



Fire Learning Network Notes from the Field

Southern Blue Ridge FLN Workshop #13

Table Rock State Park, South Carolina
May 15-17, 2018

13 Isn't Unlucky for Southern Blue Ridge FLN

Workshop 13, held in upstate South Carolina, began with recognition and appreciation that this collaborative is still attracting new partners. At least two new local organizations were represented at the workshop, joining about 100 people from nearly 30 other organizations and agencies (many of which had representation from multiple states or units). Our workshops continue to bring together managers, researchers and administrators from four states in the southern Blue Ridge Mountains region, which includes parts of South Carolina, North Carolina, Tennessee and Georgia.

This year, we also got a western perspective from Anne Bradley (from the New Mexico FLN, and its Burned Area Learning Network initiative) and a national overview of wildfires and water resources from Dennis Hallema (from the USDA Forest Service's Oak Ridge Institute for Science and Education). These guests were able to speak to the relationships between fire, water and people—something members of the SBR FLN are increasingly interested in, since our mountain region supplies water to 10 million people downstream. Fortunately, the soils in our humid climate tend not to respond like arid western soils with serious erosion and mudflow—in the eastern US, vegetation quickly reclaims and stabilizes soils. But SBR FLN partners and researchers are seeking to learn about where, and how much, restoration is needed to influence water yield for people and wildlife; these national perspectives inform the framing of potential future opportunities, such as water funds, which Anne has deep experience with.

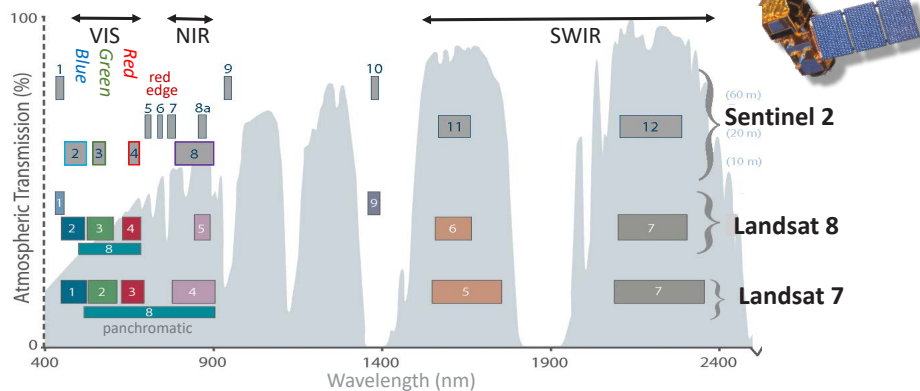


Table Rock State Park, with its iconic rock formation seen here, was the site of a large wildfire in 2016. It is also the location of a Fire Learning Trail developed by the FLN, CAFMS and TNC; one of the signs is in the foreground here.
Credit: USFS (Steve Bekkerus)

This year's workshop was held at the base of Table Rock Mountain, an iconic feature on the escarpment of the Appalachian Mountains at the edge of the piedmont; two ecozones meet here, and plant diversity is extremely high. In 2016, the area experienced a 10,500-acre wildfire during a fall fire season unlike anything firefighters had experienced in this part of the country. As a matter of fact, our workshop was held in the same location as the Pinnacle Rock Fire Incident Management Team (IMT) base camp. During the workshop, several participants emphasized the value the FLN partnership provided when it came time to fight these fires: "We didn't have to do that dance, where we have to feel out our partners, and figure out how to work with them. We already knew them from FLN." Many IMT members rekindled those relationships at this year's FLN workshop.

Those wildfires were on our minds as we discussed their ecological effects, as well as how the public remembers the weeks of smoke and the fear of homes burning down. Joe O'Brien (USFS Southern Research Station (SRS)) discussed his research on how these fall fires, coming after a prolonged drought, consumed a novel fuel for this region: duff. After decades of fire exclusion, many hardwood forests have accumulated a deep duff layer. Over time, tree roots have moved up into this layer. Normally this layer remains moist, preventing its consumption by fire. During drought years, such as 2016, fire consumes the dry organic duff as well as the roots within it. Firefighters were surprised to watch landscape-scale wildfires moving slowly across slopes, burning not just the typical leaf litter but also deep into the duff, consuming tree roots as they went. These fires may have different long-term impacts compared

Technological advances: Sentinel 2



Satellite, Instrument	Spatial resolution	Temporal resolution	Historical Availability	Source
Sentinel-2a/b, MSI	10m (20m)	5 day (both)	Jun 2015 -	Euro. Space Agency
Landsat 8, OLI	30m (15m)	8 to 16 day	2013 -	US NASA
Landsat 7, ETM+	30m (15m)	(with both)	1999 - ...	
Landsat 5, TM	30m		1984-2012	
Terra/Aqua, MODIS	250m (500m)	2 passes/day	2000 -	US NASA

Sentinel-2 imagery offers many improvements over Landsat products, particularly in the southern Blue Ridge Mountains where cloud cover often prevents good comparisons of the vegetation over time. *Credit: USFS Southern Research Station (Steve Norman)*

to prescribed fires we are used to (or historical wildfires, which were frequent enough to prevent a deep duff layer from forming to begin with). Researchers are watching for delayed mortality after the 2016 fires. Because this was fairly unusual fire behavior, coupled with larger-than-average fires, Joe suggested that rather than worrying about the “no-analog future,” we be concerned about the “no-analog now.”

Steve Norman (USFS SRS) focused his presentation on more familiar fuels: the shrub layer. Wildfire behavior, in typical situations, flares up on slopes that have a dense mountain laurel layer under the tree canopy. Steve showed us new tools for tracking the effects of wildfires across the landscape. The Sentinel 2 Satellite, with a 10m resolution (vs. Landsat’s 30m), and a 5-day return interval (vs. Landsat’s 8- to 16-day path), has been available since June 2015. We can use winter data from the satellite to look at the shrub layer under deciduous trees (whose leaves mask the presence of the shrubs in summer signals). Since shrub cover elevates fire spread, intensity and hazards, there are high hopes that this new imagery can help us better map these fuels and analyze risk across the landscape.

Our big fire season was only 18 months ago but sometimes memories are short. So we closed the first day with discussions about community perceptions of wildfire and controlled burning. Social scientist Kathryn Gaash, who recently conducted The Nature Conservancy’s first fire communication study east of the Mississippi, broke the news that some residents she interviewed after the wildfires thought that the Forest Service had set them. Some of Kathryn’s findings were that homeowners’ perceptions of wildfire improve if they feel their residence is safe, and that acceptance of controlled burning relies on belief that fire is a natural part of the system. Panelists noted that we should continue preaching to the choir—supporters will take the information we offer and share the message with others on social media.

The workshop’s second day brought rain, but that did not dampen the enthusiasm for the field trip to the Andrew Pickens Ranger District of the Francis Marion-Sumter National Forest, where firefighters and timber personnel showed off restoration of various mountain habitat types, both forested and non-forested. We saw

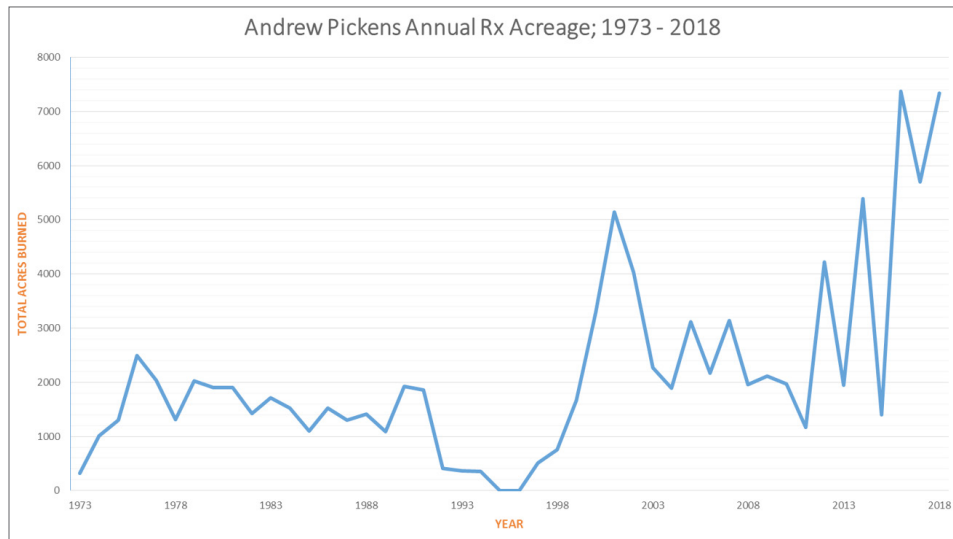
the range of work in the district to bring back shortleaf pine woodlands, including removal of the existing off-site loblolly pine, a native tree that moved in when landowners stopped burning their property. Once mature, loblolly pine is not only fire-tolerant but also a prolific seeder, so attempts to restore shortleaf areas are thwarted by the presence of this competing species. The Forest Service—with partners, including The Nature Conservancy and state agencies—is also reintroducing fire, followed by planting fire-tolerant shortleaf pine seedlings.

Learning about the historical importance of river cane (*Arundinaria gigantea*) for the Cherokee people was an eye opener for many of us. Cane was ubiquitous in the lives of southeastern Native Americans, and was used for everything from food to arrow shafts, as well as baskets, mats and building materials. The Cherokee maintained canebrakes by burning them every 7-10 years; because few are burned anymore, stands are diminished in size and value. At a

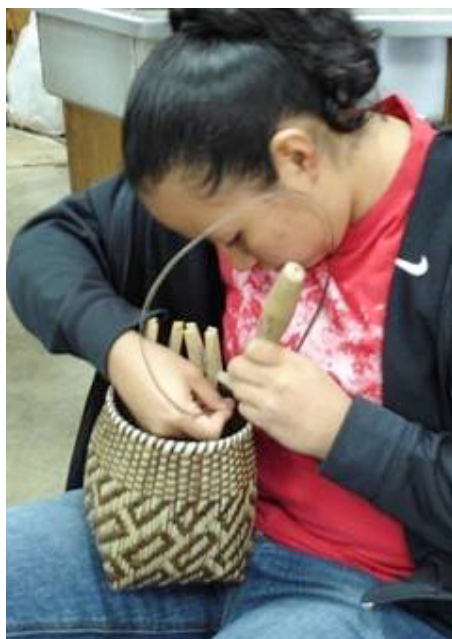


The shrub layer (mountain laurel, *Kalmia latifolia*) contributes to high intensity, high severity fire. New satellite products may help map this patchy, but volatile, fuel.

Credit: USFS (Steve Norman)



The Andrew Pickens RD of the Francis Marion-Sumter NF in South Carolina is rapidly scaling up with restoration using fire, thanks in part to strong partnerships. *Credit: USFS (Robbie Sitzlar)*



River cane was once ubiquitous in the Cherokee culture. It was used for everything from baskets (top) and mats, to food and arrow shafts. However, cane populations are uncommon and depauperate now (bottom left) as a result of fire exclusion. The Andrew Pickens Ranger District on the Francis Marion-Sumter NF is working to regenerate healthy canebrakes (bottom right) using fire, with the intent of providing raw materials for a new generation of basket weavers.

Top: © NC Coop. Extension (Michael Cozzo)

Bottom left: CAFMS (Jen Bunty)

Bottom right: © NC Coop. Ext. (Michael Cozzo)

site along the Chattooga River, we saw how the Andrew Pickens RD is working with SRS to reintroduce fire to this community, and North Carolina Extension Service is working with the Cherokee tribe to revitalize the art of basket weaving now that their materials are becoming more available again. (Watch for a webinar on river cane!). We also saw similarly uncommon early successional grassland habitat maintained with fire. Hearing grasshopper sparrows got the birders in the group excited—these birds are currently as uncommon as their preferred grassland habitat in the Blue Ridge Mountains.

The last day of the workshop began with a panel discussion on fire effects monitoring. The SBR is lucky to now have three datasets spanning more than 10 years and multiple burns. Panelists were frank in their admissions that monitoring often is the first task to fall off land managers' plates. Yet partners recognize the need to continue documenting fire effects, as it often takes multiple burns before we see much positive movement toward our desired conditions. The good news is that monitoring datasets seem to be tracking the more-robust research in the region, and the Consortium of Appalachian Fire Managers and Scientists plans to support work to document and summarize our results.

Jim Smith (LANDFIRE) also reminded us that our data is used in the

LANDFIRE product assessments, and expressed the hope that we will continue sending local information to LANDFIRE. Past collaborations with LANDFIRE were key for the network to develop vegetation mapping models (ecozones) and models describing vegetation dynamics. Southern Blue Ridge and Central Appalachians FLN partners have contributed to refine these models, and use them to guide restoration when moving forest structure and composition towards a pre-settlement-informed desired condition is a goal. LANDFIRE staff is working to incorporate what we learned from vegetation modeling into future map updates.

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Visit the Fire Learning Trail at
<http://www.appalachianfire.org/thefirelearningtrail/>

The Fire Learning Network is 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 about PERFECT, contact Marek Smith at marek_smith@tnc.org.



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v. 20 Jun 2018 /B. Buchanan