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High Severity burn area in the Fishtrap Fire, Red River Gorge, Daniel Boone National Forest. Photo by Devin Black.

# New Research Brief:

Response of Oak-Pine Forests to  
Wildfire Severity in the Daniel Boone  
National Forest, KY

Although large wildfires have been relatively uncommon in the Appalachians in the last 50-100 years, the unprecedented 2016 fall fire season in the southern Appalachians is a reminder that large fires can occur during severe droughts, even in the fire suppression era. On October 24, 2010, a wildfire was ignited in the Red River Gorge Geological Area. This rugged landscape is in the Cliff Section of the Cumberland Plateau. Dry sandstone ridges and upper slopes are oak-dominated with yellow pines (pitch, shortleaf, Virginia pine) as associates. Until the Fishtrap Fire was fully contained on November 9, it had burned through a large portion of the 1665-acre containment area. Fire intensity was variable across the rugged landscape but included some areas of moderate and high severity fire with significant overstory mortality.

A paper in the latest issue of the journal *Fire Ecology*, authored by Devin Black, Zachary Poynter, Claudia Cotton, Suraj Upadhaya, David Taylor, Wendy Leuenberger, Beth Blankenship, and Mary Arthur, titled "[Post-wildfire recovery of and upland oak-pine forest on the Cumberland Plateau, Kentucky, USA](#)", describes how vegetation responded to varied fire severity over a 6-year period.

## Methods

- One year after the fire, 26 study plots were established to monitor the response of overstory trees, saplings, seedlings, and the understory vegetation (shrubs, forbs, grasses).
- Fire severity at each plot was quantified with the composite burn index (CBI).
- Field data were collected in post-burn years 1, 3, and 6.
- Data analyses focused on how vegetation attributes were related to fire severity.

## Results

- About one-third of the plots had significant overstory mortality, with residual basal area <50 ft<sup>2</sup>/acre.
- As expected, basal area and stand density were inversely related to fire severity.
- Between years 1 and 6 the recruitment of oak and pine saplings was positively related to fire severity.
- There was also ample recruitment of red maple, blackgum, and sourwood saplings but these species did not increase with fire severity.
- Native understory species richness was positively related to fire severity, but so was the abundance of two non-native invasive species, Princess tree (*Paulownia tomentosa*) and Chinese silvergrass (*Miscanthus sinensis*).

## Take home points

- This study shows that areas of high severity fire, which can also be accomplished with prescribed fire (Lorber and others 2018), can favor the recruitment of oak and pine saplings, in addition to creating early successional habitat.
- High severity burn areas can also increase native species richness, but may promote the establishment of non-native invasive plants, if seed sources are present.
- In the longer term, additional fire or other treatments may be necessary to ensure oak and pine dominance, as well as the aggressive control of non-native species.

## Reference

[Lorber, J., Thomas-van Gundy, M., Croy, S. 2018. Characterizing effects of prescribed fire on forest canopy cover in the George Washington and Jefferson National Forests. Research Paper NRS-31. USDA Forest Service, Northern Research Station. 30 p.](#)

## North Georgia Prescribed Fire Council Meeting

\*Rescheduled due to the furlough

Don't miss this additional council meeting on June 6<sup>th</sup>, 2019 in Jasper, GA. This meeting is in addition to the annual meeting in Tifton, GA. The registration link and draft agenda are below. It is important to register as soon as possible for the organizers to gather numbers for the catered lunch.  
<http://www.garxfire.com/events.htm>





# 6th Fire in Eastern Oak Forests Conference

**When:** July 23 to 25, 2019

**Where:** Penn Stater Hotel and Conference Center, State College, Pennsylvania

**Website:** <https://cvent.me/QB0gQ>

The Fire in Eastern Oak Forests Conference is a major conference focused on fire in oak forests, woodlands and savannas where noted experts in research and management gather to present state-of-the-art information, perspectives and synthesis on key issues. This conference will emphasize topics relevant to management of oak-dominated forests, woodlands, and savannas and will be of interest to managers, scientists, landowners, consultants, and students.

The theme of this conference is “Laying Out a Restoration Road Map”. This conference is particularly tailored to land managers and applications. The conference will feature 17 invited presentations, an open poster session, management focused panel discussions, exhibits, and professional networking opportunities. The schedule will include a day of speakers and panel discussions, a field trip day, followed by a final day of speakers and panel discussions. Continuing Education Credits will be offered through the Society of American Foresters and The Wildlife Society.

See the website for more information.

## **Conference sessions:**

- Fire and culture
- Building capacity
- Expanding the burn window
- Fire effects on flora
- Fire effects on wildlife

## **Call for research and management posters:**

Abstracts for posters may be submitted by May 1st on any aspect of fire in eastern North American oak ecosystems. Research posters may relate to any aspect of fire science such as fire regimes, fire effects, fuels, GIS/remote sensing, hydrology, soils, wildlife, or human dimensions. Management posters may highlight specific fire-related projects and / or programs. Manuscripts from selected posters will be considered for a special collection of papers published in the journal *Fire Ecology*. Please see the conference website for submission instructions and deadlines.

## **Key sponsors and supporters of this conference include:**

Oak Woodlands & Forests Fire Consortium, Consortium of Appalachian Fire Managers and Scientists, Joint Fire Science Program, Pennsylvania Prescribed Fire Council, Ruffed Grouse Society, USDA Forest Service Northern Research Station

# Joint Fire Science Program Funding Opportunity Announcements

## NOW OPEN



The Joint Fire Science Program (JFSP) Funding Opportunity Announcements (FOA's) are now open through 5 pm MDT, May 16, 2019.

The Graduate Research Innovation (GRIN) announcement FA-FOA0019-001 has one task statement. Proposals must address one or more of the following topic areas:

- Fuels Management and Fire Behavior
- Emissions and Air Quality
- Fire Effects and Post-Fire Recovery
- Relative Impacts of Prescribed Fire Versus Wildfire
- Human Dimensions of Fire

The primary announcement FA-FOA0019-002 has two task statements:

- Effectiveness of Fuel Breaks and Fuels Break Systems
- Reducing Damages and Losses to Valued Resources from Wildfire

[Full JFSP funding announcement](#)

[Proposal submittal and preparation tips](#)

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Find us on twitter @APfirescience or find us on Facebook by searching Consortium of Appalachian Fire Managers and Scientists.

### Join CAFMS:

The consortium is for all land managers and researchers in the region who deal with any aspect of fire. To join, simply provide us with some contact information at the web site listed below.

[www.appalachianfire.org](http://www.appalachianfire.org)

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