



Fire Learning Network Notes from the Field

Central Appalachians FLN 2015 Year in Review

Over the last decade, the Central Appalachians FLN has built strong, diverse partnerships and demonstrated the synergistic effect this level of collaboration can have in restoring the role of fire to an ecologically significant scale.

Good Fire

Despite a wet start to the 2015 prescribed fire season in many parts of the region, landscape partners were able to burn nearly 8,700 acres in the Heart of the Appalachians, 12,900 acres in the Keystone Appalachians and 6,200 acres in the Cumberland River landscapes this year. Achieving 28,000 acres of good fire across the network can be attributed to the increased coordination among partners making the most of small burn windows.

Among the highlights was the 400-acre Summers Mountain burn in the Highland Wildlife Management Area. Thanks to the FLN's role in helping develop a new prescribed fire policy for the Virginia Department of Game and Inland Fisheries (DGIF) and MOUs between all partners, this was both the largest burn in DGIF history and the first in Virginia where U.S. Forest Service staff have burned on DGIF lands.

Excellent cross-boundary coordination was also evidenced by The Nature Conservancy staff from Maryland assisting the U.S. Fish & Wildlife Service and Pennsylvania Department of Conservation and Natural Resources (PADCNR) with the Underwood Trail Burn near State College, while Conservancy staff from Pennsylvania were assisting the Pennsylvania Game Commission with another burn. Successful

Landscapes of the Central Appalachians FLN

Heart of the Appalachians
Keystone Appalachians
Cumberland River
Potomac Headwaters

Virginia / West Virginia
Pennsylvania
Kentucky
Maryland / West Virginia

collaboration in Pennsylvania's Keystone Appalachians landscape also allowed for burning across Pennsylvania Game Commission, Fort Indiantown Gap, PADCNR and Conservancy lands.



Partners burning in the Cumberland River landscape. Photo: Chris Minor/TNC

The success of this crew led the chapter to again contract with WRI, this time through a participating agreement funded by a Forest Service Supplemental Wildland Fire Hazardous Fuels (WFHF) project, to provide a four-person module for the spring of 2016. With additional funding from the Forest Service Region 8, two more modules will be supported in the Southern Blue Ridge FLN. The three modules—based in Virginia, North Carolina/Tennessee and Georgia/South Carolina—will be available for three months, for work spanning state, federal, local and private lands.

Tackling Capacity Barriers

A frequently identified barrier to prescribed fire implementation is insufficient capacity. To help mitigate that challenge, the Conservancy's Virginia chapter, funded through a Scaling-up to Promote Ecosystem Resiliency (SPER II) grant, contracted with Wildland Restoration International (WRI) to provide a four-person fire module in the spring of 2015. The module helped prep and implement controlled burns on 2,942 acres in the Heart of the Appalachians landscape and prepped another 1,344 acres for upcoming burns.



The leader of the Wildland Restoration International module conducting ignitions at the Bear Loop burn unit on Warm Springs Mountain Preserve in April 2015. Also pictured is one of the interpretive signs developed by the FLN, which carries information about the role of fire—including prescribed fire—in the landscape.

Photo: Marek Smith/TNC

Continuous Collaboration

In western Maryland, development of a new FLN landscape—the Potomac Headwaters FLN landscape—was initiated in early November. Staff from the Maryland Department of Forestry, Maryland Department of Natural Resources, National Park Service and the Conservancy's Maryland and Virginia chapters spent two days discussing project goals and touring prospective burn units in Catoctin Mountain Park and Green Ridge State Forest. While partners from Maryland have long participated in the Central Appalachians FLN, they had not yet developed a large landscape upon which they could collaboratively implement cross-boundary projects. With this now underway, partners in the new landscape are planning for a workshop later in 2016.

In Kentucky this fall, a Cumberland River FLN landscape workshop was attended by 12 people from the Kentucky Department of Fish and Wildlife Resources, Kentucky Heartwood, The Nature Conservancy and the U.S. Forest Service. Three subcommittees were formed—to focus on funding, research and outreach—to better manage upcoming opportunities. Plans for the next six months include hosting a local FLN Shared-Learning Field Day where key people in FLN partner agencies will have the opportunity to hear about recent research, see treatment sites, and address concerns or issues around controlled burning in the area.

In Pennsylvania, the Prescribed Fire Council's Dry Oak and Fire workshops were well attended, drawing 128 participants from 18 organizations and agencies, including state and federal agencies, traditional NGOs, academia, forestry associations, forestry products companies, consulting foresters and hunters. They discussed prescribed fire and management of dry oak and oak-pine communities, covering issues ranging from maintaining oak forests to restoring woodlands, savannas and scrub oak-pitch pine barrens with combinations of fire, timber harvest and other methods.



Ben Jones addressed participants at one of the stops on the Dry Oak and Fire Workshop field tour. Photo: Patrick McElhenny/TNC

Training Modules

An S-219 Fire Operations course was held in July in State College (PA) under the sponsorship of the Pennsylvania Game Commission. There were 28 participants, including students and instructors from the Pennsylvania Department of Military and Veterans Affairs, Pennsylvania Game Commission and the Conservancy's Pennsylvania chapter.

An RX-310 Fire Effects course was sponsored by the Pennsylvania Prescribed Fire Council in July as well. The 26 participants in the week-long course included students and instructors from Arcadia University,

Natural Lands Trust, National Park Service, Pennsylvania Bureau of Forestry, Pennsylvania Department of Military and Veterans Affairs, Pennsylvania Game Commission, Sustainable Solutions (a natural resource consulting company) and the Conservancy's Pennsylvania chapter.

The Virginia Wildland Fire Academy, coordinated by the Virginia Department of Forestry, held its first NWCG Prescribed Fire Course, Rx310 Fire Effects, in 2015. The course was co-hosted by the Virginia Prescribed Fire Council. This significant milestone was met with enthusiasm: a sold out classroom, and tremendous participation by essentially every land management agency in the state as well as from many private landowners and contractors. In the coming year, the Academy will continue its support of prescribed fire training by offering Rx341 Prescribed Fire Plan Preparation.

Outreach Efforts

Educational outreach targeting visitors to areas where prescribed fire is part of the landscape continues to be a focus of the network.

RESTORING A FIRE ADAPTED LANDSCAPE

Prescribed Burning

A fire adapted landscape is an area created and maintained by fire. Some trees and other plants benefit from fire, as it reduces excess woody debris from the forest floor, promotes seed germination, and reduces competition. Many areas within Kentucky's forests need to be much more open than they are now.

Prairie, savanna, woodland, and forest are general terms used to describe different habitat types defined by the density of trees in a given area. A mixture of different habitat types across a landscape adds to plant and wildlife diversity.

The eight (east) side of 5016, and the south of KY 90 represent two treatment areas. Both areas will be mechanically thinned with one receiving an early spring or late fall controlled burn while the other receives a late spring, summer, or late summer controlled burn. Pre- and post-burn data will be collected, and results will guide future management decisions.

Combined with controlled burning, mechanical thinning can speed up the restoration process.

Thinning allows less desirable trees to be harvested and the understorey to be opened up. This provides more sunlight to the forest floor and encourages more plants to grow.

Monitoring plots are located throughout this area. Data is collected, including plant species, species occurrence, tree size, and fuel load. This allows the impact of treatments to be better defined and documented.

PRAIRIE
Grasslands

SAVANNA
Open Woodland

WOODLAND
Open Woodland

FOREST
Closed Woodland

The photos above provide a visual of the different habitat types represented in our forests. Many wildlife species are in decline due to lack of their associated habitat type.

A COMMITTEE OF APPALACHIAN FIRE MANAGERS & SCIENTISTS

Partners in the Cumberland River FLN landscape continued work on interpretive signs for the Stearns Ranger District of the Daniel Boone National Forest. The signs are part of driving tour being developed with support from the Consortium of Appalachian Fire Managers and Scientists. The tour will have eight to ten stops and feature messages about the historic role of fire in the Appalachians; fire effects monitoring; plant, wildlife and fuel reduction benefits of controlled burns; and fire teams and safety.



Two interpretive signs developed by partners in the Heart of the Appalachians landscape were installed around the 2014 Blue Suck burn unit in Douthat State Park. This site was targeted for the opportunity to generate awareness of the value of prescribed fire in a large audience, with the park seeing more than 200,000 visitors a year.
 Photo: Al Cire/VADCR

Monitoring Progress

The Heart of the Appalachians

FLN Monitoring Working Group held its third annual Plant Identification and Protocol Refresher Workshop this year, in a new two-day format. Eighteen participants from the Conservancy's Virginia chapter, U.S. Forest Service and Virginia Department of Conservation and Recreation spent the first day at Hungry Mother State Park identifying plants, with a focus on ericaceous shrubs. The second part of the workshop consisted of a Forest Structure and Composition Protocol review and the installment of four new monitoring plots in the Huff Hollow burn unit on the Eastern Divide Ranger District of the Jefferson National Forest. The new workshop format allowed for plenty of identification practice and discussion and will better ensure consistency in data collection across the landscape.

The Working Group welcomed new members Adam Christie (DCR) and Jean Lorber (TNC) at a December meeting set to share new knowledge of the FFI software, uphold consistency and accuracy in methods, and discuss future monitoring needs. The group decided to redesign the plot-less basal area protocol to reduce user variability and ensure the same overstory trees are measured each visit. Instead of using prisms, a fixed area plot will be used to determine

overstory basal area. Preliminary results show a significant increase in open canopy and increases in forb cover one year post-burn.

In the **Keystone Appalachians** landscape, monitoring collaborations continue among the Arcadia University, Pennsylvania Game Commission, Penn State University and the Conservancy. They are working to identify ways to move forward on the pre/post-burn vegetation monitoring initiative that was started in 2013. Monitoring during burns is also being integrated, through use of FEMO-qualified personnel. This collaboration led to a Fire Monitoring Workshop in the spring, sponsored by the Center for Landscape Dynamics at Penn State; this evolved to include several additional faculty (including social scientists) and staff from the Natural Resources Conservation Service, Western Pennsylvania Conservancy and the Fort Indiantown Gap military installation.

New Publications

Dr. Lauren Howard (Arcadia University) compared the results of his extensive observations of the largest high-elevation pitch pine community in the Central Appalachians to a 1985 study by Gary Fleming in the recent article "A Quarter-Century of Change Without Fire: The High-Elevation Pitch Pine Community on Panther Knob, Pendleton County, West Virginia." The study suggests that the threatened variable sedge (*Carex polymorpha*) has declined, ericaceous shrubs have become more dense, and little pine regeneration has occurred recently. Howard discusses further research needs and management implications of this for Panther Knob.

Also published in 2015 were research papers by Wayne Tyndall (Maryland Department of Natural Resources) and Melissa Thomas-Van Gundy (USDA Forest Service, Northern Research Center and Monongahela National Forest). (See the summer *FLN Notes from the Field* for more on these papers.)

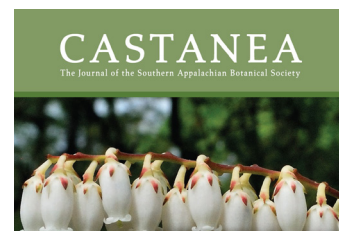
Sharing Nationally

Pat Sheridan (USFS) represented the Central Appalachians FLN at the FLN and Fire Adapted Communities Learning Network national workshop in Santa Fe (NM) in June. A poster featuring the Central Appalachians FLN was presented at the workshop; that poster, as well as those from other networks, can be found at <http://www.conservationgateway.org/ConservationPractices/Fire-Landscapes/FireLearningNetwork/USFLNPublications/Pages/Posters-FLN-2015.aspx>.



Pat Sheridan (right), District Ranger for the Warm Springs and James River Districts of the George Washington and Jefferson National Forests, retired at the end of December after 38 years with the USFS. Pat participated in the initial scoping meeting to form the Central Appalachians and Southern Blue Ridge regional FLNs in 2006, and was responsible for much of Central Appalachians FLN's growth and accomplishments over the last decade. FLN partners all thank Pat for his leadership and look forward to his continued participation as an AD or volunteer.

Photo: Laurel Schablein/TNC



CASTANEA 96(3): 193-210, SEPTEMBER
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A Quarter-Century of Change Without Fire: The High-Elevation Pitch Pine Community on Panther Knob, Pendleton County, West Virginia

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ABSTRACT The Panther Knob *Pinus strobus* is situated in the Central Appalachians because in the region, large high-elevation pitch pine (*Pinus rigida*) community containing numerous small and scattered plants and animals. Plant community structure and evidence of fire in 2008 were quantified to compare to a 1985 study by Gary Fleming (1985) and to test the hypothesis of pitch pine regeneration failure without recent fire. Diameter at breast height (DBH) of trees and percent cover of shrubs within 10 plots, each 20 × 20 m, were measured. Successive burnings were used to estimate stand age, and evidence of fire, such as bark charring and soil charcoal, was recorded. Mineral soil from the top 10 cm was collected to evaluate the connection between soil characteristics and plant composition. Cluster analysis of percent cover values identified four plant community types. Shrub cover declined in percent cover, but presence of only seven woody indicators little recent fire regeneration on the plot. Comparison with Fleming's (1985) observations showed that pine cover had declined in percent cover, but presence of only seven woody indicators little recent fire regeneration on the plot. *Carex polymorpha*, has declined. Charred woody debris, fire scars, or soil charcoal occurred at 14 of 20 plots. Plant community structure, represented by numerous multibranched twigs (NBT) indicator score, was not correlated directly with the presence of fire evidence or soil mineral content. Principal components analysis (PCA) scores. A new conceptual model of pine dynamics on Panther Knob is introduced. Successional pathways with and without fire are discussed in the context of management.

Key words: fire evidence, fire exclusion, Panther Knob, pine regeneration, *Pinus rigida*, soil characteristics, West Virginia

INTRODUCTION The Panther Knob pitch pine (*Pinus strobus*) is situated in the Central Appalachians because in the region, large high-elevation pitch pine (*Pinus rigida*) community containing numerous small and scattered plants and animals. Plant community structure and evidence of fire in 2008 were quantified to compare to a 1985 study by Gary Fleming (1985) and to test the hypothesis of pitch pine regeneration failure without recent fire. Diameter at breast height (DBH) of trees and percent cover of shrubs within 10 plots, each 20 × 20 m, were measured. Successive burnings were used to estimate stand age, and evidence of fire, such as bark charring and soil charcoal, was recorded. Mineral soil from the top 10 cm was collected to evaluate the connection between soil characteristics and plant composition. Cluster analysis of percent cover values identified four plant community types. Shrub cover declined in percent cover, but presence of only seven woody indicators little recent fire regeneration on the plot. Comparison with Fleming's (1985) observations showed that pine cover had declined in percent cover, but presence of only seven woody indicators little recent fire regeneration on the plot. *Carex polymorpha*, has declined. Charred woody debris, fire scars, or soil charcoal occurred at 14 of 20 plots. Plant community structure, represented by numerous multibranched twigs (NBT) indicator score, was not correlated directly with the presence of fire evidence or soil mineral content. Principal components analysis (PCA) scores. A new conceptual model of pine dynamics on Panther Knob is introduced. Successional pathways with and without fire are discussed in the context of management.

Key words: fire evidence, fire exclusion, Panther Knob, pine regeneration, *Pinus rigida*, soil characteristics, West Virginia

The Central Appalachians FLN was represented at the Association for Fire Ecology's 6th International Fire Ecology and Management Congress in San Antonio (TX) by Nikole Swaney (TNC), Beth Buchanan (USFS) and Lindsey Curtin (USFS). Their presentations detailed fire effects monitoring efforts and adaptive management for the Southern Region of the Forest Service and the Central Appalachians. Nikole Swaney also presented a poster on the upcoming Women in Fire Training Exchange that will be hosted by the Northern California Prescribed Fire Council in the fall of 2016. Partners from the Pennsylvania Game Commission also gave a presentation based on initial results of the second year of a dendrochronology fire history study being undertaken with the University of Missouri Tree Ring Lab.



Nikole Swaney with the Women in TREX poster at the AFE Congress. Photo: Wendy Fulks/TNC

Annual Workshop

More than 60 participants from 20 agencies attended the joint workshop held by the Consortium of Appalachian Fire Managers and Scientists (CAFMS) and the Central Appalachians FLN in October. CAFMS coordinated a fire history workshop that brought together many of the pioneers of Central Appalachians dendrochronological, soil and peat charcoal, witness tree and other techniques used to develop current understanding of the historic fire regime in the Central Appalachians. The FLN then hosted presentations on collaborative success stories, new technological tools, northern long-eared bats and fire effects monitoring. The joint workshop helped reinforce the long-standing ties between science and management in the region.



Top: The annual FLN Partnership Award was presented to Virginia Department of Game and Inland Fisheries for their tenacity and commitment to building fire management capacity within their agency, collaborative planning and implementation across organizational boundaries. Bottom: Soil charcoal sampling during the workshop field tour.

Photos: Laurel Schablein/TNC, Marek Smith/TNC

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Links to products of the Central Appalachians FLN, including reports, posters, interpretive signs and brochure and other materials can be found on the network's Conservation Gateway page at:

<http://www.conservationgateway.org/ConservationPractices/FireLandscapes/FireLearningNetwork/RegionalNetworks/Pages/CentralApps.aspx>

Upcoming Meetings

Pennsylvania Prescribed Fire Council Annual Conference

February 16-17, 2016

Speakers from across the country will discuss fire and forest bats; Pennsylvania's fire history; public perceptions of prescribed fire; canopy tree mortality after burns; fire's role in snowshoe hare habitat; wildland fire GIS, mapping apps, and devices; statewide prescribed fire updates, lessons learned and more!

Online registration:
<http://www.paprescribedfire.org/training/2016-annual-conference.html>

Central Appalachians FLN Annual Workshop

November 2-3, 2016

Wintergreen Resort, Virginia

Save the date and stay tuned for more.

The FLN, Scaling-up to Promote Ecosystem Resiliency and Prescribed Fire Training Exchanges (TREX) are part of *Promoting Ecosystem Resilience and Fire Adapted Communities Together*, a cooperative agreement between The Nature Conservancy, USDA Forest Service and agencies of the Department of the Interior. For more information, contact Lynn Decker ldecker@tnc.org or (801) 320-0524.



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