



# SOUTHERN Fire Exchange

Uniting Fire Science and Natural Resource Management



## FIRE LINES

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### SimpleFFMC: New Fine Dead Fuel Moisture Calculator

Fine dead fuel moisture content (FMC) is a critical factor in fire behavior. As 1-hour fuels (needles, grass, leaves) dry out, flame length, rate of spread, fire intensity, and probability of ignition from embers increase. Incorrectly estimating FMC during planning and operations can have significant impacts on prescribed fires and the suppression of wildfires. In the past, FMC has been estimated directly using various lab or field drying devices or indirectly from the common 10-hour fuel sticks. The direct process can be time consuming and is limited by the specific samples that are collected. Alternatively, more general FMC estimates are calculated using tables based on weather and site measurements—the most common of which are those developed in 1983 and available in the Fireline Handbook Appendix B or in other resources. However, the accuracy of those tables for humidity and fuel conditions in the South has been questioned.

A recent collaborative project involving Jim Brenner, Florida Forest Service, six other southeastern state forestry agencies, and Matt Jolly with the Rocky Mountain Research Station Fire Sciences Lab focused on developing a FMC calculator based on southern fuels. Surface litter and fine fuels collected from 25 sites in seven states were subjected to 12 different combinations of relative humidity and temperature in carefully controlled environment chambers before fuel moisture was measured by traditional oven-drying methods. The results were used to calibrate a fine dead fuel moisture model developed in 2000 and then the calibrated model was used to create a new procedure and set of tables for estimating FMC using temperature, relative humidity, solar radiation, and recent precipitation. Although the process is relatively complex, Jolly and Brenner converted it to SimpleFFMC—a worksheet and app (<http://www.wfas.net/ffmc/>) that allow rapid FMC calculation with the same accuracy as the full complex process.



The SimpleFFMC app requires users to input of few measurements, including temperature, relative humidity (being measured in photo above), solar radiation, and recent precipitation. Photo: David Godwin, Southern Fire Exchange

The SimpleFFMC process and app will be described and demonstrated in a SFE-hosted webinar, September 22 at 1pm eastern. It will also be summarized in a new SFE fact sheet that will walk fire managers through the few steps necessary to use the app. In time, the new FMC calculator will also be incorporated in all computer-based and paper fire behavior field references.

**Click here to register for this webinar.**

### CONTACT INFORMATION

For questions and feedback, email [contactus@southernfireexchange.org](mailto:contactus@southernfireexchange.org)

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Learn more about our [Partners](#) and the [JFSP Fire Science Exchange Network](#).

Visit the SFE Resource Center [www.southernfireexchange.org](http://www.southernfireexchange.org)

Stay Connected with SFE



### NCSU Researchers Working to Improve Fire Shelters

Researchers at North Carolina State University's College of Natural Resources (CNR) and the College of Textiles ([Textile Protection and Comfort Center](#), T-PACC) have teamed up to improve portable fire shelters. The multidisciplinary team is working to improve existing fire shelter fabric technology in fire blocking, weight, and durability. The goal of this research is simple—to increase the probability of firefighter survival. T-PACC has been testing fire shelters in a large wildland fire simulator, and recently tested shelters on a prescribed fire conducted by the College of Natural Resources and partners in North Carolina. Over the next year, the research team will test shelters nationwide. A [video](#) and [short article](#) provide a great description of this project and its importance (and includes interviews with SFE's Co-PI Joe Roise!).



Photo: North Carolina State University

## Fire Ecology and Eastern Oaks

A special issue of *Fire Ecology* published in August 2016 focuses on [the role of fire in eastern oak forests](#). The papers in this issue, which were presented at the 5<sup>th</sup> Fire in Eastern Oak Forests Conference in 2015, “address the historical role of fire in the region, the response and adaptations of plant and animal species to fire and fuels treatments, and the future of these important ecosystems under a future of global change.”

Of particular importance to those working in the Southeast, Morgan Varner and others evaluated eight southeastern oak species (southern red oak, sand live oak, laurel oak, bluejack oak, turkey oak, sand post oak, water oak, and live oak) to determine the suites of functional traits that allow oaks to persist in fire-prone ecosystems. The study synthesized data for flammability, protective, and physiological traits from several sources and analyzed the data by conducting a trait correlation analysis and a cluster analysis. The analyses show that oaks fell into one of three categories:

- Pyrophytic oaks: These species (turkey oak, sand post oak, southern red oak, and bluejack oak) grow slowly, have rapid bark accumulation and wound closure, and produce highly flammable leaf litter.
- Mesophytic oaks: These species (water oak and laurel oak) are fast growing, have thin bark, and produce low flammability litter.
- Fire-avoider oaks: These species (sand live oak and live oak) have a mixture of traits and non-flammable litter.

This research shows that oak species influence fire regimes in different ways, and that pyrophytic species play a functional role in the fire ecology of pine-oak savannas. These results can be used by managers to better understand the role of different oak species in fire-prone ecosystems and may be particularly useful when planning outcomes aimed at ecological restoration. To read the article, [click here](#).



Photo: David Godwin, Southern Fire Exchange

## Guide to Southeastern Fire Adapted Communities

The national Guide to Fire Adapted Communities was recently adapted by the Southeastern Regional Cohesive Fire Strategy Coordinator, Southern Regional Extension Forestry, Southern Governor’s Association, and the USDA Forest Service to create the [Guide to Southeastern Fire Adapted Communities](#).

The guide provides information on collaboration and outreach, environmental concerns, planning and regulatory considerations, and property protection. The regional version of the guidebook incorporates ten southeastern case studies into the guide’s resources to better support the development of fire adapted communities across the Southeast.

## Student Travel Grants Now Available

The Association for Fire Ecology (AFE) and the Joint Fire Science Program (JFSP) are offering grants up to \$1,500 to fund student travel to fire-related conferences, symposia, workshops, and laboratories. These competitively-awarded grants will fund direct travel costs for transportation, lodging, registration fees, and printing or preparation of presentation materials (e.g., posters, maps, audio-visual materials). Both graduate and undergraduate students are eligible.

Students can use this grant to attend the upcoming 3<sup>rd</sup> Southwest Fire Ecology Conference and the 1<sup>st</sup> Applied Fire Science Workshop in Tucson, Arizona on November 28 to December 2, 2016. This conference features several special opportunities for students, including a poster session, awards, and volunteer opportunities. Applications must be submitted by October 1, 2016. [Click here for more information](#).

## UPCOMING EVENTS

Visit the [SFE Calendar](#) to learn more about upcoming events. To add an event to our calendar, [email us](#) the event information.

### PFC Meetings

**South Carolina Prescribed Fire Council**

September 21-22, 2016

Edgefield, SC

**Central Florida PFC**

**\*\*Field Tours: September 20 and 22**

September 23, 2016

Kissimmee, FL

**Louisiana Prescribed Fire Council**

**\*\*Contact Keith Hawkins for info**

September 28, 2016

Alexandria, LA

**Georgia Prescribed Fire Council**

September 29, 2016

Tifton, GA

**North Florida Prescribed Fire Council**

October 12, 2016

Tallahassee, FL

**Southeast Regional Prescribed Fire Council Meeting**

**\*\*Event at the 11<sup>th</sup> Biennial Longleaf Conference**

November 4, 2016

Savannah, GA

### Webinars

**SimpleMC: A New Fine Dead Fuel Moisture Estimation Tool**

September 22, 1pm ET

**From Pixels to Landscapes: Leveraging LANDFIRE for Land Management**

September 27, 1pm ET

**Responding To Drought and Water Challenges**

October 4, 1pm ET

**How Important Is it to Mimic Natural Fire Regimes in the Southeastern Coastal Plain?**

October 11, 1pm ET

**Community Risk Reduction Success Stories**

October 11, 1pm ET

**Fire Season 2016 Hot Topics (Save the Date)**

**\*\*Fire Behavior and Meteorology Specialists: *Share topics you would like discussed***

November 2, 1pm ET

**Wildland Urban Legends**

November 9, 3pm Eastern

**Fire Adapted Cities: Prescribed Fire Use in Urban and Community Forest Management**

November 10, 1pm ET

**Wind Ninja: Modeling Near-Surface Winds in Complex Terrain for Wildland Fire Applications**

December 8, 1pm ET

## UPCOMING EVENTS (CONT'D)

### Workshops and Trainings

Forest Stewardship Workshop: Use Prescribed Fire Safely and Effectively  
September 27, 2016  
Munson, FL

Prescribed Fire for Wildlife  
October 25-28, 2016  
Tallahassee, FL

Central Appalachians FLN  
November 2-3, 2016  
Wintergreen Resort, VA

Georgia Blue Ridge FLN Annual Workshop  
\*\*Contact *Malcolm Hodges* for info  
November 29, 2016  
Blairsville, GA

Prescribed Burning Workshop with Burner Certification  
December 14-16, 2016  
Clinton, LA

### Conferences

2016 Florida Association of Environmental Professionals Conference  
September 22-23, 2016  
Bonita Springs, FL

The Wildlife Society's 2016 Annual Conference  
October 15-19, 2016  
Raleigh, NC

11<sup>th</sup> Biennial Longleaf Conference  
November 1-4, 2016  
Savannah, GA

Society of American Foresters National Convention  
November 2-6, 2016  
Madison, WI

IAWF 2<sup>nd</sup> International Smoke Symposium  
November 14-17, 2016  
Long Beach, CA

## NEWS AND REMINDERS

### TWO MORE CHAINS

The summer issue of *Two More Chains*, the Wildland Fire Lessons Learned Center quarterly newsletter, focuses on gender, leadership, bias, and diversity.

### DRIPTORCH DIGEST

The September issue of *Driptorch Digest*, the SERPPAS Prescribed Fire Work Group monthly newsletter, is now available.

### 2017 JFSP RESEARCH FUNDING OPPORTUNITY SOLICITATION

The 2017 Joint Fire Science Program (JFSP) Research Funding Opportunity Solicitation is now open. Proposals are due by November 17, 2016.

## SFE Fall Webinars: Fuel Moisture, Fire Regimes, Fire Adapted Cities, and Wind Ninja

### SimpleMC: A New Fine Dead Fuel Moisture Estimation Tool

September 22, 1pm ET

Presenters: Jim Brenner, Florida Forest Service and Matt Jolly, USDA Forest Service Missoula Fire Science Lab

SimpleFM is a new fine dead fuel moisture model developed specifically for the southeastern US that is a highly simplified version of a complex, physically-based fuel moisture model. This new model represents a paradigm shift in fine fuel moisture estimation, and it will soon be integrated into computer-based and paper fire behavior field references.

### How Important Is It to Mimic Natural Fire Regimes in the Southeastern Coastal Plain?

October 11, 1pm ET

Presenter: Reed Noss, University of Central Florida

Join presenter Reed Noss as he discusses natural fire regimes for the southeastern Coastal Plain and how current management practices may or may not mimic important aspects of those fire regimes.

### Fire Adapted Cities: Prescribed Fire Use in Urban and Community Forest Management

November 10, 1pm ET

Presenters: Justice Jones, Austin Fire Department, Texas and Mike Wharton, Athens-Clarke County Department of Leisure Services, Georgia

This webinar will present two southern case studies that have successfully used prescribed fire within city limits. Speakers will outline project goals, ecological objectives, critical partnerships, community outreach and education, technology and training, and lessons learned essential to the success of utilizing prescribed fire in the wildland-urban interface.

### WindNinja: Modeling Near-Surface Winds in Complex Terrain for Wildland Fire Applications

December 8, 1pm ET

Presenter: Natalie Wagenbrenner, Missoula Fire Sciences Laboratory, USDA Forest Service

The USFS Missoula Fire Sciences Lab has developed a fast-running, high-resolution, wind model called WindNinja for use by wildland fire managers. This webinar will give an overview of the WindNinja model and the new mobile interface (WindNinja-Mobile).

## BehavePlus Workshops

A free, two-day workshop on the **BehavePlus fire modeling system** is being offered at five different locations in the Southeast this October. Hands-on exercises will introduce the program, demonstrate the various modules and features, and explore the program's fire modeling capability. Participants will develop elements of sample prescribed burn plans for southern ecosystems. The workshop is open to fire practitioners from NGOs and federal, state, and local agencies; participants from universities will be accepted as space allows. Participants should have some familiarity using BehavePlus.

Don't miss this great training opportunity to better understand how to use BehavePlus for predicting fire behavior under different scenarios as you prepare prescribed burn plans.

- ⇒ Big Cypress Swamp Welcome Center, Ochopee, FL - October 13-14
- ⇒ Northwest Florida State College, Niceville, FL - October 17-18
- ⇒ Chattahoochee-Oconee National Forest Supervisor's Office, Gainesville, GA - October 20-21
- ⇒ Wyndham Riverfront Little Rock, North Little Rock, AR - October 24-25
- ⇒ Southern Regional Fire Training Center, Pearl, MS - October 27-28

### BehavePlus Workshop

Using the BehavePlus Fire Modeling System in Prescribed Fire Planning



## Request for Comments: NWCG Prescribed Fire

### Complexity Rating System Guide

The National Wildfire Coordinating Group (NWCG), Fuels Management Committee is seeking comments on proposed revisions to the draft **NWCG Prescribed Fire Complexity Rating System Guide (PMS 424)** from prescribed fire plan preparers, practitioners, administrators, fire management officers, and others. Comments are due by September 30, 2016. [Click here](#) for links to the solicitation for comments, draft document, and comment sheet.



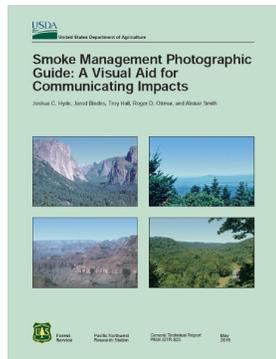
### Update to Spot Weather Forecasts

The National Weather Service Spot Forecast has been updated and beginning October 17, 2016, all spot weather forecasts will be submitted through a new webpage: <http://weather.gov/spot>. Some areas might be using the new webpage prior to this date; check your local Weather Forecast Office webpage. An online presentation is available to learn more about the updates and how to use the new webpage (go to <http://weather.gov/fire>, click Forecasts in left menu, and click SPOT Forecast Web Page Training).

Please note that this only applies to spot forecasts requested by agencies. It does not change the process for accessing point weather forecasts that are openly available online. To find out how to access point weather forecasts for your specific location, follow the easy steps in this [SFE fact sheet](#).

### NEW! Smoke Management Photographic Guide

The **Smoke Management Photographic Guide: A Visual Aid for Communicating Impacts** gives land managers and others involved in communicating about wildland fire smoke a new tool to use with their audiences. This guide uses photographs, taken at the same location at four different air quality levels, representing baseline or smoke free, good, unhealthy for sensitive groups, and unhealthy conditions. A set of photos is provided for 12 national park locations, spread across the country. The guide is available online at [http://www.fs.fed.us/pnw/pubs/pnw\\_gtr925.pdf](http://www.fs.fed.us/pnw/pubs/pnw_gtr925.pdf).



### 2016 Fire Season Hot Topics Webinar

Save the date for a webinar by the NWCG **Advanced Fire Environment Learning Unit** for fire behavior and fire meteorology specialists to share lessons learned from the 2016 wildfire season: November 2, 2016 from 1pm to 3pm EST. Participants are encouraged to attend the webinar locally in groups to facilitate discussion amongst colleagues. SFE will post webinar details when they are available. In the meantime, you can [share topics you would like to see discussed](#) at the webinar.

### 2017 Training Opportunities at the Prescribed Fire Training Center

Application deadlines for the National Interagency Prescribed Fire Training Center (PFTC) 20-day training sessions are due October 20, 2016. This unique program blends maximum field prescribed burning experience with a flexible curriculum of classroom instruction on foundational topics for prescribed fire practitioners. Five, 20-day sessions are scheduled from January to June 2017, where participants will increase their prescribed fire skills and learn how to assume leadership roles in their home unit's fire program. [Visit the PFTC website](#) for more information and to download the application.



Photo: Prescribed Fire Training Center, 2016

## NEWS AND REMINDERS (CONT'D)

### FIRE SCIENCE AND SMOKEY THE BEAR

Check out this 9-minute Untamed Science video that explains how fire science has helped change Smokey the Bear's message over the years and features several USFS Southern Research Station scientists and their fire research: [Why Fire Is Good \(But You Still Shouldn't Start a Forest Fire\)](#).

### CONNECT WITH USFS RESEARCH AND DEVELOPMENT

The US Forest Service Research & Development now has a Facebook Page! [Like this page](#) to stay up-to-date on research aimed to improve the health and use of our Nation's forests, grasslands, and natural resources.

### NSF FUNDING OPPORTUNITY

The National Science Foundation has a **Combustion and Fire Systems funding opportunity** for the following areas of interest: Basic Combustion Science, Combustion Science Related to Climate Change, and Fire Prevention. Proposals are due by October 20, 2016.

### DATA ARCHIVE

Visit the USFS [Research Data Archive](#) to find high quality, citable research data about forest and grassland ecosystems. These data are from scientists funded by the U.S. Forest, the Aldo Leopold Wilderness Research Institute, and the Joint Fire Science Program. An app with more than 150 searchable data sets is also available for Android phones and tablets.

### WINTER PRESCRIBED FIRE AND BATS

An article in [US Forest Service's CompassLive](#) describes results from a study on winter prescribed fire and litter roosting bats, and suggests that burning on warmer days and during afternoons in the winter could promote bat survival in areas of the Southeast where bat species roost in forest floor litter.

### ONLINE CLIMATE CHANGE COURSE

The [South Central Climate Science Center](#) recently launched a free online course for those wanting to learn more about how climate change is impacting our planet and better understand various potential management strategies. You can participate weekly and catch up on past sessions by going to the [course website](#).

### FIRE LINES CONTRIBUTIONS

Send your fire-related news, field stories, or photos to [contactus@southernfireexchange.org](mailto:contactus@southernfireexchange.org) to be included in future issues of Fire Lines.



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