Southern Blue Ridge FLN

Workshop #6 / Del Rio, TN Cherokee National Forest, Unaka Ranger District

Greg Salansky and Scotty Myers, of the Cherokee National Forest, provide an orientation to the 2,260-acre Short Mountain unit burned in 2009. Due to the Forest's active prescribed fire program, this area supports regeneration of table mountain pine, a fire-dependent species in decline across the southern Appalachians.
Photo: © TNC / Margit Bucher

This workshop's agenda was designed to answer the questions: Are we burning in the most important areas? How much do we need to restore? How much can we restore in 10 years?

In his introductory remarks, Greg Salansky, Cherokee National Forest's Unaka District Fire Management Officer, noted that the District has been conducting landscape-level burning since about 1997. Burn units on the Forest range from 600 to 4,000 acres in size, and crews on the Forest have burned up to 5,000 acres in a single day. Because the forest typically has only 10-12 suitable burn days per year, landscape-scale burning has proven to be both economically and ecologically beneficial. The Forest typically burns 20,000 acres a year, including about 5,000 acres on the Unaka District.

Burn units typically include a range of vegetation types including both fire-dependent and non-fire-dependent systems. Ignitions are usually done on the ridge lines in fire-adapted pine and oak stands, and fires are allowed to back downslope into drainages with non-fire-dependent vegetation, where the fires typically extinguish themselves. Aerial ignition is

Landscape-level burns might best be described as large burns with edges defined by natural barriers—such as changes in aspect, waterways and changes in vegetation—rather than lines created by hand or machinery, which contain the fire to an area smaller than which it might naturally burn.

used when precision burn patterns are needed, and to accomplish smaller scale site-specific burn objectives such as creating 5- to 10-acre openings in the canopy to promote wildlife browse, or burning beetle-killed pine stands with intense fire. Topography, fuels, a variety of moisture levels and daily weather changes create a mosaic of burning conditions and fire effects that reflects historical burn conditions and is more likely to result in forest or woodland types that will be resilient to wildfires and also persist under climate change. Across the southern and central Appalachians, in states such as Tennessee and Virginia where regulations permit multi-day burning, there is a trend toward implementing large burns similar to those that have been conducted for more than a decade on the Cherokee NF.

A day-long field trip on the Forest demonstrated how prescribed fire can—and must—be applied in various ways to promote the restoration of table mountain pine and oak ecosystems. The group took a landscape-level look at Short Mountain, which might contain the best remaining table mountain pine (TMP) forest in the southern Appalachian region, and where prescribed fire has been used effectively to promote TMP regeneration. An important discussion about the challenges of using prescribed fire in this vegetation type, and how the management recommendations have changed over time, ensued. Tom Waldrop discussed his new research that suggests that fires with flame heights of 6-8 feet are more effective for recruiting and maintaining TMP than are stand-replacement fires, which were previously recommended. Retaining a thin duff layer benefits seedling establishment more than exposing mineral soil, which was also previously recommended. However, remaining TMP stands tend to be in areas that promote intense fire behavior, even under moderate burn conditions. Additionally, most extant TMP stands have developed a significant hardwood and mountain laurel component in the midstory. Killing this competition without killing the pines is challenging. Waiting until TMP recruitment is 20 feet tall before the next burn (a management practice in other pine types) could result in intense fires that kill mature pines, but not stay ahead of hardwood control—or it could be just what is needed. TMP's relationship with fire is not fully resolved. Rob Klein, National Park Service Fire Ecologist, noted that there are great differences in TMP response from the west end to the east end of Great Smoky Mountains National Park (just south of the field trip site), a distance of about 50 miles.

The darkest green forest areas are table mountain pine stands, a fire-dependent community on the Cherokee National Forest in the mountains of Tennessee
Photo: © USDA Forest Service / Beth Buchanan

The Cherokee Forest Restoration Initiative is a community-based effort that is developing science-based restoration recommendations for the Forest Service. Katherine Medlock, a member of the Initiative's steering committee, explained the process that the group is using to determine restoration needs and obtain consensus, Enhanced Conservation Action Planning (e-CAP). As part of that process, the Initiative refined LANDFIRE data for the area and examined 12 of the Forest's most common ecosystems, looking at how the current condition of those systems differed from reference conditions with respect to species composition, age, structure and condition; they found that low elevation pine and high-elevation spruce-fir ecosystems are most departed from reference conditions and northern hardwood systems are in the best shape. The next step is to compare the cost and effectiveness of several possible management scenarios intended to move the forest toward desired future conditions. Public meetings sponsored by the Initiative have been well-attended, and trust among stakeholders has increased.

Other workshop presentations covered the use of burn prioritization models that three landscape teams are using to inform decisions about where to burn. The models allow managers to take into account a large number of criteria that each team develops for itself. As a side benefit, the collaborative process required to develop the model criteria has resulted in improved communications within and across organizations, and has contributed to the development of

shared objectives. The Central Escarpment team, which pioneered the approach in this region, shared its first draft of logistical and social components of their model.

Bat conservation is a growing concern in the eastern United States, because white-nose syndrome is causing widespread bat mortality, and the issue is beginning to affect how prescribed burning is done in the eastern U.S. Participants were therefore keenly interested in hearing Susan Loeb, a research ecologist at the Forest Service Southern Research Station, review Appalachian bat species and the state of knowledge about fire's positive and negative effects on different species of bats, their prey and their summer and winter foraging and roosting habitats. In summary, fire creates good habitat for bats in the long term, but in the short term can affect bat survival directly and can lead to loss of bat roosts.

Burners can make several adjustments to reduce the negative impacts of their activities on bats, such as:

- Not burning from late May through July;
- Burning on days when it is above 10° C (50° F), and with minimum night temperatures above 4° C (39° F);
- Burning with wind speed above 2 km/h (1.2 mph);
- Igniting fires slowly when burns are getting underway; and
- Avoiding intense burns.

Helen Mohr, a forester at the Forest Service Southern Research Station, gave an update on the Consortium of Appalachian Fire Managers and Scientists (CAFMS). She briefly described the Joint Fire Science Program, which funds CAFMS, explained how CAFMS fits into the network of fire science consortia, and summarized the top three research priorities for the Appalachian region for 2011. To set the priorities, CAFMS first solicited input from fire practitioners across the region through its newsletter, and through FLN and other channels. Then the CAFMS users' board met to discuss the input, and finally the information was distilled into three broad priorities:

- Long-term prescribed burning for restoration objectives (including impacts of burning in different seasons and frequencies on the various ecosystem components);
- Use of prescribed fire in the presence of invasive fauna, flora and pathogens; and
- Improvement of existing smoke prediction models for rugged terrain.

Peter Bates of Western Carolina University presented some preliminary findings of the SBR-wide fire monitoring effort that has been underway since 2008. About half (4 million acres) of the area encompassed by the SBR FLN consists of four fire-adapted ecosystems targeted by the group. Sampling has been conducted at 12 sites (with multiple 0.1-acre permanent plots per site) across the region starting in 2006. Pre-burn sampling has been completed for all sites, post-burn sampling has been done for seven locations, and one location was burned and sampled twice. Pre-burn data confirm that most units need management to drive them toward desired condition criteria established by the network. While the data are just starting to be analyzed, it is clear that SBR partner burns have significantly, and positively, impacted forest structure in some areas.

Based on this summary, the group identified two issues to be addressed:

1. Immediate post-burn sampling: Results of immediate post-burn fuel sampling are difficult to interpret when the pre-burn data collection was done the previous year, before leaf-fall. Therefore, partners will gather their own data if they wish to document immediate fuel reduction associated with their burns. Given that the goal of FLN fuel sampling is to monitor fuel trends over time, study data will be collected from the same areas and at the same time each year, so that the data will give insight as to how fuel loads are changing over time.

2. Compiling environmental data for each burn: SBR partners should establish a list of environmental variables (e.g., KBDI, fuel moistures) that will be collected and sent to Pete for each burn. Ideally, these will be data that can be obtained retroactively for burns that have already taken place.

Communications specialists Debbie Crane (The Nature Conservancy), Brian Haines (North Carolina Division of Forest Resources) and Rudy Evenson (National Park Service) gave talks on the latest in fire-related outreach, education and interpretation efforts in the SBR region. Their goal is to widen ac-

ceptance of prescribed fire as a management tool in the mountains among targeted audiences. This is accomplished through media outreach, ad campaigns, and formal and informal education programs. The importance of using terminology that has been shown to be effective with target audiences was discussed, as were the challenges to working in a part of the country with a rapidly expanding population.

The group discussed how they might best monitor changes in public attitudes in their landscapes with their limited resources. As a result of the discussions, plans are in place to conduct focus groups at three landscapes as an initial step toward developing a standard methodology for tracking public attitudes toward prescribed burning.

The SBR FLN spearheaded the effort to develop the "Bringing Fire Back to the Mountains" interpretive brochure, now available for use by SBR and Appalachian FLN participants

Fifty-three participants from the four-state southern Appalachian region attended the SBR FLN's sixth workshop. Partners represented a variety of disciplines and came from numerous units of the Forest Service, the National Park Service, four state chapters of The Nature Conservancy and three other conservation organizations, six state agencies and one university.

Participating Agencies & Organizations

Cherokee Forest Voices
Georgia Department of Natural Resources—Non-game Conservation Section
Georgia ForestWatch
North Carolina Division of Forest Resources
North Carolina Natural Heritage Program
North Carolina Wildlife Resources Commission
National Park Service—Great Smoky Mountains National Park
National Park Service—Shenandoah National Park
Smoky Mountain Fire Management
Tennessee Division of Forestry
Tennessee Wildlife Resources Agency
The Land Trust for the Little Tennessee
The Nature Conservancy—Georgia Chapter
The Nature Conservancy—North Carolina Chapter
The Nature Conservancy—Tennessee Chapter
University of Tennessee
USDA Forest Service—Chattahoochee-Oconee National Forest
USDA Forest Service—Cherokee National Forest
USDA Forest Service—Francis Marion and Sumter National Forests
USDA Forest Service—George Washington and Jefferson National Forests
USDA Forest Service—National Forests in North Carolina
USDA Forest Service—Regional Office, Southern Region
USDA Forest Service—Southern Research Station
Western Carolina University
WildLaw

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