

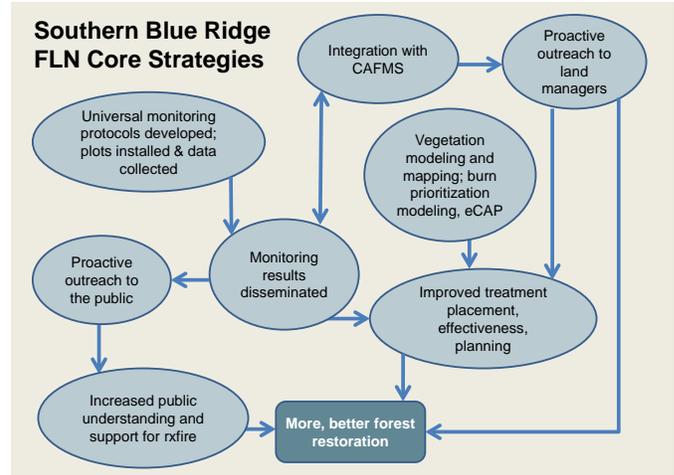
Southern Blue Ridge Fire Learning Network

4.2 million acres

The Southern Blue Ridge FLN encompasses a subset of the southern Appalachian Mountain region, including the four-state intersection of Tennessee, North Carolina, South Carolina and Georgia. In this ecologically diverse landscape, the FLN has identified four target vegetation communities in greatest need of fire regime restoration: shortleaf pine-oak forest, pine-oak heath, dry-mesic oak-hickory forest and high elevation red oak forest. These systems cover about 60 percent of the area within the network region and historically burned on a short fire return interval. Currently about 50,000 acres of this landscape burn each year through controlled burns or wildfires; 200,000 to 400,000 acres need fire (or surrogate treatments) each year to maintain forests in a resilient condition. The SBR FLN works to define a healthy, resilient landscape and to identify where, when and how to restore these ecosystems. Expertise in numerous aspects of restoration is distributed among partners and researchers involved in the collaboration. Sharing this knowledge among partners and with other networks accelerates restoration.



Pine-oak heath is one of the plant communities targeted for restoration by the SBR FLN. Beneath Table Mountain and pitch pine and chestnut oak, the heath component (in this case, mountain laurel, a tall shrub) has taken over the understory, and even the midstory, because of fire exclusion. Pines and oaks can no longer germinate, and grasses and herbs have become uncommon. © Beth Buchanan/USFS



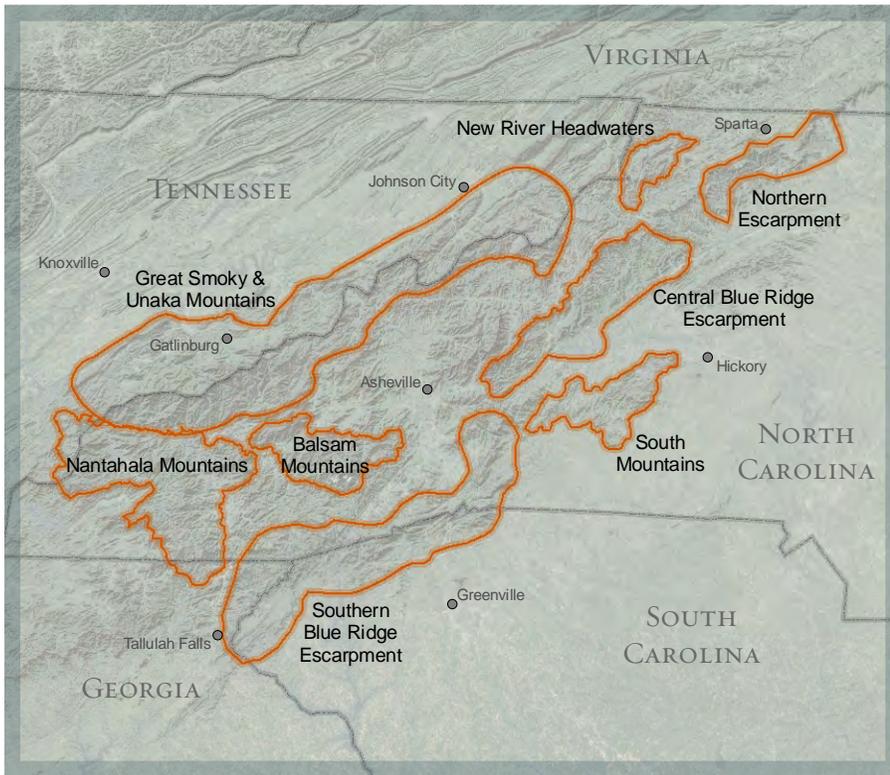
Network Vision

Partners across the SBR FLN landscape have identified and characterized fire-benefitted ecosystems in the landscape and identified restoration goals for four vegetation communities—pine-oak heath, shortleaf pine-oak, dry-mesic oak-hickory and high elevation red oak. Together, partners advance restoration in the region by agreeing to:

- Use monitoring, modeling and expert opinion to develop and implement collaborative management plans that have the support of public agency partners, local communities and other stakeholders.
- Establish and maintain a network of monitoring plots to learn about the effectiveness of the management activities and guide adaptive management, and share findings with agency staff and the public to ensure understanding and continued support, or at least tolerance, for the work.
- Collaborate with the Consortium of Appalachian Fire Managers and Scientists (CAFMS) to keep partners informed of research findings, and provide managers an opportunity to identify research questions that need to be addressed for effective restoration efforts.

Balsam Mountains
Central Blue Ridge Escarpment
Great Smoky & Unaka Mountains
Nantahala Mountains

New River Headwaters
Northern Escarpment
South Mountains
Southern Blue Ridge Escarpment



map © 2011 Liz Rank/TNC

In 2011, much of the work of the SBR FLN addressed hurdles to restoring priority areas by applying and sharing two tools refined in the region: the “ecomath” tool and Enhanced Conservation Action Planning (ECAP). The ecomath tool is a spatial model that helps planners identify the areas where treatments are ecologically most important and most effective; it was refined by a team on the Central Escarpment landscape. It has since been successfully applied on the South Mountains and Great Smoky & Unaka Mountains landscapes as well. Additionally, national forest districts outside of the SBR area have followed suit, thus emphasizing the value of this newly-developed planning approach. Enhanced Conservation Action Planning has been piloted on the North Zone of the Cherokee National Forest, part of the Great Smoky & Unaka Mountains landscape. This planning process allows stakeholders to compare current and pre-European settlement conditions for targeted ecosystems and project the results of different treatments into the future. A cost-benefit module helps collaborative groups identify the most cost-effective restoration approaches. Lessons being learned on the Cherokee are being shared across the FLN and with other interested groups.

SBR FLN partners also continued to explore efficient and fruitful cooperation with the Consortium of Appalachian Fire Managers and Scientists (CAFMS), feeding research needs to the CAFMS board and research findings back to managers. Partners also reached out to other landscape-level planning efforts—such as the Cherokee National Forest’s Landscape Restoration Initiative and implementation of Community Wildfire Protection Plans by the North Carolina Department of Forest Resources—to find synergies in planning and implementation.

Finally, representatives of the SBR and the Appalachian FLN, the regional FLN immediately to the north, regularly attend each other’s meetings to exchange ideas, knowledge and lessons learned.

Network Partners

Consortium of Appalachian Fire Managers and Scientists
 Georgia Department of Natural Resources—State Parks & Historic Sites Division
 Georgia Department of Natural Resources—Wildlife Resources Division (Nongame)
 Land Trust for the Little Tennessee
 National Park Service—Great Smoky Mountains NP
 North Carolina Division of Forest Resources
 North Carolina Division of Parks and Recreation
 North Carolina Wildlife Resources Commission
 The Nature Conservancy—Georgia, North Carolina, South Carolina, Tennessee
 USDA Forest Service—National Forests in NC, Chattahoochee-Oconee NF, Cherokee NF, Southern Region Regional Office, Southern Research Station
 Western Carolina University
 Western North Carolina Alliance

More information:

recording of webinar on ecomath planning tool
www.conservationgateway.org/link/ecological-burn-prioritization-model-webinar-recording

eCAP on the Cherokee NF
www.communityplan.net/cherokee/

Consortium of Appalachian Fire Managers and Scientists
www.cafms.org

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Balsam Mountains

Southern Blue Ridge FLN North Carolina 236,000 acres

The Balsam Mountains adjoin the Great Smoky Mountains and are dominated by steep side slopes, narrow spur ridges and narrow coves. Most soils in the area formed in schists and gneisses and are acidic with relatively low fertility. However, there are locally significant occurrences of rock formations that produce more neutral soils that support diverse and productive forest communities.

Mature high elevation red oak forest and chestnut-oak forest communities cover most of the higher ridges and slopes with an unusually diverse herb layer. Rich cove forest communities are found on more sheltered, concave slopes and coves, and transition to northern hardwood forest at the highest elevations.

Past logging, fire suppression, and other land uses have significantly affected the forests in this region. The re-introduction of fire on appropriate sites is a fundamental component of restoration efforts in this landscape.

Current Activities and Accomplishments

Partners are developing a fire prioritization plan for this landscape using an ecological fire prioritization model based on a template developed on the Grandfather Ranger District (Pisgah National Forest) in 2011; adaptation of the model has been completed for two of the National Forests in NC districts encompassing the Nantahala Landscape. The model was used to evaluate fire units based on several key variables identified by managers:

- percentage of acreage of fire-adapted pine or oak dominated vegetation (weighted to give the greatest importance to pine, less to xeric oak, and the least to mesic oak);
- presence of rare, fire-adapted species (with greater weight given to globally rare species versus those rare in the region or state);
- presence of existing high quality fire-adapted vegetation, as tracked at the national, regional and state level (with greater weight given to nationally important sites); and
- units with wildlife benefits from maintained openings.

In 2012, the fire units will be evaluated with the ecological prioritization model, and more sites—including some from the North Carolina Wildlife Resources Commission and other partners—will be added for evaluation.



A spring prescribed burn conducted on the Cold Mountain Game-lands in the Balsam Mountains landscape © Dean M. Simon/NC WRC

There are currently two FLN demonstration units in this landscape, both located in the Cold Mountain Game-lands and focusing on the restoration of high elevation red oak forests. One of the units has undergone two spring burns, and the other has had one spring burn; both units will be burned at three- to five-year intervals, as conditions allow. Nearly 60 permanent plots have been established in these units to assess fire effects. Initial results indicate that prescribed burning has reduced overstory density, altered vegetative composition, and reduced litter and duff thickness. However the changes vary greatly from place to place within each burn unit, so analyses are underway to link specific fire effects to pre-burn stand conditions, topography and other factors in order to improve fire management.

This landscape will host the SBR FLN regional workshop in May 2012.

Landscape Vision

Partners will facilitate the reintroduction of fire to fire-dependent plant communities in order to restore and maintain critical forest habitats, and document the effects of fire on forest stand development.



Landscape Partners

North Carolina Division of Forest Resources
North Carolina Wildlife Resources Commission
The Nature Conservancy—North Carolina
USDA Forest Service—Southern Research Station
Western Carolina University

Left: These photos show the degree of variation in regeneration response to two spring burns within the same burn unit located in the Balsam Mountains landscape. In the area shown in the photo at top, two spring burns resulted in nearly a three-fold increase in regeneration density, while in the area shown in the photo on the bottom, two spring burns resulted in nearly a 25 percent decrease in regeneration density. Understanding why these differences occurred will help managers to more effectively use prescribed burning in forest restoration efforts.

© Peter Bates/Western Carolina University

A view of the Richland Balsams in the Balsam Mountains landscape, taken from the Blue Ridge Parkway

© Rob Lamb/Forest Stewards, Inc.

Central Blue Ridge Escarpment

Southern Blue Ridge FLN

North Carolina

425,000 acres



A prescribed fire in the Globe area of the Blue Ridge Escarpment

© David M. Combs

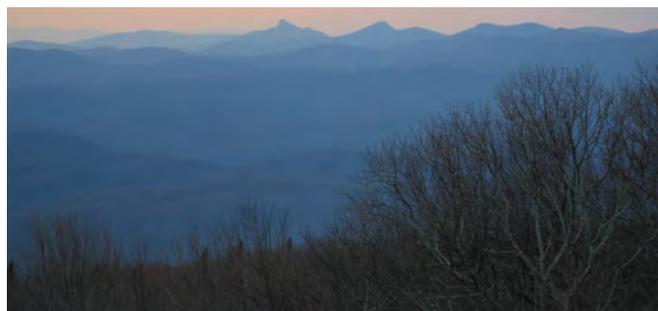
The Central Blue Ridge Escarpment characterizes the descent from the western mountains toward the piedmont in North Carolina, and consists of steep slopes and elevations from 1,000 to 6,000 feet. At the lower elevations the natural communities include chestnut-oak, pine-oak heath and acidic cove forests, and at higher elevations northern red oak forests are common. Across the landscape, thickets of rosebay rhododendron and mountain laurel make up much of the understory and shrub layer. The density of these two heath species is indicative of land management legacy stretching back over a century: After decades of farming and grazing, settlers sold their land to logging companies that removed most of the remaining large timber via railroad. The railways frequently sparked fires in the logging slash, resulting in severe wildfires, which in many areas reduced the vegetation to bare soil. The dry, infertile conditions allowed fast-growing, opportunistic shrubs to capture areas once populated by pine and oak forests with diverse herb layers. In fact, the land was so damaged and in need of restoration that the first

eastern-U.S. purchase for the newly-established Forest Service was made within this landscape.

While these severe fires altered the structure of the forests, fire has always been a natural part of the Central Blue Ridge Escarpment landscape, and it is arguably the most fire-adapted portion of the Pisgah National Forest and Blue Ridge Parkway. Lying in the rain shadow of the Black Mountains to the west, the landscape is subject to dry thunderstorms, which produce numerous lightning strikes with little or no rainfall. The oak forests of the landscape benefit from these fires, as do many other fire-adapted species, including turkey-beard and Table Mountain pine, which produces serotinous cones that require fire to germinate. Mountain golden heather, a low-growing shrub, is one of the most fire-dependent species in the landscape, and is found nowhere in the world except in the Central Blue Ridge Escarpment. Heller's blazing star, another federally listed plant, also benefits from fire, and is being maintained with recurrent fire in the landscape.

Landscape Goal

We continue to work cooperatively as land managers and conservation groups to move towards the desired future conditions defined and illustrated by our collaborators that are both ecologically acceptable and achievable. Our team will continue to strive to further our understanding of the role of fire in the Central Blue Ridge Escarpment and continue to facilitate and promote prescribed and natural fire across the landscape.



Grandfather RD from the Blue Ridge Parkway © Bart C. Kicklighter/USFS

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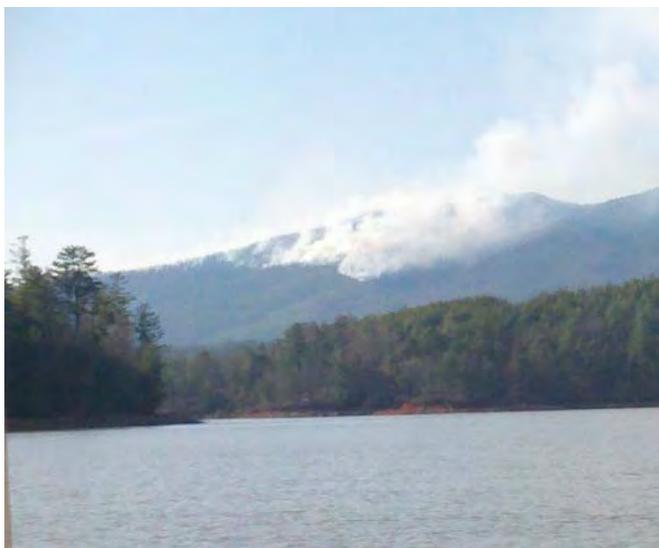
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Throughout 2011, cooperators of the Central Blue Ridge Escarpment worked together to develop a treatment planning model that incorporates both ecological and logistical factors, which is currently being used to prioritize areas across the landscape that are in need of ecological restoration using prescribed fire. The modeling was developed collaboratively with all partners in the landscape and has helped expedite planning, preparation and implementation of current and future prescribed burns.

Other accomplishments in 2011 include:

- Completion of the first cooperative prescribed burn between the Forest Service and North Carolina Wildlife Resources Commission. This burn and others helped comprise the nearly 5,500 acres of prescribed fire that were implemented across the landscape in 2011.
- Data collection for burn effects monitoring in the landscape, with immediate post-burn data collected following the Lake James burn and second year post-burn data collection completed on the Lost Bear East unit.
- Installation of two new monitoring plots in anticipation of the Singecat Ridge burn, which is scheduled to be implemented in 2012. A total of more than 6,750 acres of prescribed fire has been planned in this landscape for 2012.



Landscape Partners

National Park Service—Blue Ridge Parkway
North Carolina Wildlife Resources Commission
The Nature Conservancy—North Carolina
USDA Forest Service—Grandfather Ranger
District
Western North Carolina Alliance

“The work accomplished within this landscape paints a clear picture of what collaboration should look like. I have been pleased with the partnership, particularly the efforts to complete the burn prioritization model. The model has served as a beneficial tool to help jumpstart our planning efforts to increase burning on the district”

John Crockett

District Ranger, Grandfather Ranger District



Above: Monitoring plots are used to track the effects of fire and other treatments on the rosebay rhododendron (*Rhododendron maximum*) and mountain laurel (*Kalmia latifolia*) that dominate many slopes of this area to the detriment of oak and pine regeneration.

© Bart C. Kicklighter/USFS

Left: The Lake James prescribed burn was conducted by partners from the Central Blue Ridge Escarpment in March of 2011.

© Ryan Jacobs/NC WRC

Great Smoky & Unaka Mountains

Southern Blue Ridge FLN
North Carolina, Tennessee
1.6 million acres

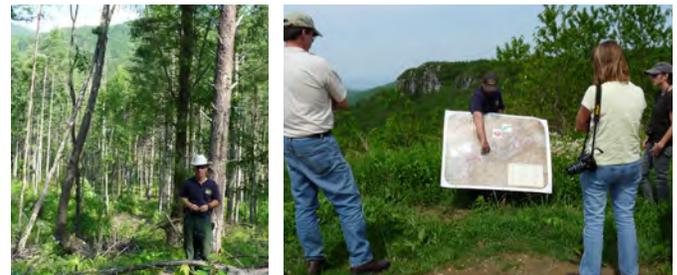
The Great Smoky Mountains and Unaka Mountains

form a typical southern Appalachians site. Running along the Tennessee/North Carolina state line with elevations of 2,000 to 4,500 feet, they are home to oak-pine heath, high elevation northern red oak, dry-mesic oak-hickory forests and other community types.

Like many landscapes, these mountains have suffered from a lack of appropriate fire. While fire has not been completely excluded from this landscape—on the Cherokee NF, about 20,000 acres a year are burned—partners see a need for a major reduction in hazardous fuels, as well as restoration of forest structure to ensure its long-term health and resiliency. However, getting appropriate fire into the forest meets with some public concern. More comprehensive monitoring of the effects of fire and dissemination of information about its benefits are key to alleviating these concerns. Monitoring and adaptive management programs will also improve planning, allow managers to confirm that objectives are being met and provide the feedback needed to adjust management as needed. Ultimately, the result of the monitoring and enhanced communication should speed planning and permitting processes, allowing fire to be reintroduced over a greater range in the region.

2011 accomplishments and activities of this landscape included:

- hosting the SBR FLN regional workshop in May.
- working with FLN partners to develop a burn prioritization model to assist fire managers in determining the most appropriate locations for future prescribed burns on the forest.
- hosting a Landscape Restoration Initiative Team which is using Ecological System Mapping, Enhanced Conservation Action Planning, and LANDFIRE models to help determine forest restoration management priorities and processes; one of the team recommendations emphasizes the use of prescribed burning to help in the restoration process. When finalized, these recommendations will aid in determining emphasis areas for prescribed burning on the forest.
- gathering data on nine existing fire monitoring plots and conducting four spring burns (3,025 acres) and five fall burns (2,636 acres); an additional 2,600 acres planned for 2011 were shifted to spring 2012 due to unfavorable weather patterns.



The May 2011 field trip on the Unaka District emphasized the broad and diverse range of the fire management program. Management activities being implemented there include: woodland restoration, field restoration, management for blight-resistant American chestnut, Table Mountain pine and shortleaf pine restoration, oak restoration, and fuels reduction programs. An overview of the prescribed burn program that started in the early 1990s was also discussed.

© Margit Bucher/TNC

Landscape Partners

Appalachian Trail Conservancy

National Park Service—Great Smoky Mountains
National Park

Private landowners

The Nature Conservancy—North Carolina,
Tennessee

Tennessee Department of Agriculture—Forestry
Division

USDA Forest Service—Cherokee National Forest

Landscape Goal

Partners are working toward a healthy and diverse ecosystem that includes appropriate proportions of structural stages/age classes for the full range of fire-adapted vegetation native to the site. This will include regeneration adequate to sustain populations of *Pinus echinata*, *P. pungens*, *P. rigida*, *Quercus montana*, *Q. rubra* and other *Quercus* species. It is expected that such conditions will also increase the health and diversity of populations of many other biological taxa.

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New River Headwaters

Southern Blue Ridge FLN North Carolina 95,000 acres

The New River Headwaters area is one of the most diverse and critically important biological hotspots in the entire southern Appalachians. Many species found here came to the region just one step ahead of the encroaching Ice Age and remained in the high peaks of these rugged mountains after the ice receded 10,000 years ago. The landscape of mountain bogs and boulder field forests is rich with unusual natural communities and rare plant and animal species. It faces threats from rapid development, habitat fragmentation and fire exclusion.

In 2009, vegetation was mapped for the landscape; about 60% of the area was found to be fire-dependent mesic oak hickory and high elevation red oak forest. Monitoring plots were established by FLN partners in 2010. Analysis of these data showed that—while oaks still predominate in the canopy—mountain laurel and rhododendron are shading the ground, and maples are leading regeneration and are will replace oaks in the canopy if fire is not reintroduced to the landscape.

In the fall of 2011, two successful burns in high-elevation red oak forest were conducted. These were possible by strong collaborative efforts with many partners, including North Carolina Wildlife Resources Commission, The Nature Conservancy, North Carolina Division of Parks and Recreation, North Carolina Forest Service (including inmate crews) and local volunteers. Both of these important burns took place in areas that include permanent monitoring plots: ecological effects monitoring was conducted pre-burn and immediately following the burns, and they will be monitored again in the summer of 2013.

Landscape Partners

North Carolina Division of Parks and Recreation

North Carolina Forest Service

North Carolina Natural Heritage Program

North Carolina Wildlife Resources Commission—Threetop Mountain Gamelands

The Nature Conservancy—North Carolina (New River Headwaters Program)



Above: Three Top Mountain Gamelands burn conducted by partners in October 2011 © Dean M. Simon/NC WRC

Below: Bluff Mountain Burn, November 2011

© Kim Hadley



“This strong partnership would not be possible without the support of the Fire Learning Network—and it is critical to conducting burns on a meaningful landscape level in this region.”

Megan Sutton

Mountain District Stewardship Program
The Nature Conservancy—North Carolina

Landscape Goal

Land managers and researchers are working in partnership across jurisdictional boundaries to return fire to the New River Headwaters. A fundamental part of this effort involves an assessment of fire needs across the landscape. Post-fire monitoring will also be vital to the effort.

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Nantahala Mountains

Southern Blue Ridge FLN
North Carolina, Tennessee
629,000 acres

The Nantahala Mountains landscape, a rugged rural region with elevations from 1,200 to 5,400 feet, contains both old growth and virgin forest in Joyce Kilmer Wilderness and heavily harvested and previously farmed lands across much of the lower elevation areas. Cities and towns are few, with the largest, such as Franklin and Bryson City, falling on the perimeter of the delineated area. Over 60% of the landscape is managed by FLN partners.

A diversity of species and plant communities occurs in the area. Vegetation assessment models show that over half of the landscape is in ecological zones where fire-adapted systems would be expected. At the lower elevations shortleaf-pine and southern red oak communities are intermixed with dry-mesic oak-hickory forests. At the middle elevations pine-oak/heath forests predominate on the steepest ridges intermingling with chestnut oak heath forest and montane oak-hickory forest on those gentler ridges and convex slopes. At the highest elevations, high elevation red oak forests dominate on ridges. The majority of these habitats have been impacted by past land use practices or altered fire patterns, where frequency and/or intensity has been changed. As a result, parts of the landscape are now dominated by white pine in the midstory and understory, have an unnatural abundance of evergreen shrubs and are not regenerating oaks or fire-tolerant pines. The rare serpentine barren, with its 22 grass species and unique butterfly fauna, is perhaps the most uncommon fire-dependent community in the landscape, but the landscape contains many other rare, but more widely distributed, communities that also depend on fire.

Current Activities and Accomplishments

Partners continue to develop a fire prioritization plan for this landscape using an ecological fire prioritization model based on a template developed on the Grandfather Ranger District (Pisgah National Forest) in 2011;

Landscape Objectives

Partners are working to restore a variety of habitat types and monitor vegetation changes to better understand the role of fire in the landscape and determine whether goals are being met. In time, it is hoped that lightning-ignited fires will again be allowed to burn in appropriate landscape settings to the extent possible. Partners are also developing strategies to facilitate the implementation of prescribed burning on private lands in this landscape.



The 730-acre Yellow Creek joint prescribed burn, which included lands owned by the Land Trust for the Little Tennessee and the Forest Service, also encompassed a right-of-way supporting millions of dollars of high-voltage power transmission lines. Both Duke Energy and Alcoa Power and Light Company were pleased with the outcome of this burn and plan to expand their burning program in western North Carolina.

© USFS, Cheoah District

adaptation of the model has been completed for two of the National Forests in NC districts encompassing the Nantahala Landscape. The model was used to evaluate fire units based on several key variables identified by managers:

- percentage of acreage of fire-adapted pine or oak dominated vegetation (weighted to give the greatest importance to pine, less to xeric oak, and the least to mesic oak);
- presence of rare, fire-adapted species (with greater weight given to globally rare species versus those rare in the region or state); and
- presence of existing high quality fire-adapted vegetation, as tracked at the national, regional and state level (with greater weight given to nationally important sites).

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Eighty-six separate burn units, totaling 51,500 acres, were initially scored; units varied in size from 17 to almost 2,600 acres. The resulting prioritization scores ranged from a low of 1 to 161, and will be used in making decisions about where to allocate fire resources across the landscape. In 2012, more fire units—including sites from the North Carolina Wildlife Resources Commission and other partners—will be evaluated with this ecological prioritization model.

There are currently four permanent monitoring plots in this landscape, as part of the monitoring taking place across the SBR FLN. Three of the units are dominated by shortleaf pine-oak communities, and the fourth is primarily high-elevation red oak. The initial burn has been completed on each unit (three were spring burns and one was a fall burn). Post-burn monitoring was completed in the summer of 2011 for the Yellow Creek burn unit, and post-burn data will be collected for the other three sites during the summer of 2012.

After 16 years of burning, this fire-dependent, globally-rare woodland community, known as a serpentine barren, is nearly restored. These areas contain many rare understory plants that require fire, and are typically surrounded by other fire-adapted community types. The woodland structure is visible in both the foreground and background of the photo below.

© Gary Kauffman/USFS

Landscape Partners

Alcoa Power Generating, Inc.

Duke Energy

Land Trust for the Little Tennessee

North Carolina Division of Forest Resources

The Nature Conservancy—North Carolina

USDA Forest Service—National Forests of North Carolina (Nantahala Ranger District)



Northern Escarpment

Southern Blue Ridge FLN
North Carolina
200,000 acres

The Northern Escarpment is where prescribed burning in forest ecosystems in the mountains of western North Carolina began, with the North Carolina Wildlife Resources Commission burning at the Thurmond Chatham Game Land in 1987. The 25th anniversary of this continuing endeavor will be marked in 2012, with partners poised to take fire restoration in this landscape of nationally-significant natural heritage values to a new level.

While more than a third of this landscape is in clustered public ownership, that ownership is split among several state and federal agencies. Past fire activities of several of these agencies have focused elsewhere. FLN partners are recognizing, however, the great potential of this landscape to benefit from jointly-conducted burns that cross ownership boundaries. There are significant private holdings in the landscape that are good candidates for contributing to larger-scale fire restoration, providing a key role for the North Carolina Forest Service and land trust partners.

All of the partners in this landscape had previously worked together in other FLN landscapes, but met to discuss fire restoration opportunities in this landscape for the first time in 2011. Together they refined landscape boundaries, drafted a five-party memorandum of understanding, and began discussion of adapting burn prioritization models to the Northern Escarpment.

Goals for 2012 include designating potential burn units that include interagency and public-private cooperative projects; adapting burn prioritization models to fit the landscape's ecosystems, ownership patterns, and agency authorities; designing one or more jointly-controlled burn projects; and conducting outreach to owners of key private tracts.

Landscape Goal

Partners are working to identify fire-suppressed pine-oak habitats that can be addressed through partnerships in the next three to five years, and identify obstacles and potential solutions to implementation in priority locations.



An early-spring burn on Thurmond Chatham Game Land improves wildlife habitat for many species.
© Dean M. Simon/NC WRC



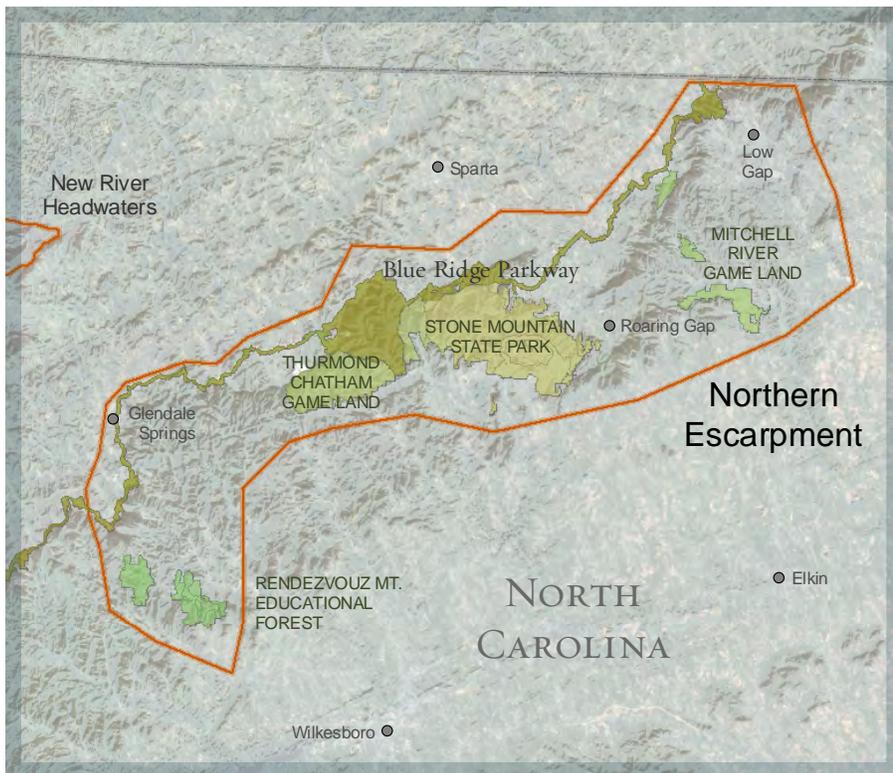
Partners visit site of multi-burn Table Mountain pine/pitch pine restoration project at Thurmond Chatham Game Land.
© David Ray/TNC

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Landscape Partners

- National Park Service—Blue Ridge Parkway, Doughton Park
- North Carolina Division of Parks and Recreation—Stone Mountain State Park
- North Carolina Forest Service—Rendezvous Mountain Educational State Forest
- North Carolina Wildlife Resources Commission—Mitchell River Game Lands, Thurmond Chatham Game Land
- Piedmont Land Conservancy
- The Nature Conservancy—North Carolina

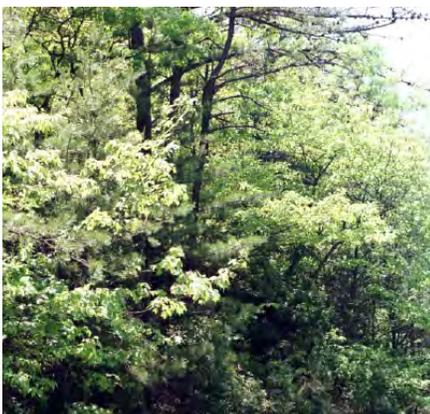
map © 2011 Liz Rank/TNC



Helen Mohr, of the Consortium of Appalachian Fire Managers and Scientists (CAFMS), discusses fire effects research data with Dean Simon and other partners. © David Ray/TNC

“Because of our long history of collaborating with scientists at the Southern Research Station as we put fire on the ground here, we have a strong baseline for understanding fuels, fire behavior, and fire effects in this landscape. By working with FLN partners across ownership boundaries, we can now take that knowledge to scale.”

*Dean Simon
North Carolina Wildlife Resources Commission*



A table mountain / pitch pine community before (left) and after seven burn rotations since 1987 (shown in fall (middle) and spring (right)). Burning has increased plant diversity and early successional wildlife habitat at Thurmond Chatham Game Land. © Dean M. Simon/NC WRC

Southern Blue Ridge Escarpment

Southern Blue Ridge FLN

Georgia, North Carolina, South Carolina

868,000 acres

Tallulah Gorge, at the far southwest edge of the Southern Blue Ridge Escarpment landscape, is best described as a transitional zone between the southern Appalachian piedmont to the south and the Southern Blue Ridge Mountains to the north. Numerous upland ridges and south-facing woodland slopes are embedded in a larger mesic forest matrix. The ecological system to which these upland habitats most closely conform is the Southern Appalachian low-elevation pine forest (NatureServe). This system occurs in a variety of topographic and landscape settings and is dominated by either shortleaf pine (*Pinus echinata*) or Virginia pine (*P. virginiana*) and also contains numerous dry-site oak species, such as southern red oak (*Quercus falcata*), chestnut oak (*Q. prinus*) and scarlet oak (*Q. coccinea*). In addition, numerous pitch pine and Table Mountain pine specimens can also be found scattered throughout the landscape, particularly in the most rugged terrain near bluffs and cliffs.

Within this landscape, a diverse group of partners are working to use prescribed fire and mechanical treatments to restore the natural structure and function of the upland pine and oak ecosystems and to maintain a rich array of rare plants and animals. Historically, frequent low-intensity fires occurring every 3-5 years were responsible for maintaining a bi-layered forest structure, with widely spaced pines and oaks in the overstory and a rich and diverse grass, forb and shrub layer in the understory (oak/pine heath).

Currently, this type of forest habitat—generally described as pine-oak-heath woodlands—is declining throughout the region, primarily due to fire suppression and other incompatible land use practices. Such woodlands are ideal habitat for a variety of sun-loving plants, as well as for numerous wildlife species that depend on the bi-layered structure. Wildlife species that will benefit from treatments that restore this structure include black bear, white-tailed deer, eastern wild turkey, ruffed grouse,



View looking toward Tallulah Gorge from South Carolina. Low-elevation pine habitat is visible in the foreground, and the Blue Ridge Mountains rise in the background. The project area is tucked in the transition area up against the mountains. © Mike Brod/USFS



An open woodland structure maintained by fire supports a variety of grasses, forbs and shrubs in the understory. © Mike Brod/USFS

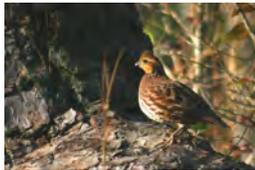
Landscape Goal

A variety of partners will work together across jurisdictional boundaries to effectively and efficiently restore pine-oak woodland habitats on suitable sites in the Tallulah Gorge area, developing methods that are applicable to the larger Southern Blue Ridge Escarpment landscape.

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northern bobwhite, the rare Bachman's sparrow and the declining brown-headed nuthatch and eastern wood pewee. In addition, a number of rare plants, including turkeybeard, sundews, and a number of grasses and forbs associated with tallgrass prairies—such as cone-flower, big bluestem and silphium—occur in these fire-maintained habitats.



Landscape Partners

Georgia Department of Natural Resources—
State Parks and Historic Sites Division
Georgia Department of Natural Resources—
Wildlife Resources Division, Nongame
Conservation Section
Georgia Forestry Commission
North Carolina Division of Forest Resources
The Nature Conservancy—Georgia, North
Carolina, South Carolina, Tennessee
USDA Forest Service—Chattahoochee-Oconee
National Forest (Chattooga River Ranger
District)
USDA Forest Service—Nantahala National Forest
(Wayah Ranger District)

Wildlife species benefitting from treatments in this landscape includes black bears, brown-headed nuthatches and bobwhite quail.

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Recent Accomplishments

Partners have treated approximately 6,500 acres with prescribed fire since 2007. This includes the first multi-jurisdictional prescribed burn in the area, which was held in winter 2010. The burn included lands managed by State Parks and USDA Forest Service, and was implemented with numerous assisting agencies, including the Atlanta Botanical Gardens, Georgia Forest Service, Georgia Power and U.S. Fish and Wildlife Service. In 2012, the group plans to implement another cooperative prescribed burn of about 3,000 acres that will again include multiple land jurisdictions and the contributions of a variety of local agencies. In addition to fire treatments, partners have mechanically treated about 300 acres to restore ecosystem health and function.

Ecological and a prescribed burn prioritization models are now being developed for the landscape, and will be used in future ecosystem restoration planning.

Research plots to monitor rare species, such as persistent trillium, have been installed in burn units and a multi-year research project has been initiated with Georgia Southern University.

In cooperation with Western Carolina University, fire effects monitoring plots have been installed at key points within the landscape.

Due to the success of the landscape's collaborative efforts, the Consortium of Appalachian Fire Managers and Scientists is now highlighting the FLN's Tallulah Gorge demonstration site as a good example of a collaborative fire restoration project.



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South Mountains

Southern Blue Ridge FLN North Carolina 217,000 acres

The South Mountains landscape is a large area of dissected high hills rising from the rolling upper piedmont region and foothills of the Blue Ridge escarpment. Most of this landscape consists of steep slopes, narrow ridges and narrow ravines or stream gorges, with elevations ranging from 1,000 to 3,000 feet. These mountains are typical of the southern Blue Ridge in ruggedness, fire history and forest communities, which include chestnut-oak, montane oak-hickory, pine/oak-heath, rich coves and acidic coves. Scattered stands of pitch pine and Table Mountain pine are indicative remnants of historical fire influence on the landscape, but the absence of fire has resulted in encroachment by white pine, maple, mountain laurel and rhododendron on many sites. Many areas have been affected by earlier logging as well as fire exclusion. The South Mountains plant communities also include a diverse collection of rare herbaceous plant species, including a large population of white irisette, a federally-listed plant that benefits from fire.

The core of the South Mountains includes South Mountains State Park and South Mountains Game Land—about 40,000 acres of the landscape is made up of state-owned lands owned and managed by the North Carolina Wildlife Resources Commission and North Carolina State Parks. Agency partners from these lands are working together to reestablish ecologically appropriate fire regimes and the use of fire in the South Mountains through collaborative, jointly-implemented prescribed burns across the landscape. As a result, nearly 5,000 acres are currently in a prescribed burn rotation.

Landscape Goal

Through cooperative partnership and collaboration, land managers will work across jurisdictional boundaries to implement prescribed burning and capitalize on other fire occurrences with a common goal of restoring and maintaining fire-adapted ecosystems. Management strategies employed will target increasing the ability to apply fire and reduce obstacles to conducting prescribed burning. A fundamental part of this effort will include monitoring of sites and assessing changing environmental conditions and forest community characteristics as fire is applied across the South Mountains landscape.



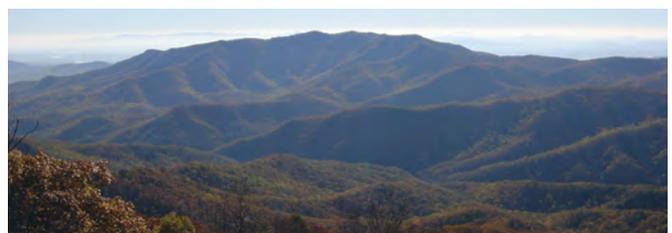
An early spring 2009 prescribed fire burns in the High Peak focal area.

© Ryan Jacobs

In 2011, development of a burn prioritization model was one of the most important accomplishments in this landscape. Use of this model will help partners better manage the 87 percent of the landscape is in fire-adapted forest types. As part of a project that spans the entire Southern Blue Ridge Fire Learning Network, installation of monitoring plots was also completed and pre-burn data were collected for a burn of nearly 1,700 acres that is scheduled for 2012.

Landscape Partners

North Carolina Natural Heritage Program
North Carolina Division of Parks and Recreation
North Carolina Wildlife Resources Commission
The Nature Conservancy—North Carolina



Narrow ridges and steep slopes are typical of the South Mountains landscape.

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