](#).

Visit the SFE Resource Center
www.southernfireexchange.org

Stay Connected with SFE



SFE YouTube Archive

Have you missed one of our [webinars](#)? Are you looking for recorded [presentations](#) related to wildland fire science or fire management? Did you see our [time-lapse](#) video this spring of a prescribed fire in pine flatwoods? Find them all on the new [SFE YouTube](#) page! We'll be using the YouTube channel to archive all of our future webinars, workshops, presentations, and videos, so bookmark or subscribe to the channel to make sure that you don't miss an update.

New “10 Minutes” Interviews

Since its introduction in the last newsletter, the “10 Minutes with the SFE” interview series has published three insightful interviews with leaders in southern prescribed fire management. Already, these interviews have demonstrated the wealth and diversity of practical fire science and management experience that can be found within our region. The first two interviews were with seasoned wetlands burning experts [Steve Miller](#) (St. John’s River Water Management District, Florida) and [Mike Carloss](#) (Louisiana Department of Wildlife and Fisheries).



This month, [Justin Ellenberger](#), an award-winning wildlife biologist and wildlife management area manager for the Florida Fish and Wildlife Conservation Commission, shares his perspectives on using fire and fire science for managing wildlife habitat.

Check out our new 10-minute interview with Justin Ellenberger of Florida Fish and Wildlife Conservation Commission.

Bird Response to Restoration Treatments in Longleaf Pine Forests

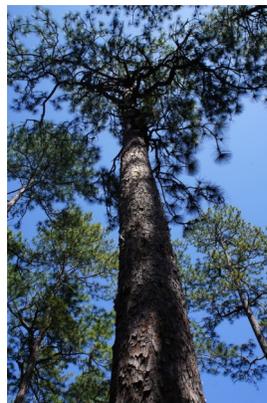
In a recent *Ecological Applications* journal article, Dr. David Steen and a team of co-authors described the effects of fire surrogate and fire management practices on bird species diversity following restoration treatments in fire-excluded longleaf pine forests. The study was conducted at Eglin Air Force Base in western Florida, where bird species were documented and counted over a 16-year period. Initial restoration treatments included removing undesirable hardwoods by prescribed fire, by herbicide application, or by felling-girdling. After the initial treatments, all restoration sites were managed similarly with prescribed fire every two to three years for the remainder of the study. Reference and control sites were designated for comparison purposes.

The study concluded that hardwood reduction in longleaf pine forests with fire alone, or with other treatments followed by prescribed fire, after 12 to 15 years resulted in avian assemblages that characterize reference longleaf pine habitat. Herbicide application or mechanical removal hastened the process of returning avian composition to reference conditions in the early years following treatment. However, by the end of the study all treatment sites were similar to the reference stands, and the authors conclude that prescribed burning every two to three years over a 15-year period alone—without the added costs of fire surrogates—is sufficient to restore bird species positively associated with longleaf habitat. Finally, the authors note that it is important to consider the impacts of restoration treatments on other groups of species and on neighboring lands or water bodies, which might be impacted differently by herbicide or mechanical treatments.

For the full article, see Steen, D.A., Conner, L.M., Smith, L.L., Provencher, L., Hiers, J.K., Pokswinski, S., Helms, B.S., and Guyer, C. 2013. [Bird assemblage response to restoration of fire suppressed longleaf pine sandhills](#). *Ecological Applications*, 23(1): 134-147.

Companion studies were also conducted to determine how reptile populations and assemblages responded to the restoration treatments and the authors documented similar trends: fire alone is sufficient to restore them over long enough time periods. See the following articles for more information:

- * Steen, D. A., Smith, L.L., Conner, L.M., Litt, A.R., Provencher L., Hiers, J.K., Pokswinski S., and Guyer, C. 2013. [Reptile assemblage response to restoration of fire-suppressed longleaf pine sandhills](#). *Ecological Applications* 23(1): 148-158.
- * Steen, D. A., Smith, L.L., Morris, G., Conner, L.M., Litt, A.R., Pokswinski, S. and Guyer, C. 2013. [Response of *Aspidoscelis sexlineata* \(six-lined racerunner\) to habitat restoration in fire-suppressed *Pinus palustris* \(longleaf pine\) sandhills](#). *Restoration Ecology* 21(4): 457-463.



JFSP Synthesis of Knowledge on Wildlife and Fire

In the 2009 Joint Fire Science Program publication, [Synthesis of Knowledge on the Effects of Fire and Fire Surrogates on Wildlife in U.S. Dry Forests](#), the authors note that fire effects on wildlife have been studied extensively in the Southeast, with 27 studies fitting the literature review criteria. Most of those articles focus on bird species, including the red-cockaded woodpecker and Bachman’s sparrow. The report includes very useful appendices that summarize study results for different species and their response to fire and fire surrogate treatments.

UPCOMING EVENTS

Visit the [SFE Calendar](#) and the [JFSP Calendar](#) to learn more about upcoming workshops, training, webinars, field trips, demonstrations, and other professional development opportunities. To add an event to our calendar, send the event information to sfe@ifas.ufl.edu.

PFC Meetings

North Carolina
August 27-28, 2013
Wilmington, NC

Alabama
September 10, 2013
Eufaula, Alabama

South Carolina
September 19, 2013
Dorchester County, South Carolina

Central Florida
September 20, 2013
Kissimmee, Florida
with [Tiger Creek Field Trip](#), September 19

Georgia
September 26, 2013
Tifton, Georgia

North Florida
October 2, 2013
Tallahassee, Florida

Webinars

[Fire Disturbance and Successional Dynamics in Major Natural South Florida Plant Communities](#)
July 18, 2 pm EDT
Host: [Southern Fire Exchange](#)

[Fire and Fauna in the Southeast: Lessons Learned from Recent Research](#)
July 25, 1pm EDT
Host: [Southern Fire Exchange](#)

[Rx Fire Opportunities for Forestry Consultants](#)
August 8, 10 am EDT
Host: North Carolina State University

[Making Sense Out of Confusion: Findings from the Fire-Oak Synthesis Project](#)
August 13, 2pm EDT
Host: [Oak Woodlands & Forests Fire Consortium](#)

[Fire Management, Fuels, and Climate Change Tipping Points](#)
August 20, 3pm EDT
Host: [JFSP-IAWF-LLC](#)

Conferences

[4th Louisiana Natural Resources Symposium](#)
August 1-2, 2013
Baton Rouge, Louisiana

[Wildland Fire in Appalachians](#)
October 8-10, 2013
Roanoke, Virginia

[IAWF International Smoke Symposium](#)
October 21-24, 2013
Adelphi, Maryland

[Society of American Foresters 2013 National Convention](#)
October 23-27, 2013
North Charleston, South Carolina

[Backyards and Beyond: Wildland Fire Education](#)
November 12-13, 2013
Salt Lake City, Utah

NEWS AND REMINDERS

FIELD TRIP: RESTORATION WITH FIRE AT TIGER CREEK PRESERVE, FLORIDA

In conjunction with the 2013 Central Florida Prescribed Fire Council Annual Meeting, a field trip has been organized for September 19 at The Nature Conservancy's Tiger Creek Preserve. Only 25 slots are available, so in order to reserve a space on the field trip, please [register now](#).

STATE TRAININGS AND WORKSHOPS

Check the [SFE Calendar](#) or follow [South-east Prescribed Fire Update](#) to learn about state trainings and workshops being offered in your state in the upcoming months.

WILDLAND FIRE IN THE APPALACHIANS CONFERENCE

Don't miss the [Wildland Fire in the Appalachians Conference](#), October 8 -10 in Roanoke, VA. This event, hosted by the Consortium of Appalachian Fire Managers and Scientists and the Association for Fire Ecology, is designed for anyone with an interest in wildland fire in the Appalachian Region.

FIRESCIENCE.GOV

Join [JFSP's FireScience.gov email list](#) and receive weekly announcements with fire science and management news.

SFE LINKEDIN

Connect with the SFE on our new [LinkedIn](#) page.

ARCHIVED WEBINAR

View the recent SFE webinar, where Dr. Patrick Inglett of the University of Florida explored the [Effects of Fire on Biogeochemical Processes in Wetlands](#).

APPLY NOW FOR AFE CERTIFICATION

The Association of Fire Ecology offers a Wildland Fire Professional Certification and a Wildland Fire Academic Program Certification. Applications are due August 16. See the [AFE website](#) for details.

RX FIRE COMMUNITY OF PRACTICE

A new [Prescribed Fire Community of Practice](#) is now up and running on eXtension.



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.

Managing Pine and Hardwood Cover for Sherman's Fox Squirrels

Sherman's fox squirrels are found from central Florida through central Georgia, primarily in longleaf pine forests. Research has demonstrated that this species plays an important role in the longleaf pine ecosystem by influencing the dispersal of oak species through acorn burial. Throughout their range, Sherman's fox squirrel populations have declined in step with the decline of well managed longleaf pine ecosystems, with current populations estimated to represent 15% of pre-settlement populations. Though typically associated with longleaf pine forests, fox squirrels require interspersed hardwood trees for shelter, nesting, and forage. To better understand the importance of hardwood trees in fox squirrel habitat, researchers Micah Perkins, Mike Conner, and Brent Howze surveyed the 10,500 acre Joseph W. Jones Ecological Research Center in southwest Georgia. From January 1998 to November 1999, squirrels were captured in box traps and sedated to take biometric measurements. Sixty-six squirrels that weighed more than 1.9 lbs were affixed with radio transmitters and tracked individually every two weeks for more than six months.



Sherman's fox squirrel. Photo by Larry Korhnak.

The results suggest that land managers interested in managing for Sherman's fox squirrel habitat should aim for approximately 88% pine and 12% hardwood cover, with hardwoods as individual mature trees or small patches of younger trees. More specifically, Perkins et al. (2008) suggest that for mature, well-maintained longleaf pine forests, managers consider retaining 11-12 ft² per acre of hardwood basal area. In addition, the authors recommend the use of prescribed fire every two to three years, uneven-aged and single tree selection forest management, and hardwood monitoring programs to assess the impacts of management on hardwood retention and recruitment.

For the full article, see Perkins, M.W., Conner L.M., and Howze, M.B. 2008. [The importance of hardwood trees in the longleaf pine forest ecosystem for Sherman's fox squirrels](#). *Forest Ecology and Management*, 255: 1618-1625.

Partner Spotlight: US Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) manages and protects fish, wildlife, and natural habitats in every US state and territory, overseeing 128 refuges with over 4 million acres in the Southeast. With a wide variety of fire-dependent ecosystems contained within those lands, the USFWS Southeast Region Fire Management program is extremely active in prescribed fire and fire management activities. The Southeast Region's Fire Program works "to protect and manage all burnable acres on Service lands" through prescribed fire, wildfire suppression, burned area emergency response and rehabilitation, and outreach activities. All fire projects emphasize habitat protection and enhancement, and the agency is often protecting habitat for federally-listed species, many of which live in fire-dependent ecosystems.

USFWS Southeastern fire managers and administrators have been key partners with the Southern Fire Exchange by serving on our Advisory Board and by providing valuable feedback on how to better meet the needs of fire managers. Both the [USFWS Fire Management](#) website and the [Southeast Region Fire Management](#) website have excellent resources, including videos, reports, and recent news. You can follow the region through their very active [Twitter](#) account and check out their photos on [Flickr](#).



JFSP Releases Potential Research Topics for FY2014

In early October, the Joint Fire Science Program (JFSP) intends to request funding proposals for topics relating to the three goals of the National Cohesive Wildland Fire Management Strategy. JFSP recently released a [Notice of Intent](#) to share this list of potential topics so that those interested can begin considering proposals.

In addition, JFSP is seeking feedback through the regional consortia to refine these topics for the final Funding Opportunity Notice (FON). If you have ideas and/or specific research questions that are important for our region, please [email us](#) by July 31, 2013. Finally, if you decide to respond to the FON when it comes out this fall, the SFE is ready and able to help you formulate the science delivery portion of your proposal, which can be formalized in a letter of support.