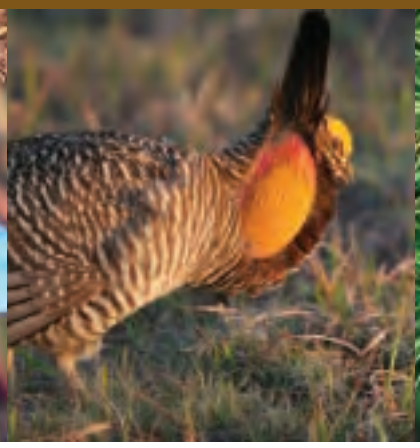
U.S. Fire Learning Network Field Guide 2008



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The Nature Conservancy

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For more information about the U.S. Fire Learning Network, visit *www.tncfire.org/usfln*.

The Fire Learning Network is part of the Fire, Landscapes and People: A Conservation Partnership cooperative agreement.

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U.S. Fire Learning Network: Restoring Fire-adapted Ecosystems Across America

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Collaboration isn't a project you undertake; it is a *Commitment* you make.

THE U.S. FIRE LEARNING NETWORK

is a system of landscape-scale collaborative projects that work together to accelerate the restoration of fire-adapted ecosystems. The cumulative effects of almost a century of fire exclusion in the United States, coupled with other factors such as land management practices and changing climate, are threatening human and natural communities and the native plants and animals that depend on them. An estimated 80 percent of U.S. forests and rangelands currently have altered fire dynamics—they are experiencing too little, too much, or the wrong kind of fire.[1] At the same time only 3 to 3.5 million acres are treated with fire, either by prescribed burning or wildland fire use each year. The Fire Learning Network was formed to support efforts that both restore forest and rangeland health and maintain those lands that are still in good condition through a collaborative and stakeholder-based process.

Collaboration and sharing lessons learned is the core purpose of the Fire Learning Network. Face-to-face workshops and meetings at landscape, regional and national scales are the foundation of the Network. Participants have a common desire to learn and to share their insights about how to overcome barriers to maintaining or restoring the ecological, economic and social values of their particular landscape.

[1] Blankenship, K. et al. 2007. An Ecological Assessment of Fire and Biodiversity Conservation Across the Lower 48 States of the U.S. Global Fire Initiative Technical Report 2007-1. Arlington, VA: The Nature Conservancy.

U.S. FIRE LEARNING NETWORK

WHO WE ARE

The Fire Learning Network was launched in 2002 as a joint effort among The Nature Conservancy, Department of the Interior agencies and the Forest Service. The national network is currently organized into eight regional networks spanning from North Carolina to Oregon and from South Dakota to Texas. Projects within regional networks are tackling similar issues. For example, members of the Great Plains network are focusing on grazing and fire interactions on privately owned prairie ecosystems; projects in the Appalachian network are working on oak-hickory and pine forest restoration and a subset of projects in the West are drawn together under the common theme of strategies to restore ponderosa pine, pinon-juniper woodlands and arid sagebrush shrub lands.

HOW LANDSCAPES ENGAGE IN THE NETWORK

Landscapes in the Fire Learning Network typically encompass large areas with multiple jurisdictions. Most landscapes coalesce around an ecological threat such as fire exclusion, invasive species, or ecologically inappropriate human land uses. Participants decide they want to become a Network landscape and define their own boundaries. Federal, state, local and tribal governments usually participate, along with private landowners, community members and stakeholder groups. When a landscape project is formed, the participants follow a four-step facilitated process. The Nature Conservancy provides modest financial support for leadership and facilitation.

AT A GLANCE

37	States with landscape restoration projects since 2002
55	Active landscape projects in 2008
95	Landscape-scale projects since the Network began in 2002
650	Partners engaged
2,720	Acres in the smallest landscape in the Network
550,000	Acres treated by Network projects
12,000,000	Acres in the largest landscape in the Network
13,000,000	Dollars raised for implementation since 2002
73,000,000	Acres encompassed in the Network

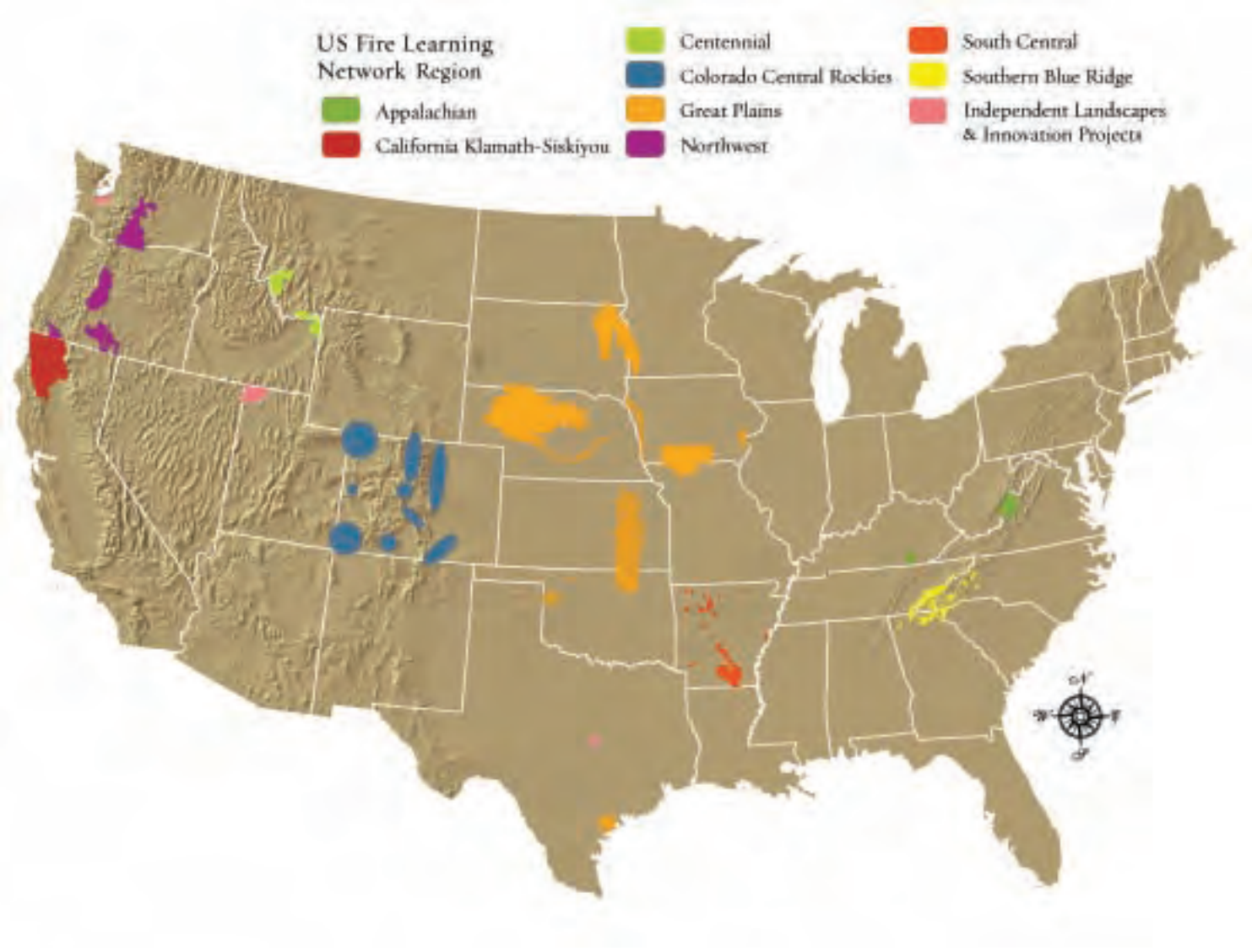
U.S. FIRE LEARNING NETWORK

THE NETWORK APPROACH

The Fire Learning Network process provides an integrated approach that establishes collaborative goals, guides actions and directs resources to gain the greatest conservation results. It is an iterative and adaptive approach that operates at multiple scales and has been employed successfully in diverse geographic and cultural settings. This approach and the methods to implement it allow the practitioner community to share experience and learning across geographies and to improve integrated fire management practices over time.

While all participating landscapes can use this facilitated process, the Fire Learning Network provides flexibility in adapting the process to each landscape's needs. Most landscapes choose to use the four-step process because of its long track record of success in a wide variety of national and international settings. The regional networks serve as a forum for the landscapes to come together once or twice a year for peer review. The entire Fire Learning Network convenes annually at a workshop where landscapes can exchange knowledge across regions and discover national restoration themes.

U.S. FIRE LEARNING NETWORK



Landscapes of the U.S. Fire Learning Network as of March 2008. Not all landscapes on this map are included in the guide. Map © 2008 Gen Green/TNC

GUIDE TO THE FIRE LEARNING NETWORK

This guidebook and individual project descriptions provide a snapshot of the scope of the 2008 activities of the Fire Learning Network in states across the nation. Participants in the landscapes provided background information on the places they are restoring, on their collaborative process, shared vision and group objectives, on their fire-related accomplishments and on what is needed to implement their work plans.

Northwest Fire Learning Network

Ponderosa pine © Chris Helzer/TNC

For millennia, fire has played an important role in shaping the composition, structure and processes of most native ecosystems in Oregon and Washington. Since the late 1800s, grasslands and forests have been changed due to wildland fire exclusion and practices such as livestock grazing and logging. As a result, fires now burn differently across natural landscapes—less often, more uniformly and with greater intensity.

Unnatural fire behavior has severe effects. Ecosystem changes resulting from either fire exclusion or unnaturally severe fires threaten native species and ecological systems, especially species and systems already in decline due to other land use pressures, while also putting communities at risk.

Historical photos of Northwest forests show towering trees with large, park-like open spaces where shrubs, wildflowers and grasslands thrived. Today these forests are much denser; few old-growth trees remain and in many places grasses and wildflowers are scarce. These forests are now at risk of unnaturally severe wildfires that can explode into the crowns of the trees, killing entire stands and destroying habitats. Current land managers are working to restore the open ponderosa pine habitat and its resilience to fire. Thinning stands makes it possible to reintroduce low-severity prescribed fire. These controlled surface fires open the forest floor and recycle nutrients, renewing the native diversity of grasses, shrubs and wildflowers.

Network Long-Term Vision:

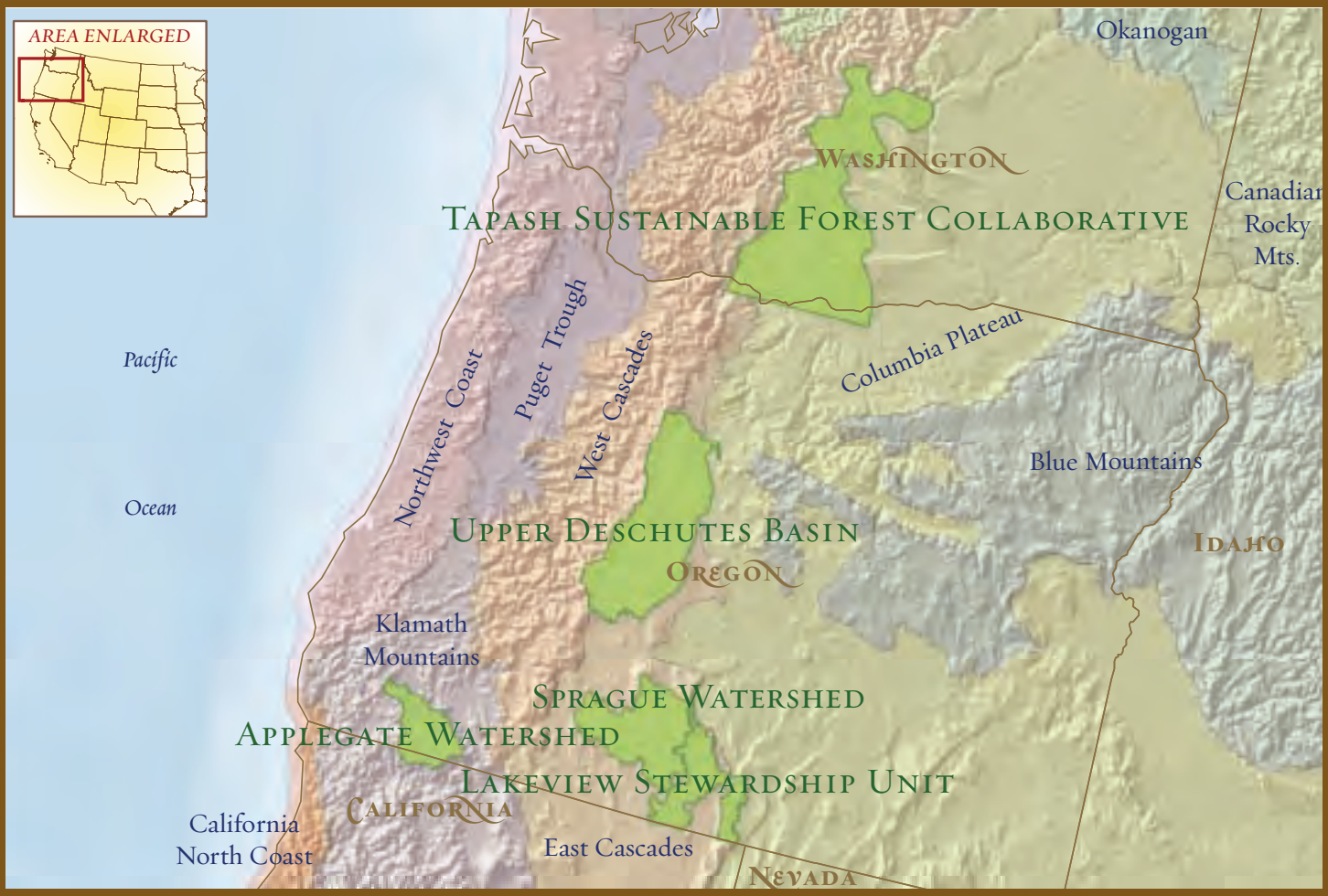
Fire Learning Network sites generate high-leverage products that directly address the barriers in each landscape that inhibit the restoration of fire-adapted ecosystems. Further, they address technical gaps in federal land management and build consensus by bringing landscape analysis techniques to collaborative partnerships.

Demonstration Landscapes

Applegate Watershed (OR)
Tapash Sustainable Forest Collaborative (WA)
Upper Deschutes Basin (OR)

Participating Landscapes

Lakeview Stewardship Unit (OR)
Sprague Watershed (OR)



THE NETWORK SEEKS TO

- develop and employ necessary communication materials to achieve an informed collaborative vision;
- develop a collaboratively derived vision of desired condition for each landscape;
- develop strategies and management scenarios to reach desired vision; and
- use integrated efforts to leverage existing funding to greater landscape effects.

THE NORTHWEST FIRE LEARNING NETWORK comprises five landscapes with the overarching goal of accelerating natural fire regime restoration through collaborative strategic planning. Shared vision encourages stakeholders to manage their landscapes and find solutions that lead to restoration and fuel treatments at appropriate scales.

Different strategies have been used to overcome barriers in the Network landscapes, and transferring those methods and lessons learned at regional workshops has increased enthusiasm and support for the Network. Shared approaches include the Conservancy's Conservation Action Planning methodology, stand condition and prioritization analyses, modeling exercises and communication planning.

Site managers will work together to determine desired conditions for forests at the landscape scale and to gain support for implementation of management techniques. Network objectives are tied directly to Forest Service Forest Plan revisions, and even though those revision timelines fluctuate, individual forest mangers look to continued collaboration to influence ecological goals and objectives.

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Applegate Watershed, *Oregon*

NORTHWEST FLN | 500,000 ACRES

Landscape-scale biocomplexity in the upper Little Applegate © Rick McEwen

COLLABORATIVE OBJECTIVES:

- Sustain or restore ecological integrity and resiliency, especially in fire-adapted ecosystems
- Prioritize actions integrating ecological, social and economic inputs
- Manage adaptively by using local practical knowledge and best available science
- Work with diverse stakeholders to both inform management plans and to build enduring relationships and community capacity to restore fire-adapted forests
- Plan at multiple scales (stand, watershed, landscape, region and time)

THE APPLEGATE WATERSHED is a unique site for its ecological diversity and range of community partnerships. The area occupies a small but central position in Siskiyou Mountains in southwest Oregon and part of the Klamath Mountains Ecoregion that straddles the Oregon-California border. The Applegate supports the northwest temperate forests that are home to the northern spotted owl and the Siskiyou Mountain salamander. The area also contributes cool, clear water to one of the more important Pacific coastal salmon rearing grounds. The influence of a Mediterranean climate, rain shadow of the coast range and diversity of soils supports a complex array of dry, fire-maintained forests, woodland, chaparral and grassland, along with rare serpentine systems and plants of the Josephine peridotite sheet.

Collaborative Vision Statement:

The Applegate Watershed supports functioning fire-adapted systems with abundant and diverse fish and wildlife while respecting the social and economic goals and values of the community.

The combination of important forests and wildlife and a highly engaged community, along with existing collaboration on land management through the valley's designation under the Northwest Forest Plan as an Adaptive Management Area, brought the parties together to create the Applegate Fire Learning Network landscape. The Applegate landscape has hosted numerous stakeholder workshops to develop objectives that optimally integrate ecological and social values. The landscape team is using the Conservancy's Conservation Action Planning (CAP) process, Vegetation Dynamics Development Tool (VDDT) and the Tool for Exploratory Landscape Scenario Analyses (TELSA) to help them collaboratively define biological and social values, measures and constraints, map desired future conditions and develop strategies and specific priority settings to attain them. The team is hopeful that its groundbreaking work on integrating BioCAP and SocialCAP to inform landscape scenarios and desired conditions and priorities in the Applegate Watershed will enhance wildland fire and land management practices within and beyond the watershed.

A treated (thinned and underburned) Klamath dry-mesic mixed conifer forest © Ed Reilly

PARTNERS:

Applegate Fire District 9
Applegate Fire Plan
Applegate Partnership
Applegate River Watershed Council
Bureau of Land Management, Medford District, Ashland Resource Area and Grants Pass Resource Area
Community groups and community leaders
Klamath Bird Observatory
Klamath-Siskiyou Wildlands Center
Out of the Woods Eco-Forestry, Inc.
Siskiyou Regional Education Project
Southern Oregon Timber Industry Association
Southern Oregon University
The Nature Conservancy
Threatened and Endangered Little Applegate Valley
USDA Forest Service, Siskiyou Mountains Ranger District
U.S. Geological Survey

CRITICAL PARTNERSHIP FUNDING NEEDS:

The partnership needs $120,000 for Conservation Action Planning indicator data assembly and analysis and to support 2010 post-treatment data collection and analysis.

KEY SUCCESSES

PRELIMINARY OUTPUTS FROM FOREST STATE AND TRANSITION MODELS and modeled landscape transitions based on different scenarios for the Applegate are available through the U.S. Geological Survey.

DRAFT SOCIAL ASSESSMENT with focal targets, indicators, constraints, objectives and strategies was completed.

2008–2009 PLANNED ACTIONS

- Use current ecological and social transition models to update the Applegate Community Wildfire Protection Plan and to inform out-year fuels and restoration projects on federal land.
- Work with the Rogue Siskiyou National Forest and community collaborators to design restoration priorities for the 10,000-acre project in the Butcher Knife Slate, Cheney Slate and Humbug-Thompson sites.
- Implement demonstration project in 2009 using four treatments including a control to demonstrate outcomes on key ecological measures.
- Coordinate with Jackson and Josephine County Fire Plans.

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Lakeview Stewardship Unit, *Oregon*

NORTHWEST FLN 488,339 ACRES

Lakeview Stewardship Unit recent burn © Craig Bienz/TNC

The Lakeview Stewardship Unit located east of the Cascades offers expansive views, dramatic cliffs and solitude. Ponderosa pine forests and woodlands are the most extensive plant community in the Stewardship Unit. The extensive stands of ponderosa and lodgepole pine grow on deep pumice and ash that blanketed the area after the eruption of Mt. Mazama nearly 7,000 years ago. Shrubs provide an important habitat for nesting birds, and wildlife forage for mule deer and elk.

Historically, natural wildfires were frequent within the ponderosa pine forests of this area. Although mature ponderosa pines are resistant to low-intensity fires, young pines and other species such as the true firs usually did not survive the flames. Therefore, ponderosa pine forests tended to occur in pure, even-aged stands of widely spaced trees under the natural fire regime.

COLLABORATIVE OBJECTIVES:

- Sustain and restore a healthy, diverse and resilient forest ecosystem that can accommodate human and natural disturbances
- Sustain and restore the land's capacity to absorb, store and distribute quality water
- Provide opportunities for people to realize their material, spiritual and recreational values and relationships with the forest

Collaborative Vision Statement:

The partnership envisions a sustainable forest ecosystem that, through a new understanding of the interrelationships between the people and the land, will ensure quality of life for present and future generations.

THE LAKEVIEW STEWARDSHIP UNIT was originally established within the Fremont-Winema National Forests in 1950 as the Lakeview Federal Sustained Yield Unit. The unit aims to enhance the economic stability of the communities of Lakeview and Paisley in Lake County, Oregon. In 2001, the Chief of the Forest Service re-authorized the Unit with a revised policy statement that provided a new name, a common vision and a set of new goals and objectives that were developed by the Lakeview Stewardship Group and adopted by the Forest Service.

As in many other forests on the east side of the Cascades, years of fire exclusion and extensive livestock grazing have resulted in many acres of the forest being increasingly converted to a condition that is dominated by white fir. Those stands are more susceptible to drought stress and associated outbreaks of insects and disease, which increases the risk of large-scale wildfires.

The Northwest Fire Learning Network (FLN) expanded in 2007 to engage the Lakeview Stewardship Group, a 10-year-old collaborative that has worked hard to add a biomass cogeneration plant to Lakeview. The FLN process provides the action mapping tools as well as integrated modeling efforts that help the group test collaborative management goals through time. Together, stakeholders will embark in the first 10-year stewardship contract on Forest Service land in Oregon and will use lessons learned from other Network sites that have engaged in stewardship contracting.

Klamath Basin in Oregon © Michael Wilhelm

PARTNERS:

Collins Company
Defenders of Wildlife
Fremont Sawmill
Lake County Resource Initiative
Oregon Department of Fish and Wildlife
Oregon Department of Forestry
Private landowners
Sustainable Northwest
The Larch Company
The Nature Conservancy
The Wilderness Society
USDA Forest Service, Fremont-Winema National Forests
USDA Forest Service, Pacific Northwest Research Station

CRITICAL PARTNERSHIP FUNDING NEEDS:

The partnership needs $494,270 to develop assessments to prioritize restoration, gather ecological data to ground truth and monitor management effectiveness and to add implementation capacity to restoration demonstration areas.

KEY SUCCESSES

MEMORANDUM OF UNDERSTANDING to establish a biomass facility was signed in November 2007.

SUSTAINED YIELD RESTORATION STEWARDSHIP CONTRACT was initiated in February 2008.

GEOGRAPHIC INFORMATION SYSTEM (GIS) ANALYSIS was used to assess and map desired future conditions.

2008–2009 PLANNED ACTIONS

- Generate a pilot application using an ArcFuels GIS platform for treatment planning and carbon dioxide emissions modeling in the Drew's Creek watershed.
- Create a desired future condition map with analysis tool to expedite forest management actions.
- Develop Environmental Assessments for three 10,000-acre units.
- Explore an active adaptive management approach to evaluate the success of restoration treatments.

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Sprague Watershed, *Oregon*

NORTHWEST FLN | 1 MILLION ACRES

Sycan Marsh Preserve © Larry Olson

COLLABORATIVE OBJECTIVES:

- Develop a collaborative vision for future landscapes using broad-scale modeling
- Determine prioritization for treatment of the Sprague Watershed
- Develop and implement communication plan that offers tools for internal and external audiencess
- Collaborate and combine resources to broaden funding opportunities
- Assist with NEPA analysis and development of alternatives

The Sprague Watershed lies east of the Cascade Range in the Klamath Basin of south central Oregon. This area is a vital nesting spot and migratory pathway for thousands of waterfowl and other bird species. The Cascades boast myriad forest systems from the upland areas of ponderosa pine, with mixes of true fir, Douglas-fir and lodgepole pine to lower-elevation juniper and sagebrush with some juniper grasslands. Stream valleys and the broad, sediment-filled structural basins generally have extensive marshes. This vast system hosts threatened fish and newly discovered aquatic species.

Collaborative Vision Statement:

The Sprague Watershed landscape will work with partners and local communities to accelerate the restoration of fire-adapted ecosystems while protecting communities from wildfire.

THE AREA IS LARGELY A FEDERAL LANDSCAPE within the Fremont-Winema National Forest; however, the watershed also encompasses the Sprague River, Sycan Marsh Conservancy Preserve, Klamath Reservation lands and private ranches. This Fire Learning Network (FLN) collaborative was formed in 2006 to develop a landscape vision for the watershed that was not limited by small project perimeters but looked at how treatments today can influence the return of fire to this landscape.

The Klamath Tribe has invested resources and staff to develop a forest management plan with fire restoration and wildlife management as a focus. Other partners and landowners have similar values and are interested in fire safety and fuels management. The Sprague Watershed team focused priorities on filling data gaps by developing the wall-to-wall vegetation and resource maps, forest condition maps and action maps that prioritize treatable areas. Information developed through the Sprague FLN landscape is applicable to national forest planning analyses, community planning efforts such as Community Wildfire Protection Plans and agency and government efforts to generate a collaborative vision for future land management.

Coyote Forest and Fuels Project 2006 © Craig Bienz/TNC

PARTNERS:

Klamath/Lake Forest Health Partnership

Klamath Tribes

Oregon Department of Fish and Wildlife

Oregon Department of Forestry

Private landowners

The Nature Conservancy

USDA Forest Service, Fremont-Winema National Forests

USDA Forest Service, Pacific Northwest Research Station

Watershed Councils

CRITICAL PARTNERSHIP FUNDING NEEDS:

$20,000 to develop mapping products using vegetation simulation and fire behavior models

$10,000 to monitor fuel reduction treatments

$40,000 for Pronghorn Fuels Reduction Project in 2009

$200,000 for Brattain natural fuels treatments in 2009–2010

KEY SUCCESSES

COYOTE FOREST RESTORATION activities included mechanical harvesting, species composition restoration to 94 percent ponderosa pine from 66 percent, reduction of density from 110 ft^2/acre to 60 ft^2/acre and restoration of low-intensity fire with a prescribed burn in October 2006.

SOUTH FOREST RESTORATION treatment included mechanical harvesting and prescribed fire in November 2007 on about 900 acres. This project is part of a collaborative research project with the Forest Service that was initiated in 2002. Information on the *Birds and Burn* research can be found at *http://www.rmrs.nau.edu/lab/4251/birdsnburns/.*

2008–2009 PLANNED ACTIONS

- Begin fuels treatment project in the Beef area at the southern end of Sycan Marsh.
- Maintain the Brattain Ridge Forest Restoration Project.
- Manage the Coyote Fuels Reduction and Restoration Project.
- Manage the Long Creek Fuels Reduction Project.
- Develop the Pronghorn Fuels Reduction Project.

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Tapash Sustainable Forest Collaborative, *Washington*

NORTHWEST FLN | 1.8 MILLION ACRES

The Tieton—a rugged wildlands on the eastern spine of the Cascade Mountains © Ken Bevis

The Tapash Sustainable Forest Collaborative landscape is located outside Yakima, Washington and extends from the forested flanks of the East Cascades to the arid, sage-dotted hills of the Columbia Basin. These rugged hills and canyons support some of the few remaining mature groves of ponderosa pine in the state and provide habitat for the declining white-headed woodpecker, golden eagles, Rocky Mountain elk and mountain lions. These ponderosa pine ecosystems, including forests, riparian areas and suites of dependent fauna, have changed dramatically in ecological character over the last century.

This landscape is part of the forest crisis in western states brought on by the interaction of drought, disease, altered fire regimes and forest conversion. All of these factors are exacerbated by the difficulty of coordination due to the checkerboard land ownership pattern developed in the 19th century. The magnitude of the problem at the scale of the east Cascades has driven stakeholders to agree that it is beyond any one group to work on these threats with any hope of success.

COLLABORATIVE OBJECTIVES:

- Restore forest health and protect the forested ecosystems of the eastern Cascades from imminent conversion
- Create an interactive, trust-based structure that can work together on the pressing threats to forests on the east slopes of the Cascades
- Support an operational mandate of an "ownership blind" concept
- Restore the use of fire as a tool for achieving ecological objectives

Collaborative Vision Statement:

The Tapash Sustainable Forest Collaborative is united by a vision of forests, savannas and river systems that support diverse natural and human communities, produce ecologically sustainable goods and services and persist in changing conditions throughout the eastern Cascades.

THE TAPASH SUSTAINABLE FOREST COLLABORATIVE, a coalition of public, non-profit and tribal land managers organized under a Memorandum of Understanding, works cooperatively to overcome the constraints of the checkerboard ownership patterns. It is currently focused on restoring fire-adapted ecosystems to a core area within the Wenatchee National Forest by exploring new implementation tools and opportunities including stewardship contracting, ecosystem services markets, cellulosic ethanol production from forest biomass and National Fire Plan funding.

Using a process developed by The Nature Conservancy called Conservation Action Planning, the convening partners structured the scope, overall project vision and desired ecological outcomes and created clear strategies to accomplish the shared vision. The Tapash Collaborative also refined its structure, forming a work group of staff practitioners who work together regularly, an executive committee to set strategic direction and an organizational leadership function for directors. The new work group built a protocol for taking fuels treatment projects across federal and state ownership. In addition, recent timber transport negotiations will make a Department of Natural Resources forest health project possible.

The Tieton offers important outreach and education opportunities © Lee Trivette

PARTNERS:

Forest Restoration Partnership

The Nature Conservancy

USDA Forest Service, Okanogan and Wenatchee National Forests

Washington Department of Fish and Wildlife

Washington Department of Natural Resources

Washington State Association of Counties

Yakama Nation

Yakima Valley Community Foundation

KEY SUCCESSES

FIRE REGIME CONDITION CLASS TRAINING was delivered as peer learning through the Work Group.

THE TAPASH WORK GROUP CONTRACTED WITH THE YAKAMA NATION to conduct a cultural resources survey, prepare a burn plan and secure necessary permits.

THE COLLABORATIVE SET UP A $400,000 GRANT to leverage activities with the Yakima Valley Community Foundation.

A NEW FOREST HEALTH MOVEMENT was successfully initiated with the Washington State Association of Counties.

2008–2009 PLANNED ACTIONS

- Implement a multi-agency fuels treatment project at the Tieton project area.
- Complete biomass economic analysis in order to attract new infrastructure investment.
- Determine feasibility of offering future large-scale planned treatments as stewardship contracts rather than traditional timber sales.
- Complete Integrated Mapping and Assessment Project landscape analysis for central Washington to provide a basis for multi-agency landscape management strategies.

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Upper Deschutes Basin, *Oregon*

NORTHWEST FLN | 2.4 MILLION ACRES

Link Lake, Deschutes National Forest © Charles Ott

The beautiful and diverse Upper Deschutes Basin of central Oregon is the Northwest Fire Learning Network's 2-million-acre anchor project. From alpine forests and lush meadows to dry juniper and sagebrush ecosystems, the landscape is owned by more than a dozen government agencies, private landowners and tribal organizations. With so many pieces to this puzzle, land managers often run into hurdles when looking for data on property beyond their own boundaries. In addition, the fire-dependent ponderosa pine forests of the east Cascade Range have been starved of fire for decades, resulting in different fire effects across the landscape: fire burns less often, more uniformly and often times with greater intensity.

In this environment of changing ecosystem components and widely divergent interests of the communities, the Upper Deschutes Basin Fire Learning Network landscape formed in 2004 with the goal of bringing stakeholders together to improve the availability of landscape assessment and prioritization tools. This effort will help stakeholders restore the ponderosa pine and dry mixed conifer forests that make these scenic lands so rich.

COLLABORATIVE OBJECTIVES:

- Define issues and scope of problem in fire-adapted systems
- Produce desired condition map with ecological, social and economic values
- Communicate consistent messages to internal and external audiences
- Develop a prioritized action map(s) of treatments to achieve desired conditions
- Integrate existing efforts across ownership boundaries
- Develop ecologically appropriate actions for implementation and monitoring by using examples from existing treatments

Collaborative Vision Statement:

The partners intend to accelerate the restoration of fire-adapted ecosystems while protecting communities from wildfire. To achieve success we must implement ecosystem restoration strategies and fuels reduction at ecologically meaningful scales and foster innovation and transfer lessons learned to other projects, scientists and decision makers.

THE UPPER DESCHUTES BASIN LANDSCAPE is developing a common vision for the landscape utilizing the best available science and incorporating values through collaborative partnerships. The team will also integrate community planning efforts like Community Wildfire Protection Plans with agency and government efforts to generate a vision for future land management. The landscape's products are timed to complement Deschutes National Forest restoration strategy plans.

Over the next year, the Deschutes team will work to establish a set of restoration principles common to our group, spatially represent the vision for desired habitat site conditions and develop a prioritized restoration action map and a communication plan. Over the next five years, the team plans to develop and implement on-the-ground demonstrations that highlight restoration and fuels reduction prescriptions and methodologies that meet multiple objectives. Monitoring plans to assess the success of ongoing treatments are currently underway.

The team will continue to update the products being provided to land managers including adding fire risk data to landscape assessment mapping, developing tools to integrate multiple resource values and ongoing efforts and developing resources for new land management authorities, including stewardship contracting.

Metolius basin © Larry Olson

PARTNERS:

Bureau of Land Management
Central Oregon Fire Management Service
Central Oregon Intergovernmental Council
Central Oregon Partnership for Wildfire Risk Reduction
Community groups
Deschutes County
Oregon Department of Fish and Wildlife
Oregon Department of Forestry
Oregon Wild
Private landowners
Project Wildfire
The Nature Conservancy
U.S. Fish and Wildlife Service
USDA Forest Service

CRITICAL PARTNERSHIP FUNDING NEEDS:

The partnership seeks support to develop communication tools such as fact sheets and a partner Web site for data transfer. In addition, the team seeks funding to implement restoration principles on collaborative projects.

KEY SUCCESSES

THE PARTNERSHIP HAS WORKED TOGETHER TO PROVIDE PRODUCTS to land managers, including technical explanations of LANDFIRE tools and maps, training in fire regime condition class application for treatment prioritization and tools to integrate multiple resource values.

THE TEAM DEVELOPED A COMMON VISION that included six simple statements or principles for all stakeholders.

PARTNERS PRODUCED A COMMUNICATION PLAN for both internal and external audiences.

2008–2009 PLANNED ACTIONS

- Refine and market Central Oregon Restoration Principles.
- Incorporate restoration principles into communication plan and strategies.
- Revise action map with fire risk data and add values at risk such as "large trees" to identify collaborative projects.
- Sponsor stewardship contracting workshop for contractors.
- Develop landscape assessment workshop for technical analysts.
- Produce communication products from each workshop.

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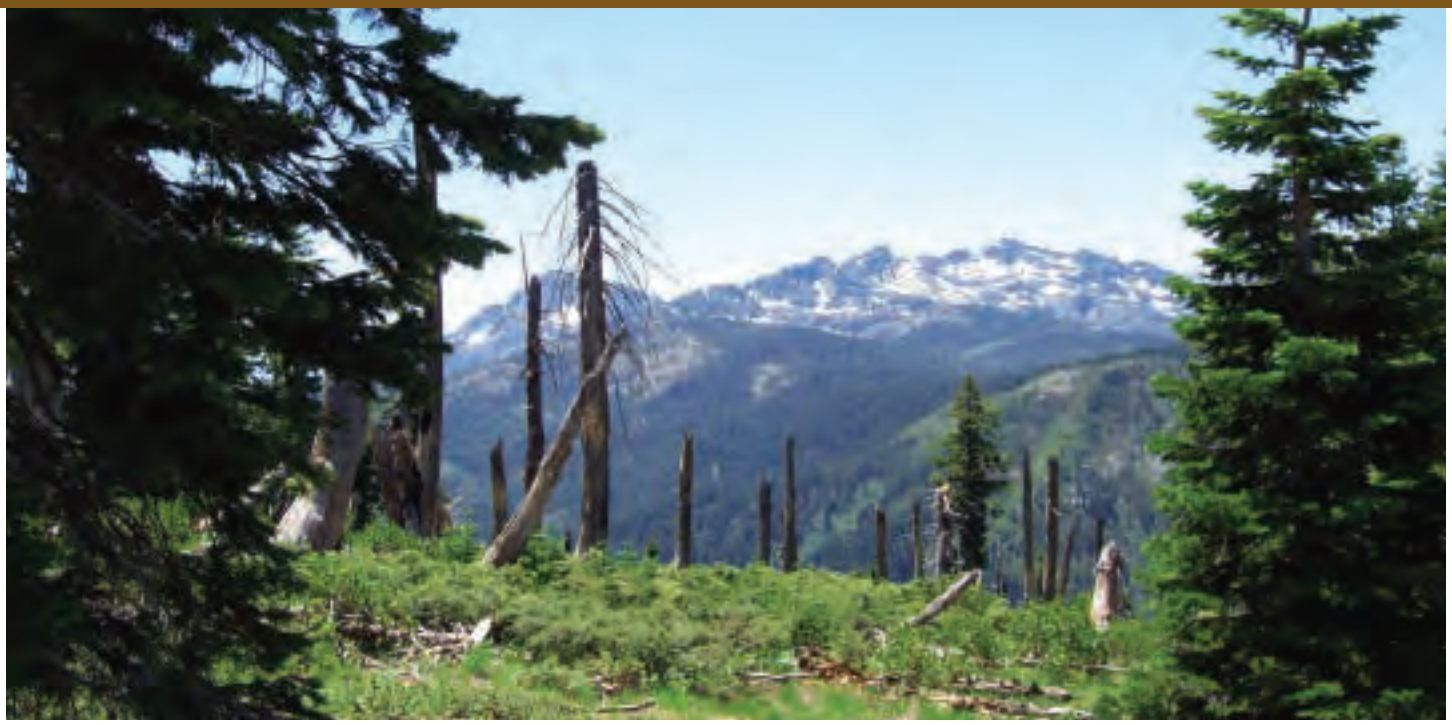
California Klamath-Siskiyou Fire Learning Network



Looking south along the flanks of the Trinity Alps, a legacy of fires from 1987 is backed by the world's most diverse coniferous forests, which give way to granite and snow © Nick Goulette/Watershed Research and Training Center

The Klamath-Siskiyou region of northwestern California is a well-known hotspot of global biological diversity. It contains the greatest variety of coniferous tree species in the world, provides habitat for several critical runs of anadromous Pacific salmon species and is home to myriad other rare and important species. Tucked amidst the rugged mountain ranges of the Marbles, Salmons, Scotts and Trinity Alps are small rural communities struggling to thrive as stewards of this complex system.

Logging, mining, grazing and fire exclusion have significantly altered historical fire regimes and forest ecosystem structures. Over the past several decades the region, like much of the American West, has begun to experience uncharacteristically large, stand-replacing wildfires that threaten both ecological values and human communities. Long-term restoration plans must consider the imperatives of human health and safety that can be realized through community wildfire protection strategies. Ultimately the solution to these problems lies in striking a balance that can be sustained as social values, budgets and climates all change.

Network Long-Term Vision:

The successful restoration of fire-dependent ecosystems requires an integrated approach that considers all factors and balances ecological objectives—such as protecting habitat for endangered species and ensuring the long-term resiliency of forest systems—with the socio-economic need to provide living-wage jobs from the stewardship of those forests.

Partners:

Bureau of Land Management, Redding Field Office
California Department of Forestry and Fire Protection
Citizens for Better Forestry
Environmental Protection Information Center
Humbolt State University
Natural Resource Conservation Service
Post Mountain Stewardship Collaborative
Orleans/Sommes Bar Fire Safe Council
Shasta College
Trinity County Resource Conservation District
Trinity County Fire Safe Council
Trout Unlimited
USDA Forest Service, Klamath National Forest
USDA Forest Service, Shasta-Trinity National Forest
USDA Forest Service, Six Rivers National Forest
USDA Forest Service, Pacific Southwest Research Station
Watershed Research and Training Center
Willow Creek/Lower Trinity Fire Safe Council

THE NETWORK SEEKS TO

- establish a robust local workforce through training, capacity building and developing a consistent and high-quality program of work;
- bridge social and ideological gaps by collaborating with diverse stakeholders and forging common-ground solutions; and
- improve the economics of fuels reduction and forest restoration through innovative harvesting and utilization strategies.

THE CALIFORNIA KLAMATH-SISKIYOU (CKS) Fire Learning Network comprises landscape sites covering 4.5 million acres. The Network has formed as part of a natural progression of collaborative planning and project implementation in the region. As pioneers in the development of Fire Safe Councils, Watershed Councils and regional planning, the communities of the CKS are working to find a balance between the health of forests and the viability of communities in the region. Prior to becoming a new regional Network in 2008, the Hayfork Basin served as a demonstration landscape in the U.S. Fire Learning Network and it will serve as the hub and mentor for new sites. Along with the Weaver Basin participating landscape, eager partners are becoming engaged from the Mid-Klamath, Lower Trinity and Southern Trinity areas. Peer exchanges will be encouraged through presentations at cooperative Fire Safe and Watershed Council meetings, workshops and field tours.

CONTACT: Nick Goulette nickg@hayfork.net (530) 628-4206

Hayfork Basin, *California*

CALIFORNIA KLAMATH-SISKIYOU FLN — 250,000 ACRES

A typical view of the Hayfork Basin landscape, depicting public and private forestlands © Nick Goulette/Watershed Research and Training Center

THE HAYFORK BASIN lies in the Klamath Mountains of Northern California and is home to one of only four true valleys in this rugged, mountainous region. The Basin has a temperate Mediterranean climate and forest types range from pine-oak woodlands in lower elevations, progressing through Klamath mixed conifer forests to pure stands of red fir at high elevations. Interspersed is a rich mosaic of low- and high-elevation chaparral and myriad combinations of coniferous, hardwood and meadow communities. The largest tributary to the South Fork of the Trinity River, California's longest undammed anadromous fishery, Hayfork Creek is home to some of the state's only truly wild runs of salmon and steelhead.

COLLABORATIVE OBJECTIVES:

- Develop a model Integrated Fire Management Plan for the Hayfork Basin that will inform and define the nexus of community wildfire protection, ecosystem restoration, workforce development and economic development
- Establish a robust local ecosystem workforce through training, capacity building and developing a consistent and high-quality program of work
- Bridge social and ideological gaps by collaborating with diverse stakeholders and forging common-ground solutions
- Improve the economics of fuels reduction and forest restoration through innovative harvesting and utilization strategies

Collaborative Vision Statement:

Our partnership intends to restore fire-adapted ecosystems at meaningful scales, which requires an integrated fire management approach to planning and implementation that balances social, economic and ecological factors.

THE HAYFORK BASIN LANDSCAPE joined the U.S. Fire Learning Network in 2006 as an independent demonstration landscape. Today, Hayfork serves as the anchor site for the regional Klamath-Siskiyou Fire Learning Network created in 2008. Landscape activities are coordinated by the Watershed Research and Training Center, a community-based group founded in 1993 and based in Hayfork, California.

With 80 percent of the landscape being public lands, planning and implementing projects can be costly, contentious and time-consuming. Many small rural communities are at risk from wildfire, as is critical habitat for threatened and endangered terrestrial and aquatic species. Steady declines in federal budgets and cuts in staff have left the agencies unable to adequately address the ecological and social needs of the region.

Partners in the Hayfork Basin are taking an integrated approach to solving the problems facing the area's forest ecosystems and communities. Landscape-scale planning for forest restoration and community wildfire protection is being integrated with strategies to utilize the byproducts of these treatments (sawlogs, woody biomass, non-timber forest products, etc.) to establish local industries, processing and manufacturing.

This stand, harvested for both small diameter and commercial timber and then prescribed burned, demonstrates the potential for restoration and stewardship in the Hayfork Basin © Nick Goulette/Watershed Research and Training Center

PARTNERS:

Bureau of Land Management, Redding Field Office

Citizens for Better Forestry

Environmental Protection Information Center

Hayfork Municipal Water District

Natural Resources Conservation Service

Sustainable Northwest

The Forest Guild

Trinity County Fire Safe Council

Trinity County Resource Conservation District

USDA Forest Service, Shasta-Trinity National Forest, South Fork Management Unit

USDA Forest Service, Pacific Southwest Research Station

USDA Forest Service, Pacific Northwest Research Station

Watershed Research and Training Center

CRITICAL PARTNERSHIP FUNDING NEEDS:

$100,000 for contract NEPA services associated with 10-year stewardship project.

$1,000 to disseminate results of emergent learning from stewardship agreements and contracting

KEY SUCCESSES

THE HAYFORK BASIN PARTNERSHIP PILOTED THE USE OF STEWARDSHIP AGREEMENTS with the Hayfork Area Fuels 2007 Stewardship Agreement with the Forest Service. This project leveraged "Secure Rural Schools" dollars with timber value to complete more than 200 acres of thinning for restoration and strategic community wildfire protection. The project harvested over 350,000 board feet of merchantable timber and 2,000 green tons of biomass.

THE PARTNERS WORKED TOGETHER TO COMPLETE THE BRADY FUELS REDUCTION STEWARDSHIP AGREEMENT, which will use Watershed Research and Training Center funds with timber value and "Secure Rural Schools" monies to accomplish nearly 100 acres of restoration and strategic community wildfire protection. The partnership will implement this project during the spring of 2008. The strategies employed in putting together and drafting these agreements can serve as a national model.

2008–2009 PLANNED ACTIONS

- Develop Hayfork Basin Integrated Fire Management Plan.
- Work with Shasta-Trinity National Forest, South Fork Management Unit and Forest Service Region 5 on New Business Model Development and Emergent Learning.
- Complete 600-acre Post Mountain Stewardship Contract.
- Develop strategy and begin NEPA analysis for a 10-year stewardship contract or agreement.

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Centennial Fire Learning Network

View of region from Sawtel Peak © TNC

The Greater Yellowstone Ecosystem spans the boundaries of three states in the heart of America's spectacular Rocky Mountains. Few areas contain a greater variety of landforms and ecosystems with irreplaceable habitats that support one of the largest intact collections of wildlife and animal species. The biological integrity of this treasured area depends on a large complex of federal, state and private lands. As in most of the West, rapid development threatens ranching, destroys wildlife habitat, disrupts wildlife migrations and compromises natural processes such as fire. In addition, the lack of fire over the past century has altered much of the project area, jeopardizing the continued existence of a number of species and habitats.

In this rural area, partners envision the process of fire being safely restored to its natural role across diverse ecological systems through prescribed burns and wildland fire use. This objective is possible by restoring the resilience of damaged systems and addressing a variety of other problems such as impaired riparian zones, altered hydrologic regimes, excessive wildlife browsing, impacts of roads and habitat connectivity threats.

Network Long-Term Vision:

This partnership can improve the long-term viability of conservation targets that have been negatively affected by altered fire regimes by promoting the use of fire and mechanical treatments for restorative purposes.

Demonstration Landscape

Centennial Valley (MT)

Participating Landscapes

Big Hole (MT)

Upper Henry's Fork Conservation Area (ID)

THE NETWORK SEEKS TO

- continue the development, sharing, and implementation of collaborative, inter-agency adaptive management plans;
- facilitate in-depth discussions and review of ongoing or completed projects in Douglas-fir systems and develop refined prescriptions for future projects;
- complete experimental prescribed burns in sandhill areas and thinning treatments in conifer and aspen forests in the Bean and Price watersheds;
- spotlight and transfer lessons learned on project components such as aspen inventory, mapping and planning; and
- build wildlife exclosures and gather post-fire monitoring data in aspen areas.

CENTRAL TO THE GREATER YELLOWSTONE ECOSYSTEM are the Centennial Valley, Henry's Fork and Big Hole landscapes. Through the Network's collaborative learning process, the landscape managers can deal with fire and other ecological issues in order to reach the shared vision of restoring altered fire regimes.

A coalition of private and public land managers in southwest Montana's Centennial Valley initiated a landscape-scale fire restoration program in 2006, the first of its kind in the Greater Yellowstone Ecosystem. Private landowners in the valley are organized through the Centennial Valley Association, a non-profit group that meets regularly and works toward a vision of the landscape that values traditional, family-owned ranches and thriving natural resources. As part of this coalition, the Fire Learning Network will facilitate learning locally and regionally to help tackle some critical information needs for managing old-growth Douglas-fir forests in the face of a massive bark beetle outbreak and improve aspen regeneration.

The lessons learned through partner collaboration will represent a significant step in restoring the important natural process of fire to the entire landscape. Moreover, the process will facilitate and accelerate similar efforts throughout southwest Montana and eastern Idaho.

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Centennial Valley, *Montana*

CENTENNIAL FLN | APPROXIMATELY 385,000 ACRES

The sandhills portion of the Centennial Valley landscape © Nathan Korb/TNC

The Centennial Valley is a hotspot of biological diversity and the last large, undeveloped, low-elevation valley in the Greater Yellowstone Ecosystem. Occupying the headwaters of the Red Rock Watershed, this area supports extensive sagebrush steppe and the largest wetland complex in the Greater Yellowstone area. The Centennial Valley is located within an important linkage area for grizzly bears and other wildlife.

COLLABORATIVE OBJECTIVES:

- Initiate a landscape-scale fire restoration program in the Greater Yellowstone region through a focused, multi-agency effort informed by ecological studies
- Provide a model and communication network for learning with other similar projects in the Greater Yellowstone region and northern Rockies
- Accelerate projects aimed at restoring fire and habitats dependent upon fire

Fire plays an important role in forest dynamics as well as habitat characteristics across the valley floor. Some of the largest threats to natural resources in the area are the effects of a general lack of fire over the past century. Currently, the most limiting factor to restoration of a natural fire regime in the area is capacity for implementation, planning and coordination. There are also major information gaps regarding how fire can be effectively restored to a system that is severely altered.

Collaborative Vision Statement:

The Centennial Valley partners will restore the ecologically important role of fire to systems across the Centennial Valley whose structure or function has been impaired by a century of altered fire regimes.

The long-term viability of several ecological systems in the Centennial Valley depends upon fire. As in most of the West, a century of fire exclusion has substantially altered the forests and the species that they support.

Using the Conservancy's Conservation Action Planning methodology, the Centennial Valley identified seven conservation targets. Fire exclusion was a high-ranked threat for four targets: sandhills, aspen, mid-elevation conifer forests and west-slope cutthroat trout. Considering the changing nature of disturbance regimes, climate and other factors, maintaining the intact character of the Centennial Valley holds the greatest promise for accommodating those changes as well as species migrations.

Aspen Workshop 2006 © Nathan Korb/TNC

PARTNERS:

American Wildlands

Bureau of Land Management, Dillon Field Office

Centennial Valley Association

Greater Yellowstone Coalition

Montana Department of Natural Resources and Conservation, Southwest Montana

Montana Natural Heritage Program

Montana State University

Montana Wilderness Association

Sun Mountain Lumber

The Nature Conservancy

U.S. Fish and Wildlife Service, Red Rock Lakes National Wildlife Refuge

USDA Forest Service, Beaverhead-Deerlodge National Forest

KEY SUCCESSES

AN INTERAGENCY MONITORING AND IMPLEMENTATION PLAN was developed for the Centennial sandhills.

LANDSCAPE FIELD ASSESSMENT OF ASPEN stand conditions across Forest Service, Fish and Wildlife Service, Bureau of Land Management and state lands was completed.

THE COLLABORATION CONSTRUCTED ASPEN DEMONSTRATION PROJECTS for browse and conifer thinning.

EDUCATION PROGRAM on fire safe structures was created.

IDENTIFICATION OF IMPORTANT STRATEGIES was completed for preserving last populations of west-slope cutthroat trout, which are restricted to fire-prone forest streams.

2008–2009 PLANNED ACTIONS

- Participate in the creation of a Community Wildfire Protection Plan to facilitate more natural and prescribed burning in the valley.
- Implement several prescribed fires planned for the Centennial Valley.
- Develop aspen pilot project that addresses fire and wildlife browsing in holistic strategy.

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Upper Henry's Fork Conservation Area, *Idaho*

CENTENNIAL FLN | APPROXIMATELY 900,000 ACRES

Henry's Fork, Idaho © Kirk Anderson

The Upper Henry's Fork Conservation Area, a priority Nature Conservancy portfolio and action site, is located within the Utah-Wyoming Rocky Mountain Ecoregion. Henry's Lake and its tributaries form the headwaters of the Henry's Fork of the Snake River. The region's forested slopes and open meadows are critical winter and summer range for elk, mule deer, moose and antelope. The landscape forms a migratory corridor connecting Yellowstone National Park with the Saint Anthony Sand Dunes, the Upper Madison River and the Centennial Valley, making the Upper Henry's Fork a critical landscape linking the Greater Yellowstone and the Northern Continental Divide Ecosystems. The Henry's Lake fishery is the last stronghold in the Henry's Fork basin for the imperiled Yellowstone cutthroat trout. The white spruce-aspen forested wetlands on the east shore of Henry's Lake are globally rare and found nowhere else in the continental U.S. Nearly the entire conservation area is within the primary recovery area for grizzly bear and the forested slopes of the Henry's Lake and Centennial mountain ranges are widely believed to be the best dispersal conduits for large carnivores leaving the Greater Yellowstone area.

COLLABORATIVE OBJECTIVES:

- Initiate a landscape-scale fire restoration program in the GYE region through a focused, multi-agency effort in a landscape where past ecological studies are available to guide management actions
- Provide lessons learned that facilitate and accelerate similar efforts throughout southwest Montana and eastern Idaho

Collaborative Vision Statement:

The Henry's Fork landscape team will work with partners and local communities to restore the ecologically important role of fire to systems across the western portion of the Greater Yellowstone area whose structure or function has been impaired by a century of altered fire regimes.

THE UPPER HENRY'S FORK is recognized by the Conservancy's ecoregional planning as the single most-irreplaceable and second most-threatened landscape in the Greater Yellowstone Ecosystem.

The primary conservation targets for the conservation area include wide-ranging carnivores, aspen communities, Yellowstone cutthroat trout, wetlands and ungulate migration corridors. One of the strategies for conserving these targets is maintaining healthy fire return intervals across the planning area. Aspen ecology is complex due to the importance of wildlife herbivory, hydrology, drought, disease, hunting and predators, and tools for implementing restoration are still being developed. Solutions will certainly require collaboration among wildlife managers, habitat biologists and the public. The Fire Learning Network has been recognized as the most effective approach to addressing the continuing decline of aspen.

Rangelands at Henry's Lake © TNC

PARTNERS:

Bureau of Land Management

Idaho Fish and Game

The Nature Conservancy

USDA Forest Service, Caribou-Targhee National Forest

KEY SUCCESSES

THE UPPER HENRY'S FORK PARTNERS HAVE PROTECTED almost 5,000 acres of the nearly 30,000 acres of private land through the Henry's Lake Ranchland Protection Program. Many of these ranches and properties are within or proximal to the public lands matrix which dominates the region. Prevention of subdivision of these properties directly impacts the ability of public lands managers to restore healthy fire regimes.

AN AGREEMENT WITH THE IDAHO FISH AND GAME AND THE CARIBOU-TARGHEE NATIONAL FOREST was negotiated to assist both agencies in assessing the success, effectiveness and recovery of the Raynolds Pass prescribed fire, which is designed to increase aspen stands in the area.

2008–2009 PLANNED ACTIONS

- Develop and implement Raynolds Pass Prescribed Fire Post-Burn Monitoring program.
- Conduct landscape meetings to continue with the Fire Learning Network process to make progress toward the shared vision of restoring altered fire regimes.
- Implement a series of prescribed fires (1,600 acres) along the wildland-rural interface that are designed to reinvigorate aspen stands and reduce fuels near structures.

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Colorado Central Rockies Forest and Fire Learning Network

Forest Health workshop participants © Anya Byers

Colorado Central Rockies Forest and Fire Network recently joined the U.S. Fire Learning Network and will draw from across Colorado and beyond state boundaries as landscapes dictate. The area's ecoregions include Central Shortgrass Prairie, Southern Rocky Mountain, Colorado Plateau, Wyoming Basins, Utah High Plains and the Utah-Wyoming Rocky Mountains. These represent landscapes ranging from the short-grass prairie to the high-elevation forests and alpine tundra.

Several community-based forest restoration and fire hazard reduction projects are in the project area, including some that cross state boundaries. Many of these projects are well established and partners are willing to share experiences with those who are just beginning their work. A number of communities have drafted or are beginning to develop Community Wildfire Protection Plans, with several being implemented. The interagency Front Range Fuels Treatment Partnership has been working together since 2004, and that partnership's roadmap and recommendations will serve as a catalyst and guide for other Network sites.

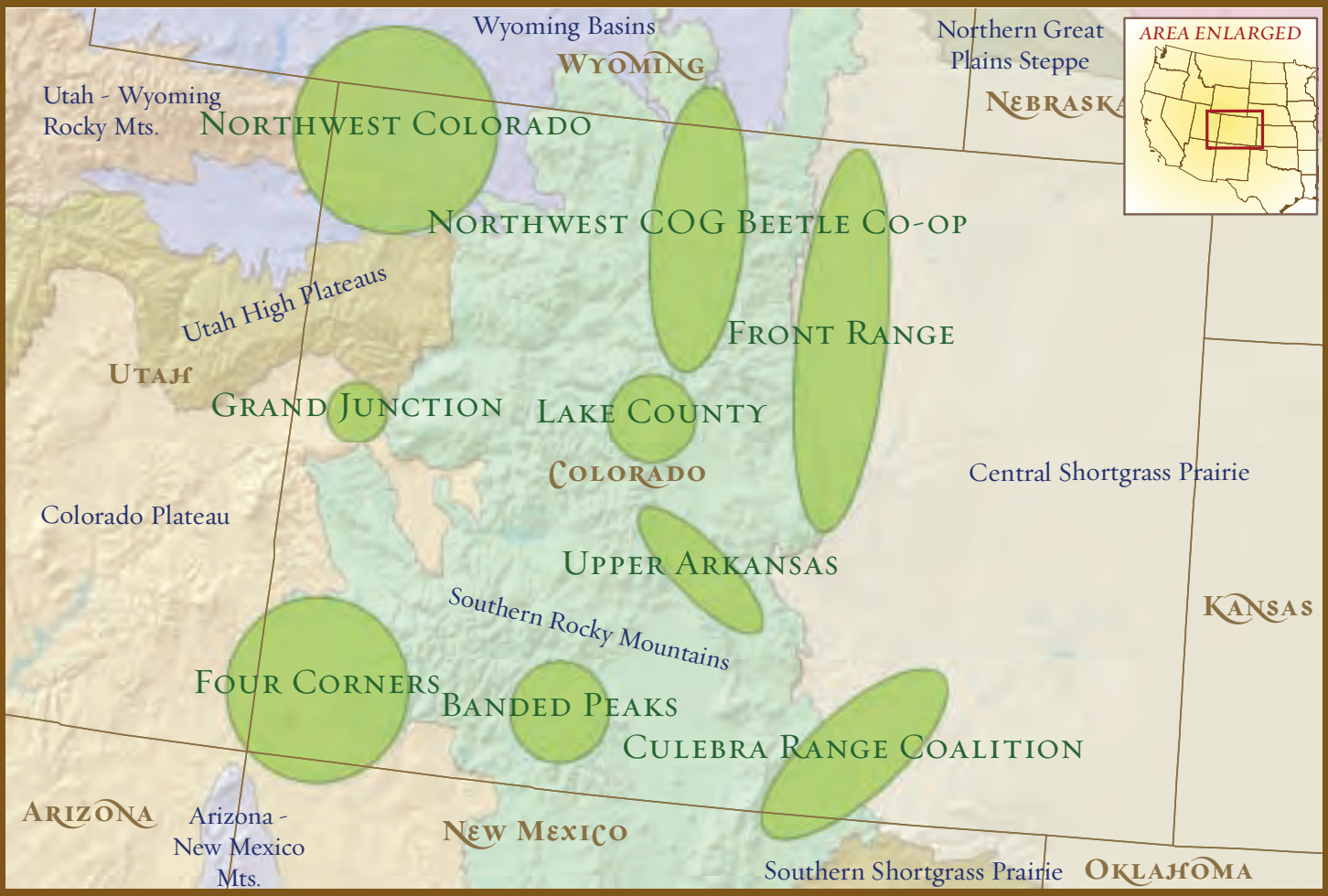
Opportunities exist to increase the number of areas restored and protected through this learning network as well as raise the quality of projects. Projects originally developed on a local basis can be based on the best science available, while monitoring and the use of adaptive strategies will improve outcomes and increase acres of forest treatment. Common needs will be expressed to decision makers, resulting in increased resources being made available for forest restoration and community protection.

Network Long-Term Vision:

Joining the U.S. Fire Learning Network provides this complex geographic area the opportunity to use defined processes to develop a collaborative vision for the area. The Network can absorb lessons learned from other Network sites and current collaborations in this region to address numerous factors, such as statewide forest and fire issues and barriers to implementation.

Partners consulted in developing the Colorado Rockies Forest and Fire Learning Network:

Bureau of Land Management
Colorado Division of Wildlife
Colorado Forest Restoration Institute
Colorado State Forest Service
Colorado State University
Culebra Coalition
Ft. Lewis College
U.S. Fish and Wildlife Service
USDA Forest Service, Region 2
USDA Forest Service, Rocky Mountain Research Station



Map depicts geographies that have expressed early interest in participation. Map © 2008 Gen Green/TNC

THE NETWORK SEEKS TO

- develop a vision, objectives toward that vision and barriers to success;
- confirm participants and finalize organizational structure;
- host workshops in 2008 to facilitate peer review and sharing of lessons learned in order to ensure each project's objectives and plans incorporate economics, community need and science in the collaborative decision-making processes; and
- create a statewide set of needs and strategies to overcome barriers and increase restoration and treatment acres across all landscapes involved.

MANY OF THE PARTNERS PLANNING the Fire Learning Network co-hosted a workshop in February 2007 where representatives from previous collaborative efforts shared their experiences, successes and barriers. This exercise revealed a strong desire to meet again and continue to share lessons learned. The development of the Colorado Rockies Forest and Fire Learning Network is timely and will encourage project managers to participate in the structured processes ahead.

The identification of common issues should lead to cost-effective planning, collaborative treatment efforts among sites and an overall increase of treated acres. Effective community protection and restored habitats should result.

The Network process can minimize potential resource competition among statewide forest health and community protection interests, and replaces disparate efforts with cohesive, coordinated strategies by political, agency and organizational entities. Improved accountability will result from the Network partners monitoring treatment results.

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Great Plains Fire Learning Network

Controlled burn along the central Platte River in Nebraska © Chris Helzer/TNC

The Great Plains grasslands enrich our world with wildlife that inspires us, food and water that nourish us and ways of life that define us. These large landscapes support antelope and prairie dogs and enable the reintroduction of bison. They provide critical habitat for grassland birds such as the Atwater's prairie chicken, greater prairie chicken and sharp-tailed grouse and sustain the time-honored traditions of our ranching culture. They are, however, one of the least-protected, most-threatened habitats on Earth. In North America, 90 percent of our grasslands have been converted to farms and urban development, and the remaining natural areas desperately need a crucial tool to restore grassland health: prescribed fire.

Grassland conservation depends on proven land stewardship techniques such as using prescribed fire, controlling invasive species and employing rotational grazing. The Great Plains Fire Learning Network provides a framework to explore and implement large-scale regional grassland conservation strategies by enacting fire management plans that have been developed collaboratively. Key stakeholders in this region include private landowners, state agencies, U.S. Fish and Wildlife Service and the USDA Natural Resources Conservation Service. The combined efforts of these partners can ensure grassland conservation in the future by reintroducing and managing ecologically appropriatefire regimes in the U.S. and through employing sound science to exemplify restoration and stewardship to other countries and continents.

Network Long-Term Vision:

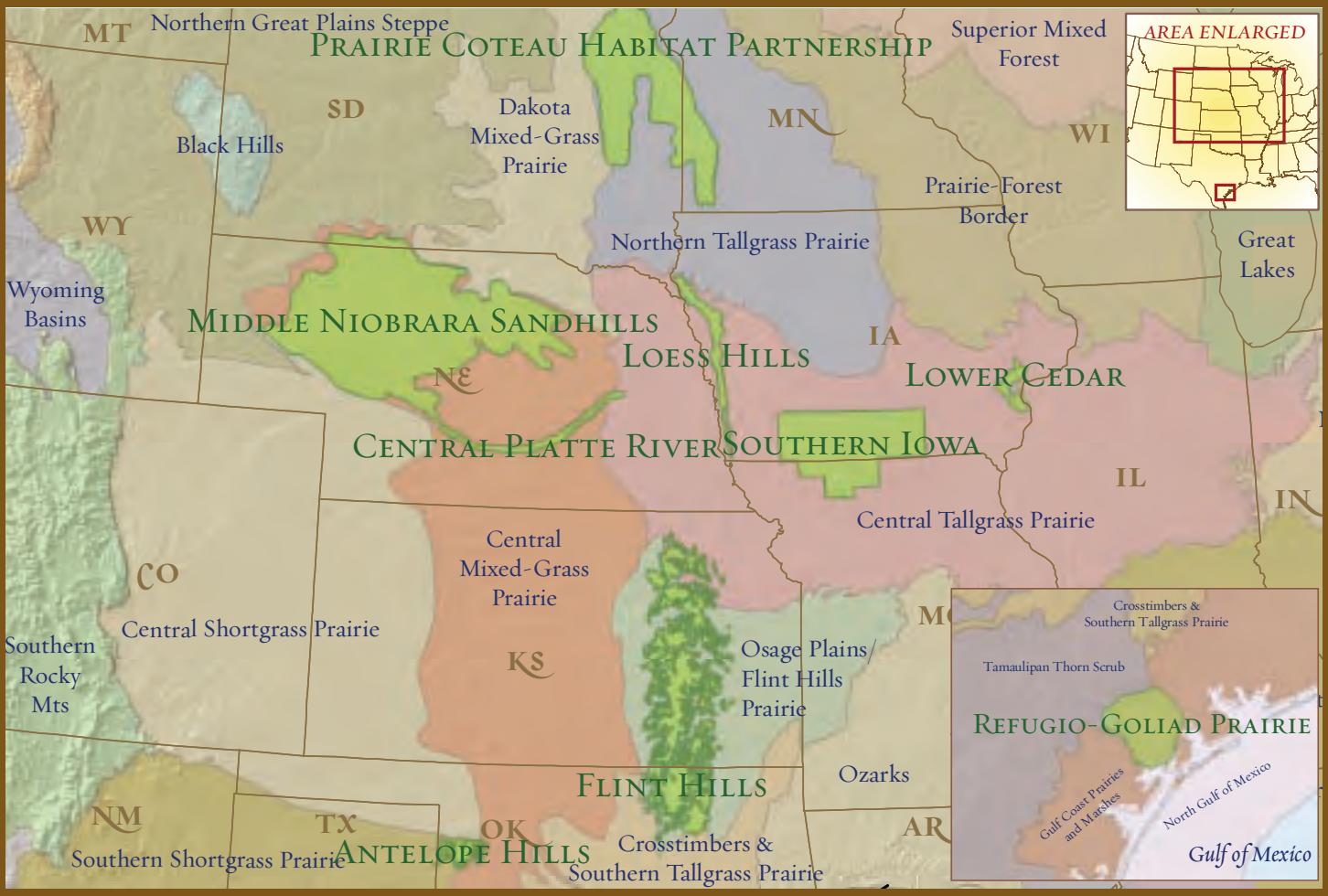
The Network brings together landscapes from throughout the Great Plains to develop strategies to integrate private lands into landscape-scale fire management activities that serve restoration objectives.

Demonstration Landscapes

Loess Hills (IA)
Middle Niobrara-Sandhills (NE)
Refugio-Goliad Prairie (TX)

Participating Landscapes

Antelope Hills (OK)
Central Platte River (NE)
Flint Hills (KS/OK)
Lower Cedar (IA)
Prairie Coteau Habitat Partnership (SD)
Southern Iowa (IA)



Map © 2008 Gen Green/TNC

THE NETWORK SEEKS TO

- accelerate ecosystem restoration where multi-agency teams are implementing or poised to implement restoration strategies;
- facilitate and support the development of landowner cooperatives and volunteer fire department cooperatives;
- share and transfer knowledge with the Patch-Burn Working Group to provide strong communication on patch-burn grazing resources;
- engage new partners in implementation, training and other shared needs; and
- improve utilization of the Farm Bill programs.

THE GREAT PLAINS FIRE LEARNING NETWORK formed in 2004 to bring together stakeholders and other interested individuals from the Great Plains to develop strategies for private lands fire management and restoration. This Network encompasses 22.3 million acres and is made up of nine primarily privately owned landscapes. Private ownership presents unique challenges to restoring fire on large landscapes, and integration of livestock grazing into restoration efforts is integral to success. The Network will continue to provide a forum for its members to share and receive feedback on implementation plans, patch-burn grazing ideas and strategies; training and education concepts; running a private lands mobile fire crew and initiating other strategies like our Volunteer Fire Department engagement and the Grassbank project. These efforts require fostering innovation and transferring lessons learned from individual projects to many more landscape-scale applications, scientists and key decision-makers who can facilitate larger-scale change to protect the vital grassland resources.

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Loess Hills, *Iowa*

GREAT PLAINS FLN | 650,000 ACRES

Wanamaker fire © Matt Graeve/TNC

The Loess Hills region, created by exceptionally thick deposits of windblown silt known as loess, harbors much of Iowa's remnant prairie and extensive areas of bur oak woodland. This area provides habitat for over 49 grassland species of special concern including the Regal Fritillary butterfly and birds such as the bobolink and dickcissel. It is home to Iowa's only known population of prairie rattlesnakes and provides habitat for reptiles such as the ornate box turtle and Great Plains skink.

Historically the area was periodically swept by lightning-ignited fires and grazed by bison and elk, which helped keep Iowa's prairies healthy. Today the natural role of fire has been significantly altered, resulting in accelerated woody encroachment into grasslands and a decline in the regeneration of oak woodland. This alteration, coupled with increased residential development and incompatible land use, threatens to harm the area's fragile natural areas. With over 95 percent of the landform privately owned, restoration must involve the landowners.

COLLABORATIVE OBJECTIVES:

- Restore the ecological integrity of the prairie and oak woodland communities through the use of prescribed fire, mechanical brush control and planting local ecotype prairie seed
- Restore the prairie and oak woodland communities to improve the region for livestock production and other sustainable uses
- Reconstruct prairie on former cropland and cool season pastures.
- Develop a community of informed citizens and landowners who work to restore and maintain native systems

Collaborative Vision Statement:

The partnership will restore and maintain viable ecological communities, provide protection from unwanted wildland fire and improve productivity and value of the land through implementation of a regional fire management plan.

THE SOCIAL ACCEPTANCE OF THE TOOLS needed to achieve healthy prairies varies by locality and subculture. Acceptance of prescribed fire and grassland restoration can be accelerated by creating jobs in rural communities. Tree shearers, fire crew professionals and native seed producers can enable compatible economic uses in areas like livestock grazing and native seed production. As citizens' knowledge of local natural communities increases, native species benefit and the stocking rate for livestock producers can improve. Through collaboration, partners will find compatible activities that meet the ecological and economic needs of both natural areas and landowners. Additionally, a state-wide fire policy can improve the training of agency personnel who conduct prescribed burning.

The Loess Hills landscape has participated in the U.S. Fire Learning Network since 2002. The collaboration has leveraged state and federal funding sources to establish fire equipment caches throughout the landform, supported a private lands mobile fire crew and completed intensive outreach to over 200 landowners and the media on prescribed fire. The burn crew project continues to rely on local on-call crew members, an approach that is building a cadre of experienced fire practitioners in the region. Future plans include exploring new partnerships with the Bureau of Indian Affairs and others to share resources and supporting the development of volunteer fire department burn cooperatives.

Pre-burn review for the Folsom Point burn © Susanne Hickey/TNC

PARTNERS:

Agren, Inc.

Golden Hills Resource Conservation and Development Council (RC&D)

Iowa Department of Natural Resources

Iowa State University

National Park Service

Natural Resources Conservation Service

Pheasants Forever

Pottawattamie County Conservation Board

The Nature Conservancy

University of Nebraska at Omaha

U.S. Fish and Wildlife Service

CRITICAL PARTNERSHIP FUNDING NEEDS:

$200,000 to establish a comprehensive monitoring program

$120,000 per year to fund three private lands conservationists

$100,000 annually for cost-share restoration assistance to landowners

KEY SUCCESSES

The partnership completed a **REGIONAL FIRE MANAGEMENT PLAN** prioritizing actions needed.

PRIVATE LANDS COST-SHARE ASSISTANCE INITIATIVE was established, which has enrolled over 8,000 acres in restoration activities including brush management and prescribed fire.

Through **COMPREHENSIVE OUTREACH,** landowner interest increased with over 200 area individuals participating in workshops to date.

THE REGIONAL MOBILE FIRE CREW treated more than 1,500 acres and assisted partners with over 3,500 acres of fire.

By using Network-hosted **TRAINING** the Smithland Volunteer Fire Department is now burning approximately 600 acres annually within their township.

2008–2009 PLANNED ACTIONS

- Establish a comprehensive region-wide monitoring program that is integrated with Iowa's State Wildlife Action Plan.
- Maintain support for private lands outreach through funding of positions with the local Soil and Water Conservation Districts.
- Continue volunteer fire department training using National Wildfire Coordinating Group standards and other hands-on experience so they can better assist landowners with prescribed fire activities.
- Continue support for mobile fire crew activities on private lands in cooperation with Pheasants Forever.
- Expand collaboration and cooperation through development of brochures, workshops and one-on-one meetings.

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Lower Cedar, *Iowa*

GREAT PLAINS FLN | 252,000 ACRES

Lowland oak savanna © Robert Fiedler

Southeast Iowa's Lower Cedar Valley hosts two rare plant communities, swamp white oak woodlands and rich peat fens. Perched along the Cedar River, this remarkable wetland region contains a wondrous array of natural diversity, including oxbows, sand prairie, peat bogs, floodplain forest and oak savanna. Sandy soils provide habitat for more than 300 plant species and 19 types of reptiles and amphibians, including rare massasauga rattlesnakes and ornate box turtles. The main threats to the area are woody encroachment, altered hydrology and agricultural practices.

COLLABORATIVE OBJECTIVES:

- Develop a plan to implement fire on a landscape scale
- Promote practical and economical management techniques
- Improve training and education for organizations and landowners
- Create demonstration areas to showcase the benefits of fire as a restoration and maintenance tool and to understand different styles of fire and landscape management

The floodplain oak savannas of the Lower Cedar Valley were established when the forest was more open, when fire and seasonal floods controlled growth. Now, without adequate fire, too many trees grow in an unnatural density, preventing new oak trees from growing. The partners collaborate to conserve and restore the swamp white oak and floodplain savannas with controlled fire and other science-based techniques.

Collaborative Vision Statement:

The landscape team will implement mixed-intensity and mixed-frequency fire management as the partnership increases landowner use of fire as a management tool. Our approach for each property will involve planning for prairies, forests and savanna systems based on scientific, historical and ecological data as well as ecological sustainability.

The Lower Cedar River Valley Partnership formally began in 2004. Our primary strategy is to educate landowners about practical and economical management techniques and inform them of the benefits of fire on the landscape, thereby increasing the use of prescribed burning. The barriers that the partnership faces include southeastern Iowa soil fertility that encourages row cropping, growing residential and commercial development and the absence of active conservation management.

The partnership has sponsored preliminary workshops on basic prescribed fire techniques for more than 100 landowners, held S-130/190 introductory wildland fire courses for interested landowners and partners and developed a fire cache for landowners and partners to rent. The partnership also received an AmeriCorps National Civilian Community Corps crew of 11 people to help manage a partner's land in order to create demonstration sites.

Using a multifaceted, collaborative approach, we are focusing on natural areas management, sharing research and developing science-based conservation plans. With a strong emphasis on training and educating landowners, the Lower Cedar landscape will continue its team approach to accomplish evolving goals and objectives.

Lowland floodplain savanna © Toni Aguilar/TNC

PARTNERS:

Geode Resource Conservation and Development Council (RC&D)

Iowa Department of Natural Resources, Forestry

Iowa Department of Natural Resources, Wildlife

Louisa County Conservation Board

Muscatine County Conservation Board

Natural Resources Conservation Service, Muscatine County

Natural Resources Conservation Service, Louisa County

The Nature Conservancy

U.S. Fish and Wildlife Service, Port Louisa Refuge

CRITICAL PARTNERSHIP FUNDING NEEDS:

$20,000 to create three additional fire caches in the local area

$60,000 to obtain prescribed fire equipment for partners

$60,000 to develop demonstration sites for savanna management

KEY SUCCESSES

PRESCRIBED FIRE WORKSHOPS have enhanced the area's ability to develop and shape a workforce to increase ecologically appropriate fire.

A **BOTANICAL INVENTORY** was recently completed and a **REPTILE AND AMPHIBIAN INVENTORY** is underway.

For landscape-scale restoration to be effective, all resource objectives must be integrated. This area has initiated groundbreaking floodplain **SAVANNA RESTORATION RESEARCH** that will be shared throughout the Network learning process.

2008–2009 PLANNED ACTIONS

- Continue education efforts to teach land owners about the ecological benefits of prescribed fires.
- Host burn workshops, including those in which landowners observe and assist in prescribed fire operations.
- Develop demonstration sites for savanna management.
- Continue to develop fire caches throughout the project area for landowners to rent.

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Middle Niobrara-Sandhills, *Nebraska*

GREAT PLAINS FLN | 12 MILLION ACRES

Bison of the Niobrara Valley Preserve beginning to use regrowth on recently burned Sandhills Prairie © John Ortmann/TNC

The Middle Niobrara-Sandhills landscape contains two distinctly different vegetation types presenting radically different fire challenges. The Middle Niobrara is a meeting ground for northern, eastern, and western forest types, central and northern mixed-grass prairie, and tallgrass prairie. The Sandhills, part of the central mixed-grass prairie, is one of the largest nearly unbroken blocks of native prairie in the United States. They are, however, being rapidly invaded by eastern red cedar, partly as a result of fire suppression.

After a gap of several years, fire returned to the 60,000-acre Niobrara Valley Preserve (NVP) in 2007, when 500 acres were burned. More than 3,000 acres were burned in 2008 with the help of inter-state Conservancy and federal agency participants. This two-week effort both provided training opportunities and allowed the NVP to burn larger, more complex units than local capacity would have permitted. The success of this pioneering capacity-sharing effort proves the concept can help bring fire-capacity needs and resources into balance.

The spring NVP burn season also permitted new techniques to be tested and refined, including use of temporary mineral lines in unstable soils, and prescriptions resulting in more intense and effective fires. These developments can be broadly applied to the landscape to make fire safer and more feasible.

COLLABORATIVE OBJECTIVES:

- Empower private land managers to apply fire safely and effectively.
- Reduce woody invasion of grasslands to protect ecological and economic values
- Decrease wildland fire hazards through the use of prescribed fire and fuels treatments
- Enhance fire department wildfire management through training, adoption of an incident-command system and improved communications

Collaborative Vision Statement:

The partnership will restore fire to the landscape, where appropriate and necessary, by empowering private land managers through training, capacity building, organization and demonstrations showing that fire can be both effective and safe.

The Middle Niobrara-Sandhills area is largely privately owned and the site has been active in the U.S. Fire Learning Network (FLN) since 2002. The main barriers to implementation include incompatible cultural attitudes toward fire, lack of funding for volunteer fire departments and a shortage of fire-trained staff. Coping with these diverse challenges and returning fire to the two ecosystems has proven difficult. However, the Network process has been embraced by local partners and has helped move stakeholders more quickly from the problem stage to the solution stage, their having arrived at a shared, feasible strategy.

Continued education with landowners will reinforce the understanding that prescribed fire is an important tool in the restoration of these riparian grasslands to a tallgrass and bur oak savanna state. In Nebraska, prescribed fire can prevent brush and trees from overtaking the prairie, prevent build up of dead vegetation that encourages weeds and retards new growth and improve habitat for prairie birds, mammals and butterflies.

The partnership emphasizes empowering landowners and managers to conduct fire collaboratively, in either formal or informal associations. Assistance has and will take the form of training and other technical assistance, improved access to equipment and strategic use of cost-share programs to demonstrate positive fire effects and create an initial critical mass of fire practitioners.

A member of the Southern Rockies Fire Use Module monitors a hot spot where the prairie meets the pines on the Niobrara Valley Preserve © Erick Stahlin/TNC

PARTNERS:

Cherry County Emergency Management

Middle Niobrara Natural Resources District

National Park Service, Niobrara National Scenic River

Natural Resources Conservation Service

Nebraska Game and Parks Commission

Nebraska State Forest Service

Private landowners

Sandhills Task Force

The Nature Conservancy

The Niobrara Council

Upper Loup Natural Resources District

USDA Agricultural Research Service

USDA Forest Service, Nebraska National Forest-Bessey Ranger District

U.S. Fish and Wildlife Service, Fort Niobrara National Wildlife Refuge

Volunteer fire departments

KEY SUCCESSES

Team members jointly developed the **NIOBRARA NATIONAL SCENIC RIVER COMMUNITY FIRE PLAN** which provides for coordinated fire and fuels management within the project area.

NUMEROUS PRIVATE-LAND FIRES were conducted during spring 2008. Total acres burned exceeded all previous private-lands fire.

THE NIOBRARA VALLEY PRESERVE burned more than 3,000 acres in 2008 with the aid of inter-state capacity sharing. New methods and prescriptions were tested and refined.

A NEW CORE GROUP has been formed that will coordinate not only fire, but broader resource-conservation issues within the Middle Niobrara.

2008–2009 PLANNED ACTIONS

- Continue working with local landowners to increase implementation of prescribed fire.
- Build capacity and increase fire practitioners through training and other technical assistance.
- Improve access to equipment across the landscapes and ownerships.
- Use cost-share programs to demonstrate positive fire effects.
- Develop demonstration projects through prescribed burns completed with Volunteer Fire Departments.
- Host the Great Plains FLN workshop at the Niobrara Valley Preserve in October 2008 with an emphasis on local participation.

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Prairie Coteau Habitat Partnership, *South Dakota*

GREAT PLAINS FLN | 2.3 MILLION ACRES

A representative example of an untilled tract of the Prairie Coteau landscape © Pete Bauman/TNC

The prairie coteau region of South Dakota and Minnesota is famous for a mixture of tallgrass prairie and pothole habitat. This area is an excellent example of grassland transitional between the tallgrass and shortgrass prairie characterized by native big and little bluestem, switchgrass, indiangrass and blue grama, in addition to bur oak woodland surrounding wetlands in the northeast. With fire gradually being reintroduced, native grasses and forbs burst forth abundantly. Today, this mosaic of wetland and prairie attracts a diverse array of waterfowl and grassland birds. The landscape also provides excellent habitat for rare prairie-dependent insects, including numerous species of butterflies.

COLLABORATIVE OBJECTIVES:

- Educate stakeholders about fire and grazing processes that naturally shaped prairie ecosystems
- Collaborate with agencies, landowners and the public on fire and grazing issues through promotion of economic incentives, conservation programs and volunteer fire department partnerships
- Return fire to the landscape in a safe, efficient and ecologically and socially sensitive manner

The Prairie Coteau Habitat Partnership's (PCHP) goals are to conserve biodiversity, including rare and endangered species, improve management practices on lands that are currently being managed to improve native species habitat, increase the number of private landowners using ecologically sound prescribed fire and grazing and model appropriate disturbance regimes while exploring new niche markets for participating landowners. PCHP participants also continue to seek funds for research, education and additional landowner outreach.

Collaborative Vision Statement:

The Partnership will promote a greater appreciation of the value of native tallgrass prairie by working with agencies, landowners and the public to return to a more natural fire and grazing regime.

Under the direction of the Great Plains Fire Learning Network the PCHP was formed in 2004 and boasts an impressive increase in landowner participation and interest over the years. The Partnership continues to treat privately owned sites with controlled burns, and fire planning is near completion for approximately 15 private property fire units. Thanks to an effective public outreach effort, many livestock producers are interested in using the mobile fire crew to test the effectiveness of prescribed fire on their lands. The Prairie Coteau fire crew will not charge ranchers for their services during the initial stages of what the Partnership expects to be a sustained effort.

Each treatment area will be monitored and different fire-grazing cycles will be applied depending upon the condition of the treatment area and the goals of the landowner. Under the U.S. Fish and Wildlife Service (FWS) Private Stewardship Grant Program, the partnership has worked with FWS Region 6 fire personnel to ensure the PCHP fire program meets all national and regional FWS and National Wildfire Coordinating Group standards for fire planning and fire implementation.

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Grazing operations dominate the Prairie Coteau landscape © Pete Bauman/TNC

PARTNERS:

Day County Conservation District

Natural Resources Conservation Service

Northern Prairies Land Trust

Pheasants Forever

Private landowners

South Dakota Department of Game, Fish, and Parks

South Dakota Grasslands Coalition

South Dakota State University

South Dakota Wildland Fire Suppression (South Dakota Department of Agriculture)

The Nature Conservancy

U.S. Fish and Wildlife Service, Madison Wetland District

U.S. Fish and Wildlife Service, Waubay National Wildlife Refuge

CRITICAL PARTNERSHIP FUNDING NEEDS:

$150,000 for annual support for a Prairie Coteau Habitat Partnership coordinator and fire leader

$250,000 to purchase large equipment for mobile fire crew

$350,000 to expand to second fully staffed and equipped crew to include Minnesota portion of landscape

KEY SUCCESSES

SOUTH DAKOTA STATE UNIVERSITY PARTNERSHIP was developed and conducts research regarding fire-grazing effects.

THE PCHP HIRED A PRESCRIBED FIRE CREW AND MONITORING CREW to work on private lands in 2008 by garnering federal funds.

PCHP RECEIVED A GRANT from the South Dakota Department of Game, Fish and Parks small grants program for a traveling kiosk to be built in spring 2008.

EQUIPMENT DONATIONS have been a large contributing factor to the success of implementing prescribed fire.

2008–2009 PLANNED ACTIONS

- Conduct meetings and planning sessions to explore new ways to expand the PCHP fire programs.
- Complete monitoring of fire-grazing effects of PCHP program via the Natural Resources Conservation Service's Conservation Innovation Grant Program.
- Finalize language for the FWS Wildlife Extension Agreements for participating landowners.
- Explore a stronger relationship with the Bureau of Indian Affairs along with other Great Plains Fire Learning Network landscapes.
- Continue equipment, resource and knowledge sharing among partners.

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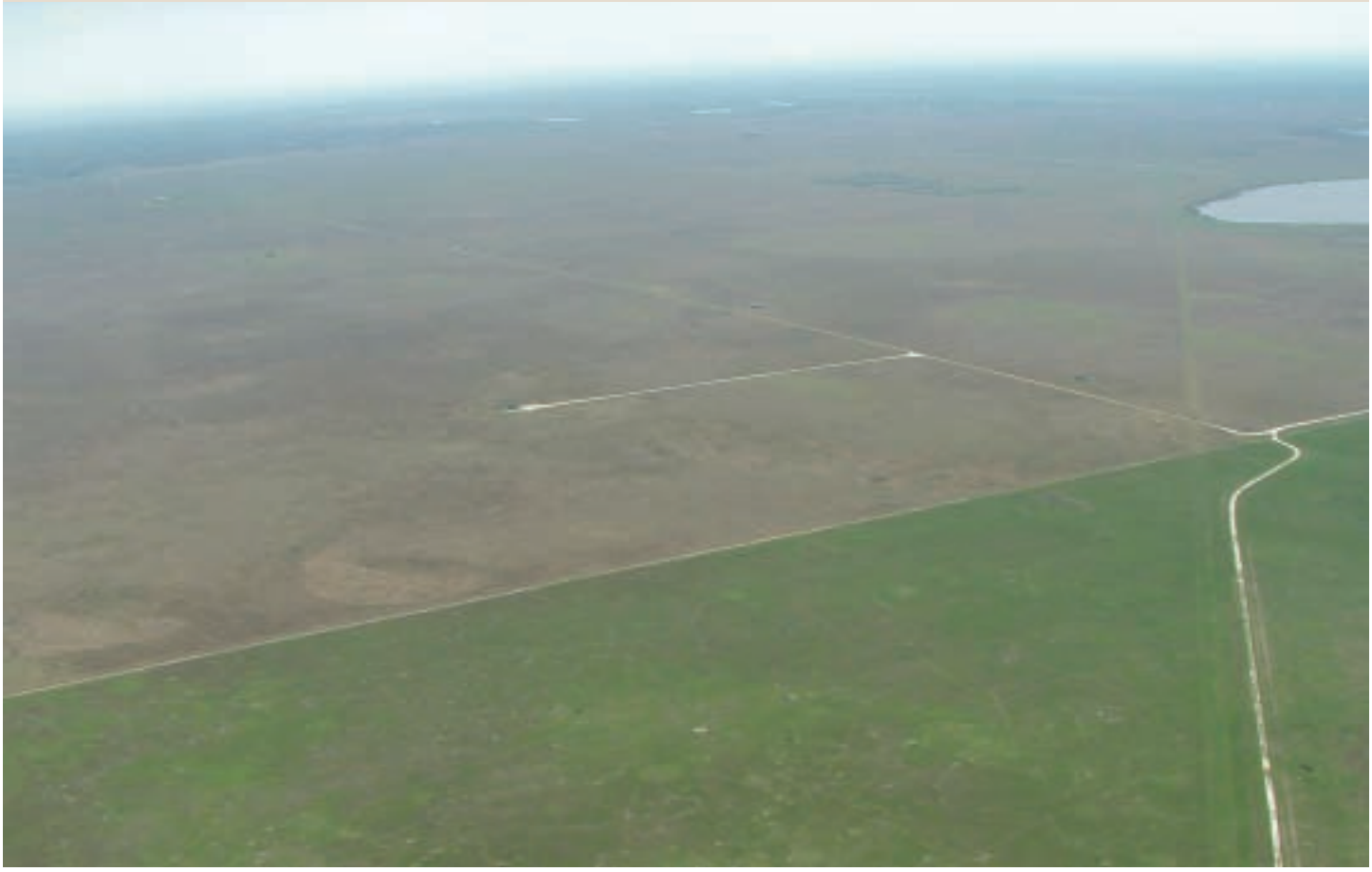
Refugio-Goliad Prairie, *Texas*

GREAT PLAINS FLN | 664,000 ACRES



Foreground is a winter 2008 Conservancy burn near the Attwater's prairie chicken release site © Wade Harrell/TNC

The Refugio-Goliad Prairie, spanning over 664,000 acres along the Texas Gulf Coast, is one of the largest and highest-quality expanses of coastal tallgrass prairie remaining in the state. Among the most endangered bird species habitats in North America with fewer than 70 birds, the project area supports one of the last known wild populations of the Attwater's prairie chicken after it was reintroduced in August 2007.

Fire was largely removed from this landscape for at least a century. Disruption of the historical regime resulted in woody plant encroachment on the prairie and greatly reduced habitat for many grassland-dependent wildlife species. Increasing the scope and frequency of prescribed fire is needed to support habitat for a viable bird population over the long term.

COLLABORATIVE OBJECTIVES:

- Reintroduce/expand beneficial fire regimes via prescribed burns to restore and maintain the vital contiguous prairie habitat that sustains populations of the Attwater's prairie chicken
- Curtail invasive species encroachment and reduce acreage that has been affected
- Cooperate with landowners to reduce harmful grazing practices and prevent further habitat fragmentation and conversion

Collaborative Vision Statement:

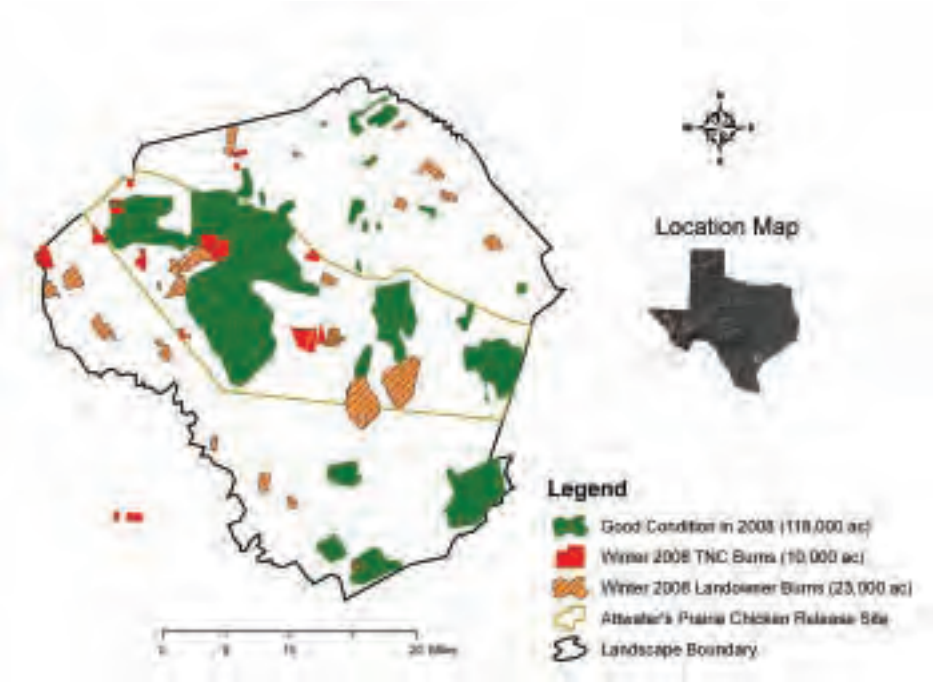
The Refugio-Goliad Prairie will be an ecologically functional coastal tallgrass prairie system that supports historical richness of plant and wildlife as well as agricultural enterprises.

Frequent fire maintains plant and animal diversity

in this ecosystem and improves cattle forage as well; therefore, the landscape's mobile fire crews conduct burns on private ranchlands. In 2003, the Conservancy staffed and equipped a prescribed fire module to implement prescribed burns and has helped more than 22 landowners apply prescribed fire on 57,741 acres. Currently, the team does not charge ranchers for its services, but relies on state and federal grants to fund the work.

Because the acreage needing prescribed fire exceeds the capacity of the Conservancy's prescribed fire module, innovative means to prioritize and plan burns, and strategies to engage partners, e.g., volunteer fire departments, the Coastal Bend Prescribed Burn Association and the U. S. Fish and Wildlife Service among others, must be realized.

By demonstrating the practicality of prescribed fire to enhance wildlife habitat, manage woody vegetation encroachment and increase livestock forage, the amount of land burned by private landowners has increased dramatically.



Map depicting the Refugio-Goliad Prairie Conservation Area, current good condition prairie, winter 2008 burns conducted independently by private landowners and those conducted by The Nature Conservancy © Ray Guse/TNC

PARTNERS:

Bureau of Land Management

Coastal Bend Prescribed Burn Association

Natural Resources Conservation Service

Private landowners

Texas Parks and Wildlife

The Nature Conservancy

U.S. Fish and Wildlife Service

Volunteer fire departments

CRITICAL PARTNERSHIP FUNDING NEEDS:

$300,000 per year to staff and equip the prescribed fire module

$20,000 per year for training for the prescribed burn association and volunteer fire departments

$300,000 per year to support Attwater's prairie chicken reintroductions and academic research, conduct biological monitoring, GIS development and analysis and support research tied to prescribed fire treatments

KEY SUCCESSES

GEOGRAPHIC INFORMATION SYSTEM (GIS) products are used to track changes in the prairie over time and document private landowners' increased use of prescribed fire.

AN INCREASE IN PRESCRIBED BURNS ON LARGER ACREAGES was achieved by strengthening our relationship and sharing resources with the U.S. Fish and Wildlife Service prescribed burn crew on the nearby Aransas National Wildlife Refuge Complex.

Our landscape hosted Conservancy and Bureau of Land Management teams seeking **FIRE TRAINING** opportunities.

We set a Conservancy record in Texas for the **MOST ACREAGE BURNED** by one crew in a single day (2,230 acres).

2008–2009 PLANNED ACTIONS

- Increase public understanding of the benefits realized by prescribed fire.
- Continue to engage volunteer fire departments to increase participation on both private and Conservancy burns.
- Support a growing organization of cooperating landowners who conduct prescribed burns on each other's properties.
- Use GIS application to track progress through remote sensing in order to help prioritize prescribed burns.
- Monitor prairie conditions to determine if fire return intervals and burn intensities meet ecological objectives and apply lessons learned.

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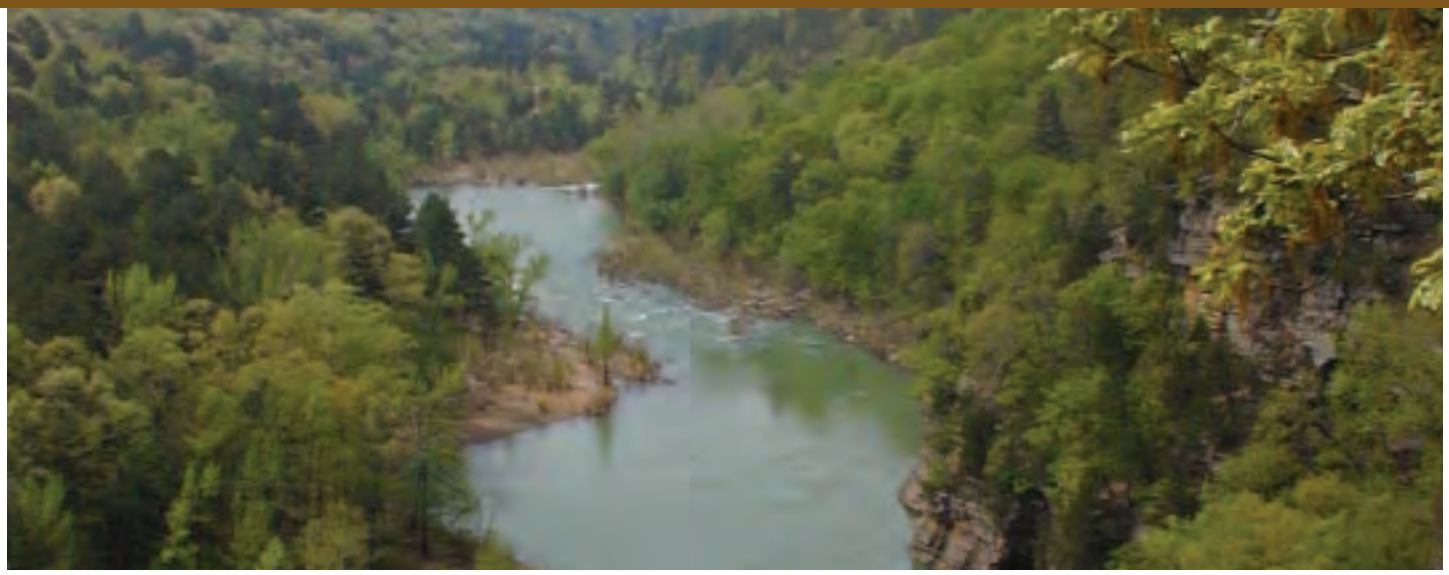
South Central Fire Learning Network



From atop the high bluffs, one is afforded stunning views of the river and surrounding Ozark hills and hollows © TNC

The South Central Fire Learning Network (FLN) includes 16 landscapes in Arkansas and one on the border between Kentucky and Tennessee. These areas are home to extraordinary, diverse natural lands including hardwood forests, native prairies, ancient wetlands, pristine streams and mountain ranges. The South Central FLN has targeted projects that focus on fire restoration in the oak and pine woodlands, savannas, glades and blackland prairies of the Ozarks, Ouachita Mountains, Upper West Gulf Coastal Plain, Mississippi River Alluvial Plain and Interior Low Plateau ecoregions.

The overarching objective of the Network is to address the altered fire regime threat and accelerate on-the-ground fire regime restoration in the south central U.S. Through knowledge sharing and science-based implementation practices landscape-scale fire restoration projects can be realized.

While project managers work through the Network process to address the unique issues at their sites, they also learn from successes and failures of those working on similar landscape projects. This Network has used Wildlife Management Area participation to promote development of fire management plans that focus on desired future conditions and which include fire in numerous land management plans. Another key outcome has been incorporation of ecosystem restoration as a key component in the revised Ozark-St. Francis and Ouachita National Forest plans and in the State Wildlife Action Plan.

Network Long-Term Vision:

By engaging regional resource management partners and working with a core, science-based peer-learning group, the Network will develop landscape-scale restoration and hazardous fuels reduction projects that return fire to its natural place in this region.

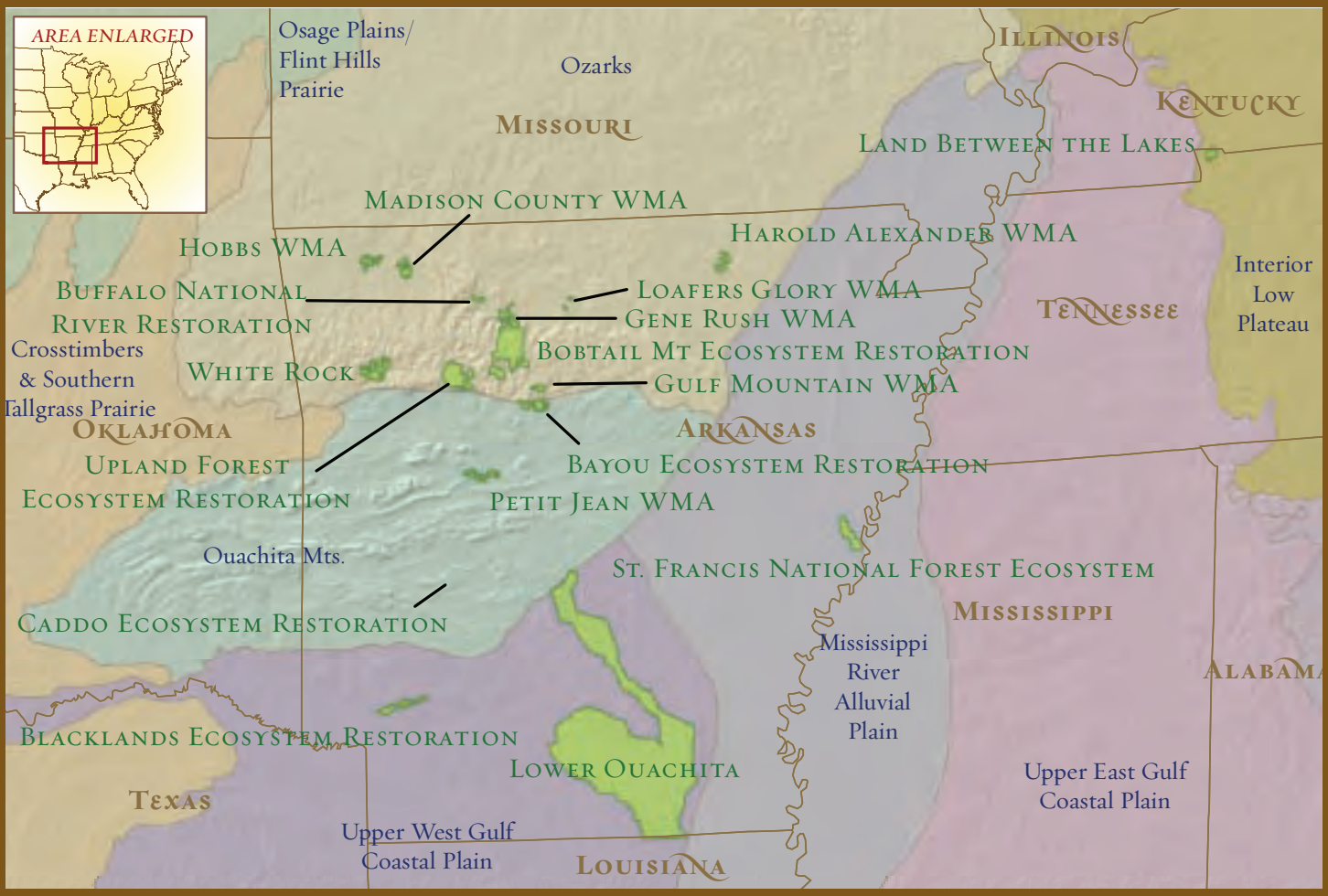
Demonstration Landscapes

Bayou Ecosystem Restoration Project
Land Between the Lakes (KY/TN)

Participating Landscapes

Arkansas Game and Fish Commission
- Gene Rush Wildlife Management Area
- Gulf Mountain Wildlife Management Area
- Harold Alexander Wildlife Management Area
- Hobbs Wildlife Management Area
- Loafers Glory Wildlife Management Area
- Madison County Wildlife Management Area
- Petit Jean Wildlife Management Area

Blacklands Ecosystem Restoration Project
Bobtail Mt. Ecosystem Restoration Project
Buffalo National River Ecosystem Restoration Project
Caddo Ecosystem Restoration Project
Lower Ouachita/Piney Woods Ecosystem Restoration Project
St. Francis National Forest Ecosystem Restoration Project
Upland Forest Ecosystem Restoration Project
White Rock Ecosystem Restoration Project



THE NETWORK SEEKS TO

- identify and enroll new sites and partners;
- ensure that new fire restoration projects receive peer review and other support for planning and implementing fire restoration strategies;
- develop and disseminate methodology to identify, prioritize, support and fund projects that restore altered fire regimes and ecosystems;
- secure funding to build ecosystem restoration capacity on priority, collaborative, public and private fire restoration projects;
- develop appropriately scaled monitoring and adaptive management processes and monitoring programs for restoration sites;
- build technical and operational capacity;
- institutionalize the creation and development of the best available science;
- assist restoration projects by providing techniques and information that address policy gaps and/or other needs; and
- help develop a multi-level education campaign to solidify broad-based public support and increase public acceptance of landscape-scale fire restoration projects.

Ideally, the Network will attract projects, personnel, partners and sites that will work together to meet the needs of its members and of the fire community over the long term.

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Arkansas Game and Fish Commission, *Arkansas*

SOUTH CENTRAL FLN | 76,000 ACRES

Gene Rush Wildlife Management Areas © McRee Anderson/TNC

The Ozark Highlands is the hub of biodiversity in the central United States. This system of oak and pine woodlands, savannas and forests is the largest continuous system remaining in the United States. The Ozarks has more than 150 endemic species of plants and animals. Fire-dependent ecosystems like these once covered millions of acres across Arkansas. Today these ecosystems are declining in distribution, ecological health and sustainability.

The Ozark and Ouachita Mountains, collectively referred to as the Interior Highlands, mirror changes occurring in other forests throughout the country. Historical records indicate that pre-settlement tree density in the Interior Highland oak ecosystem ranged from 38 to 76 trees per acre. Current densities in much of the region range from 300 to 1,000 stems per acre. Increased stand density leads to increased competition for nutrients, sunlight and moisture. Now, during periods of drought, trees that are already stressed by resource competition become extremely vulnerable to disease and insect attack.

Collaborative Objectives:

- Re-establish the historical fire return interval throughout Interior Highlands Wildlife Management Areas
- Develop pine and oak woodlands where appropriate to restore remnants of historic wildlife habitat for the range of native and migratory species
- Seek cooperative funding opportunities to enhance and promote wildlife species associated with pine and oak woodlands and savannas
- Increase public support, recreational use and consumptive and non-consumptive practices that promote wildlife habitat management activities

Collaborative Vision Statement:

Through the collaborative efforts of these Wildlife Management Areas, the partnership envisions ecosystem conditions that are maintained and restored thanks to management actions that promote natural processes and protect native plant and animal communities, using the best available scientific and historical information.

THE ARKANSAS GAME AND FISH COMMISSION offers some of Arkansas' best hunting and fishing in Wildlife Management Areas (WMAs). Set aside by the Commission, the WMAs are distinguished by certain markers and considered as separate zones with regard to wildlife regulations. The seven WMAs of the Interior Highlands have participated in the South Central Fire Learning Network since 2005 and are ideal locales for oak and pine woodland and savanna restoration. Typifying Ozark Mountain terrain, with numerous steep mountains, broad flat mountain tops and deep hollows, the WMAs have extensive upland hardwood and shortleaf pine woodlands, savannas and glades where fire once played a key role in ecosystem health.

The project site managers use Fire Learning Network processes to develop current and desired ecological conditions and to strategize goals and wildlife management objectives. In addition, each site has ongoing prescribed fire and both commercial and non-commercial timber management objectives. The WMAs will continue to work cooperatively to expand management treatments that enhance wildlife habitat and native species diversity. Special consideration will be given to ecologically sensitive areas.

Arkansas Game and Fish Commission ecologists say fire restoration benefits ground nesting birds like turkey and quail © Ark. Game and Fish Commission

PARTNERS:

Arkansas Forestry Commission

Arkansas Natural Heritage Commission

National Parke Service, Buffalo National River

National Wild Turkey Federation

Oak Ecosystem Restoration Team

Quail Unlimited

The Nature Conservancy

USDA Forest Service, Ozark-St. Francis National Forest

U.S. Fish and Wildlife Service, Arkansas Field Office

CRITICAL PARTNERSHIP FUNDING NEEDS:

$100,000 per year for implementing prescribed burns on 10,000 acres and non-commercial timber thinning on 500 acres

KEY SUCCESSES

NETWORK-HOSTED WORKSHOPS for forest managers provided a forum to share information on conducting safe and ecologically significant prescribed burns.

PARTNERS PROVIDED SPECIES AND HABITAT INFORMATION to the Forest Service in the plan revisions.

THE TEAM IDENTIFIED AREAS most in need of restoration, particularly fire restoration.

2008–2009 PLANNED ACTIONS

- Incorporate management practices on the WMA that promote the diversity of species while also providing recreational opportunities.
- Determine areas of special concern to state, federal and private partners by using available landscape information within native fire-dependent communities.
- Increase public support through interpretative displays and educational programs that promote science-based restoration treatments.
- Implement prescribed burns on 10,000 acres annually in order to realize desired conditions and restored habitat.

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Bayou Ecosystem Restoration Project, *Arkansas*

SOUTH CENTRAL FLN | 60,000 ACRES

An oak woodland restored with periodic prescribed fire and tree thinning in the Bayou Ecosystem Restoration Project © John Andre

The Ozark and Ouachita Mountains, collectively referred to as the Interior Highlands, are valued for their abundant wildlife, valuable timber, varied recreation opportunities and high diversity of plants and animals. Restoring fire to this region will sustain and even improve these values, as well as help protect people and communities.

Altered fire regimes have led to a significant increase in fuel loads and tree densities, a shift in species composition and a decrease in forest health. The frequent, low-intensity fire regime under which the ecosystem evolved has been disrupted. Approximately 80 to 100 years ago, the woodlands of the Ozark and Ouachita Mountains were heavily logged and the fire return interval was drastically reduced.

The Forest Service estimates that over 1.5 million acres of red oak trees are dying, currently impacting over 60 percent of National Forest lands in the Interior Highlands. The scale and severity of the problem means a change in the entire composition and structure of the ecosystem is occurring. Oak and pine woodlands, once common in the Interior Highlands, have been greatly reduced on national forest lands. The integrity of the oak woodland ecosystem is at risk.

COLLABORATIVE OBJECTIVES:

- Re-establish the historical fire return interval to the 60,000-acre project area
- Develop pine and oak woodlands on 30,000 acres of the project within 10 years
- Achieve biodiversity goals within the historical range of variation
- Provide multiple recreational opportunities
- Interpret demonstration site to increase public support among various audiences
- Promote and facilitate ecosystem restoration at other sites

The Bayou Ecosystem Restoration Project was formed in 2001 with the goal of restoring approximately 60,000 acres of primarily oak ecosystems within the Ozark-St. Francis National Forest's Bayou Ranger District. This diverse coalition has completed forest restoration work on thousands of acres and is now into a new stage in which partners are monitoring forest health, making adjustments to their restoration work and sharing findings with the general public, project funders and local stakeholders.

Collaborative Vision Statement:

Landscape ecosystem components and processes are maintained within the historical range of variation by periodic fire use and ecologically based resource management, providing healthy watersheds and safety for communities at risk.

THE BAYOU ECOSYSTEM RESTORATION PROJECT has been involved in the U.S. Fire Learning Network since 2001 and has served as a demonstration landscape for the South Central FLN, transferring technology and expertise to others. This work helps recruit potential new restoration areas and engages leaders through peer-to-peer site visits that determine planning time horizons and levels of long-term commitment. Site visits also engage participants who assess on-the-ground restoration efforts. The Bayou project will continue being the catalyst for restoration of appropriate fire regimes at a sufficient scale for the conservation of biodiversity.

Integrated resource management practices that are deployed in this area are designed to restore desired conditions in the ecosystem. Services and products from many treatments support the economies of local communities. Monitoring is integral to the process to both guide future management work and demonstrate to communities the feasibility of restoration objectives. As word about the monitoring evidence spreads, public confidence and support are growing for forest restoration.

Open forests maintained with prescribed fire support a wide variety of plants and animals © Mike Jeffords

PARTNERS:

Arkansas Audubon Society
Arkansas Forestry Commission
Arkansas Game and Fish Commission
Arkansas Natural Heritage Commission
Arkansas Wildlife Federation
Caddo Nation of Oklahoma
National Wild Turkey Federation
Oak Ecosystem Restoration Team
Private landowners
Quail Unlimited
Rocky Mountain Elk Foundation
Southwest Fire Use Training Academy
The Nature Conservancy
USDA Forest Service, Ozark-St. Francis National Forest Bayou Ranger District
U.S. Fish and Wildlife Service
Watershed Restoration and Enhancement Agreements (Wyden Authority and Stevens Act)

CRITICAL PARTNERSHIP FUNDING NEEDS:

Annual funds needed for prescribed fire ($570,000 for 32,000 acres), commercial timber sales ($1,100,000) and non-commercial timber thinning ($300,000) is determined collaboratively following the guidance of the area's Land Management Plans.

KEY SUCCESSES

NEPA DECISIONS are in place for all-season prescribed fire use at three- to five-year intervals on the entire project area and for tree thinning treatments on 30,000 acres.

THE DISTRICT AND ITS PARTNERS burn 27,000 acres a year, including several private property tracts, and mechanically thin brush and trees on another 2,600 acres per year for the past seven years.

MULTIPLE STEWARDSHIP CONTRACTS are being used to achieve desired conditions.

HIGHLY VISIBLE EDUCATION PROJECTS have been completed and help build awareness for oak and pine woodland restoration. Media-oriented field tour focusing on the restoration of fire-adapted ecosystems was conducted this spring and attended by 10 media outlets.

2008–2009 PLANNED ACTIONS

- Continue current prescribed fire and thinning operations in the restoration project area including interagency prescribed fire projects.
- Research market options for small diameter hardwood.
- Continue fire and thinning treatments and expand into the newly designated Ozark-St. Francis National Forest Land Management Plan management areas dedicated to oak and pine woodland restoration (252,000 acres).
- Increase prescribed fire to 32,000 acres on the District in 2009.
- Participate in active and planned timber sales that are expected to restore about 10,000 acres to historical tree density and species composition.

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Blacklands Ecosystem Restoration Project, *Arkansas*

SOUTH CENTRAL FLN | 30,000 ACRES

Restored blackland prairie with pale purple coneflower blooming in the spring © McRee Anderson/TNC

The blackland region of southwestern Arkansas occurs in the West Gulf Coastal Plain ecosystem. This region is characterized by gently rolling topography. Blackland prairies and woodlands do not occur in continuous tracts; these communities are found in discrete areas where blackland soils have formed from calcareous substrates. The state's blackland prairies and associated woodlands and bottomlands harbor more than 600 plant and 315 animal species, including many that are classified as rare.

Most of the virgin blacklands landscape disappeared in the last 150 years. The wide-open terrain and rich soils were appealing for conversion to agriculture fields, pastures and tree plantations. Today, as human populations increase, the remaining blacklands face the threat of suburban development.

All of the blackland plant communities depend on fire to maintain their species diversity and structure. As in many grasslands, fire in the blackland prairies has been suppressed in the past century. As a result, prairie openings have declined in size and quality due to encroaching woody vegetation.

Collaborative Objectives:

- Secure dedicated funding for ecosystem restoration in the project area
- Update Conservation Action Plan
- Develop, maintain and publicize ecosystem restoration treatments, including native prairie grazing demonstration area
- Deliver Landowner Incentive Program project to initiate fire restoration on private land, improve attitudes and knowledge of prescribed fire and develop capacity of landowners to use fire
- Continue protection of land within conservation area via fee title acquisition, conservation easements and management agreements
- Improve collaborative restoration efforts with partners

Collaborative Vision Statement:

The Blacklands Ecosystem Restoration Project will restore, maintain and conserve a functional ecosystem that encompasses a diverse landscape with the full mosaic of blackland communities and ecological processes while providing educational, recreational and economic opportunities.

FIRE IS THE MOST IMPORTANT ECOLOGICAL PROCESS maintaining the distribution, composition and diversity of blackland prairie, woodland and forest communities; therefore, the partnership's primary goal is to restore a regular fire regime to these areas using prescribed fire and prairie restoration techniques. This involves moving additional lands into conservation ownership and actively managing conserved areas to maintain or increase native plant and animal diversity. It also requires land and timber management practices that preserve biodiversity on privately owned tracts.

The Conservancy owns 215 acres in two preserves and holds a conservation easement on 400 privately owned acres. The stewardship staff also works with state agency partners to manage thousands more acres of public lands. One of these sites is the Arkansas Game and Fish Commission's Rick Evans Grandview Prairie Wildlife Management Area (WMA). At 4,885 acres, Grandview is the largest known area of blackland ecosystem in conservation ownership.

Participants of a Network workshop visit Blacklands Ecosystem Restoration Project © McRee Anderson/TNC

PARTNERS:

Arkansas Forestry Commission

Arkansas Game and Fish Commission

Arkansas Natural Heritage Commission

National Wild Turkey Federation

Private landowners

Quail Unlimited

The Nature Conservancy

U.S. Fish and Wildlife Service, Arkansas Field Office

CRITICAL PARTNERSHIP FUNDING NEEDS:

$75,000 per year to treat 3,000 acres with prescribed fire

$25,000 per year to thin cedar

KEY SUCCESSES

LANDOWNER INCENTIVE PROGRAM has been one of the key conservation strategies to accomplish fire restoration on private lands.

STEWARDSHIP CREWS implemented numerous controlled burns throughout the region and conducted monitoring to assess the effects on target species and communities.

VOLUNTEERS helped remove invasive plants, repair erosion damage, collect native prairie seeds and reseed degraded areas to boost populations of native prairie plants.

2008–2009 PLANNED ACTIONS

- Continue to expand fire restoration on public and private lands in the area with over 1,500 acres enrolled in the program.
- Complete more than 1,000 acres of planned growing season burns at the Grandview WMA and continue them on an annual basis.
- Conduct mechanical thinning of cedar to reduce encroaching woody vegetation on prairie habitat.
- Refine the landscape-scale restoration guidelines and the ecological monitoring program to track restoration progress.

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Bobtail Oak Woodland Restoration Project, *Arkansas*

SOUTH CENTRAL FLN | 85,930 ACRES

Oak woodlands in the Ozark Mountains © John Andre

Bobtail Oak Woodlands Restoration Project is located in the northeast portion of the Big Piney Ranger District, Ozark-St Francis National Forest. The landscape is typical of the Ozark Mountain region with multiple ridges, valleys and drainages. The vegetation consists of an oak-hickory woodland mosaic interspersed with cedar glade, post oak savanna, shortleaf pine, riparian areas and open fields. The area drains north into the Buffalo River. Of the project's 85,930 acres, about 17 percent (14,604 acres) are privately held.

Altered fire regimes have led to a significant increase in fuel loads and tree density, a shift in species composition and a decrease in forest health. The frequent, low-intensity fires under which the ecosystem evolved no longer occur. The Bobtail Oak Woodland Restoration Project joined the South Central Fire Learning Network to determine how fuel treatments and the return of fire to this large landscape can restore ecosystem health.

This project will link restoration projects on adjacent federal and state lands, provide educational opportunities that increase public awareness of resource management issues, improve partners' ability to participate in project development and ultimately gain public support for the work. The project monitoring program will address requirements agreed to in the Forest Plan and contribute to the District's adaptive management goals.

COLLABORATIVE OBJECTIVES:

- Address forest health issues and reduce hazardous fuels
- Control or reduce invasive species
- Improve habitats for threatened and endangered species
- Improve water quality and increase stream integrity and habitat diversity
- Improve dispersed recreation opportunities and management of existing dispersed recreation
- Retain wilderness character and values

Collaborative Vision Statement:

Create a landscape-scale project through a collaborative process that moves the area toward the desired conditions that are presented in the Forest Plan. The landscape work will focus on accelerating the restoration of fire-adapted ecosystems while protecting communities from wildfire.

This landscape will connect restoration activities among Gene Rush Wildlife Management Area, Buffalo National River, Woodland Ecosystem Project (WEP) and Gulf Mountain Wildlife Management Area. The Bobtail Restoration Project team will participate in two Network workshops. The first will focus on the scientific justification for fire restoration; the second will address implementation schedules, collaborative fire management and the most pressing barriers and solutions.

The landscape team has invested resources and staff to develop a project with restoration and wildlife management as a focus. Other partners express similar values with landowners interested in fire safety and fuels management. The project team is concentrating on filling data gaps, e.g., developing the wall-to-wall vegetation and resource maps, forest condition maps and action maps prioritizing treatable areas. Information developed through the Network will be integrated into the greater National Forest planning analyses, assist with community planning (in particular, developing Community Wildfire Protection Plans) and support agency and government efforts to generate a collaborative vision for future land management.

Healthy landscapes managed with prescribed fire provide foraging habitat for various species © TNC

PARTNERS:

Arkansas Game and Fish Commission

Rocky Mountain Elk Foundation

The Nature Conservancy

USDA Forest Service, Ozark-St. Francis National Forests

CRITICAL PARTNERSHIP FUNDING NEEDS:

$30,000 to complete a comprehensive monitoring program

KEY SUCCESSES

PARTNERS JOINED THE SOUTH CENTRAL FIRE LEARNING NETWORK in 2008 to increase collaboration in fire management.

BOBTAIL OAK WOODLAND RESTORATION project has completed 4,000 acres of mechanical treatments, implemented prescribed fire in the last 10 years that totals 21,000 acres and used prescribed fire in the last five years that totals 13,120 acres.

2008–2009 PLANNED ACTIONS

- Participate in two Network workshops focusing on the scientific justification for fire restoration, implementation schedules, collaborative fire management and identifying top barriers and solutions.
- Complete fuels reduction and restoration projects, including mechanical treatments on 6,820 acres and prescribed burns on 19,000 acres. Also planned are Non-Native, Invasive Species (NNIS) treatments on 2,242 acres and creating high-quality forge openings on 1,722 acres.

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Buffalo National River Ecosystem Restoration Project, *Arkansas*

SOUTH CENTRAL FLN | 4,300 ACRES

Toney Bluff in the Buffalo National River © Mark Robinson

The Buffalo National River flows free over swift-running rapids and quiet pools for 135 miles. One of the few remaining rivers in the lower 48 states without dams, the Buffalo cuts its way through massive limestone bluffs traveling eastward through the Arkansas Ozarks and into the White River. Featuring rugged, steep terrain, deep valleys and forested hills, the area provides habitat for black bears and elk and various bat species.

COLLABORATIVE OBJECTIVES:

- Reintroduce fire to restore natural ecological processes
- Encourage oak regeneration
- Integrate best available science to guide our adaptive management strategies
- Use Fire learning Network processes and products to refine the partnership's work and to build a common vision
- Accelerate lessons learned and provide opportunities to share and synthesize data and information

The vegetation consists of an oak-hickory woodland mosaic interspersed with cedar glade, post oak savanna, shortleaf pine, riparian areas and open fields. Fire has been reintroduced to approximately 3,000 acres using a four-year return interval. As vegetation composition returns to desired conditions, the fire return interval will be extended, depending on vegetation composition, to mimic natural processes.

Collaborative Vision Statement:

The project's goals are to preserve native plant communities, restore species and habitat diversity and reduce the accumulation of hazardous fuels.

Buffalo national river ecosystem restoration project

joined the South Central Fire Learning Network in 2008 and has begun to formulate a formal landscape plan and engage partners in stewardship. The 4,300-acre Erbie-Pruitt Complex is located in northern Arkansas on Department of Interior lands; it lies within the boundaries of Buffalo National River and is the first site to enroll in the Restoration Project.

The team has invested in resources and staff to develop a project focusing on ecological restoration and the maintenance of cultural landscapes. The team used past scientific research in order to identify and fill data gaps and to facilitate the collaborative development of plans. We are currently designing vegetation maps and assessing historical data that can guide our adaptive management strategy. Participation in the Fire Learning Network helps us refine our work and build a common vision with our partners and promote opportunities to share and synthesize data and information.

Buffalo National River © TNC

PARTNERS:

Arkansas Game and Fish Commission

National Park Service, Buffalo National River

Rocky Mountain Elk Foundation

The Nature Conservancy

USDA Forest Service

CRITICAL PARTNERSHIP FUNDING NEEDS:

$30,000 to complete a comprehensive monitoring program

KEY SUCCESSES

PARTNERS JOINED THE SOUTH CENTRAL FIRE LEARNING NETWORK in 2008 to increase collaboration in fire management.

ERBIE-PRUITT project has completed 70 acres of mechanical treatments and conducted prescribed fire operations two times on 3,000 acres in the last eight years.

2008–2009 PLANNED ACTIONS

- Participate in two Network workshops. The first will focus on the scientific justification for fire restoration; the second on implementation schedules, collaborative fire management and top barriers and solutions.
- Complete mechanical treatments on 140 acres.
- Implement prescribed burns on 2,680 acres of woodland vegetation, 80 acres of native grass habitat and 300 acres of open fields.

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Caddo Ecosystem Restoration Project, *Arkansas*

SOUTH CENTRAL FLN | 33,000 ACRES

Monitoring on the Caddo Ranger District © McRee Anderson/TNC

The Ouachita Mountain ecoregion of Arkansas and Oklahoma comprises a landscape of more than eight million acres with rugged mountain ridges, broad valleys and the headwaters of several large river systems. The complex geological formations and soils of this forested landscape have created rich, diverse habitats for a wide variety of species including numerous birds, two dozen different species of butterflies, white-tailed deer and black bear. The four general habitats include glades, woodland slopes, riparian forests and wooded seeps. The woodlands feature shortleaf pine, oaks and hickories with shrubs, grasses and wildflower understory. Partners are using prescribed fire to restore woodlands to a more open structure.

This project team has participated since 2005 in the South Central Fire Learning Network. The Caddo Ecosystem Restoration Project consists of the Ouachita National Forest's Caddo Ranger District's restoration site, which includes 14 separate burn units. The Network landscape also encompasses the Conservancy's Trap Mountain and other state and private lands managed for resource extraction and conservation. This project identified 33,000 acres of oak and pine woodlands within the Caddo Ranger District for hazardous fuel reduction burns within the wildland-urban interface.

COLLABORATIVE OBJECTIVES:

- Re-establish the historical fire return interval throughout the Caddo Ecosystem Restoration Project
- Develop pine and oak woodlands, where appropriate, to promote wildlife species in the project area
- Include ecosystem restoration in the revised Land and Resource Management Plan
- Agree on definitions of "historical ranges" for ecosystem components and processes

Collaborative Vision Statement:

At the landscape scale, this partnership will design and implement management activities that ensure ecosystem components and processes are maintained within the historical range of variation through a combination of prescribed fire, mechanical, chemical and other alternative treatments.

The "historical range" will be defined by partners

who are involved in the overall health and management of ecosystems. When selecting treatments, partners will consider such factors as risks-versus-benefits to natural systems, public perceptions about fire use, economic costs, possible impact on recreational opportunities and legal and policy constraints. The ultimate goal of the partnership is long-term viability of ecosystems.

An associated action with prescribed burning is fireline construction. Under the present conditions, with the extra fuel loading and large numbers of snags, more work is needed to create safe firelines. Snags are a tremendous hazard facing Forest Service employees and those using the forest for recreation purposes. On wildfires and prescribed burns, snags can catch fire and throw embers over the line. In order to conduct prescribed burns in a safe and efficient manner, workers will remove snags from approximately 500 acres that fall along the fireline around the burn units.

In general, the restoration areas are managed for multiple resource benefits. Many of the areas have private property inclusions and/or are adjacent to private property. Private property resources are at risk from wildland fires due to hazardous fuel loads on the forest. Some property owners have constructed firebreaks around their land to reduce this risk; however, this practice is too costly for most landowners.

Trap Mountain © TNC

PARTNERS:

Arkansas Forestry Commission

National Wild Turkey Federation

Oak Ecosystem Restoration Team

Quail Unlimited

The Nature Conservancy

USDA Forest Service, Ouachita National Forest

U.S. Fish and Wildlife Service, Arkansas Field Office

CRITICAL PARTNERSHIP FUNDING NEEDS:

Landscape management implementation will require continued funding for conducting prescribed burns and mechanical treatments.

KEY SUCCESSES

FIRE LEARNING NETWORK PRODUCTS such as current and desired future condition are used to build a bridge to overall restoration goals.

MANAGEMENT PLANS for the Ouachita National Forest include ecological fire restoration.

LITTLE MISSOURI WATERSHED partners have burned approximately 23,000 acres within the past five years.

TO INCREASE ACRES UNDER FIRE MANAGEMENT, the district is currently in the process of adding 3,000 acres in the Caddo watershed and another 7,000 acres in the Little Missouri watershed to their fire plans.

2008–2009 PLANNED ACTIONS

- Complete mechanical treatments on units identified in the revised Land and Resource Management Plan.
- Implement prescribed burns on approximately 16,000 acres annually.
- Develop an ecological monitoring program to track restoration progress.
- Continue revising and using ecological models to enhance landscape-scale fire restoration projects.

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Land Between the Lakes, *Kentucky & Tennessee*

SOUTH CENTRAL FLN | 8,800 ACRES

Monitoring crew at Land Between the Lakes National Recreation Area © Jim McCoy

Land between the lakes national recreation area (LBL) straddles the Kentucky and Tennessee border. As a designated national recreation area under the management of the Forest Service, LBL is maintained for the public's enjoyment and safety. It is home to the largest publicly owned bison herd east of the Mississippi River with in excess of 1,300 plant species, more than 240 bird species and 53 mammal species.

The 5,000-acre Oak/Grassland Restoration Demonstration-Prior Creek project is located in the central part of LBL. The Oak/Grassland area was selected during the Land and Resource Management Plan (LRMP) revision for LBL and is a Land Allocation in the newly signed LRMP. The Prior Creek Project area was selected due to its proximity to existing environmental education facilities and the South Bison Range, both popular public attractions. The expectation is that the project area will be highly visible to the public, which should facilitate environmental education and interpretation.

COLLABORATIVE OBJECTIVES:

- Restore and maintain oak woodlands and savannas at ecologically relevant scales
- Create openings and add fire to encourage canebreak restoration
- Provide for both facility-based and dispersed environmental education opportunities
- Offer multiple recreational opportunities, including hunting and nature watching
- Promote and facilitate ecosystem restoration at other sites
- Develop public support through continued collaboration

Collaborative Vision Statement:

Land Between the Lakes project will work with partners to ensure landscape ecosystem components and processes are maintained within the historical range of variation through the use of periodic planned fire events and ecologically based resource management.

NATURE USES FIRE TO MAINTAIN FOREST HEALTH; humans use selective tree cutting, or timber management, for the same reason. Selective thinning allows sunlight to reach the forest floor, helping seedlings become established. The flourishing young plants provide food and cover for LBL's wildlife.

Since fire alone is not enough to reach restoration goals in an efficient time frame, proposed forest management actions will include mechanical thinning (single-tree selection and small group selection) of a maximum 2,600 acres of forest on dry and xeric sites. Our plan is to restore oak savannas by reducing stand density from approximately 100 trees per acre to 50 trees per acre in patches on dry and xeric sites.

Land Between the Lakes joined the South Central Fire Learning Network in 2005 and now serves as a demonstration site to share lessons learned with new site managers. In addition, the Interior Low Plateau ecoregion benefits by extrapolating and applying the expertise of seasoned Network members. The partnership plans to continue ramping up its program so that the Forest Service can eventually restore and maintain LBL's oak woodlands and savannas at ecologically relevant scales.

Land Between the Lakes is the only National Recreation Area currently enrolled in the U.S. Fire Learning Network © Courtesy LBL National Recreation Area

PARTNERS:

Central Hardwoods Joint Venture

National Wild Turkey Federation, Tennessee State Chapter

Quail Unlimited, Jackson Purchase Chapter

The Nature Conservancy

U.S. Fish and Wildlife Service, Frankfort Field Office

CRITICAL PARTNERSHIP FUNDING NEEDS:

$50,000 to construct six-mile driving loop to interpret forest health treatments

$50,000 to establish 50 acres of tallgrass prairie and 50 acres of cane

$30,000 for implementing prescribed fire on approximately 2,500 acres

KEY SUCCESSES

BUILDING A CORE GROUP OF KEY COLLABORATORS provided a foundation for critical guidance and support and helped develop a broad vision for restoration.

THE NETWORK PROCESS PROVIDED TIME-SAVING NEPA-related templates that helped the landscape managers stretch appropriated funds for prescribed burning.

CREWS TREATED thousands of acres with prescribed fire and mechanical thinning.

TEAM COLLECTED FIRST YEAR BASELINE DATA for development of a comprehensive plant community monitoring program.

2008–2009 PLANNED ACTIONS

- Maintain proposed forest management actions including approximately 2,600 acres of mechanical thinning and 5,000+ acres of prescribed burning.
- Continue implementation of the Environmental Education and Interpretation Plan.
- Realize dormant season fuel reduction prescribed burns on approximately 2,500 acres in the first year and 2,500 acres in the second.
- Implement commercial timber sales and non-commercial thinning on about 2,500 acres of the project area.

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Lower Ouachita/Piney Woods Ecosystem Restoration Project, *Arkansas*

SOUTH CENTRAL FLN | 4,300 ACRES

Saline soil barrens with forested pine flatwoods buffer at Warren Prairie © Mike Fuhr/TNC

The Lower Ouachita system is located in the Upper West Gulf Coastal Plain within the Lower Saline River watershed in Arkansas. This landscape complex includes big rivers (the Ouachita and Saline), bottomland hardwood forests, terrace pine-oak flatwood forests and upland matrix pine-oak woodlands, pine-grass savannas, salt slick barrens and sand prairies, all of which are still largely forested and undisturbed hydrologically with ecosystem functions relatively intact. Maintaining ecologically compatible forestry practices that require working with landowners can demonstrate the connections between ecosystem benefits and economic return, an essential element in achieving landscape-scale conservation results.

COLLABORATIVE OBJECTIVES:

- Accelerate Lower Ouachita Restoration Project goals by using conservation forestry practices and acquisition of adjacent timberlands
- Initiate planned prescribed fire, ecological thinning and monitoring to move the site to its desired condition
- Restore at least four breeding pairs of red-cockaded woodpeckers
- Continue implementation of prescribed burns, timber harvesting and monitoring and stewardship of the Warren Prairie Conservation Area

The Warren Prairie Conservation Forestry and Stewardship project is a nested site situated within the 4,087-acre Warren Prairie Conservation Area (WPCA), part of the larger (684,296 acres) Lower Ouachita-Bastrop Ridge landscape. The Warren Prairie site was selected by the Lower Ouachita landscape partners for further study based on fire management and conservation forestry accomplishments, existing partnerships, planned red-cockaded woodpecker reintroduction and current site management planning.

Collaborative Vision Statement:

Project strives to utilize conservation forestry to enhance natural community structure and composition on public and private lands and to maintain or increase populations of rare plants and animals.

THE LOWER OUACHITA LANDSCAPE PARTNERS joined the South Central Fire Learning Network in 2005 under a shared goal of conservation of the fire-dependent, endangered red-cockaded woodpecker. The peer-reviewed workshop process helped the team develop the tools needed for fire restoration at the landscape level in a mixed-ownership region. It also prompted them to investigate and use conservation forestry practices. The latter include restoring community structure and composition by bringing the basal area for the savanna down to 10 to 30 square feet per acre and for the woodlands to 30 to 70 square feet per acre, thus maintaining a diverse herbaceous understory. Techniques include managing natural regeneration in even- and uneven-aged rotation without bedding or fertilizers, applying limited herbicides and using fire on a two- to four-year frequency.

Conservancy scientists, volunteers and partners monitoring plants in western sandhill woodland and sand barrens community in the Upper West Gulf Coastal Plain ecoregion © Scott Simon/TNC

PARTNERS:

Arkansas Forestry Commission

Arkansas Game and Fish Commission

Arkansas Natural Heritage Commission

National Wild Turkey Federation

Quail Unlimited

Southwest Fire Use Training Academy

The Nature Conservancy

USDA Forest Service, Ouachita and Kisatchie National Forests

U.S. Fish and Wildlife Service, Arkansas Field Office

Watershed Restoration and Enhancement Agreements (Wyden Authority)

CRITICAL PARTNERSHIP FUNDING NEEDS:

$5,000 to help complete prescribed burn plans

$15,000 to 30,000 annually for two to four prescribed burns

KEY SUCCESSES

WARREN PRAIRIE NATURAL AREA, managed by the Arkansas Natural Heritage Commission, is included in the landscape site and is being examined as possible habitat for the red-cockaded woodpecker.

NUMEROUS PRESCRIBED BURNS and one ecological thinning have been completed since 2000.

A CONSERVATION PLAN is in place and a collaborative monitoring plan is being implemented.

2008–2009 PLANNED ACTIONS

- Conduct community monitoring every three years.
- Stage prescribed burns and thinning on a two- to four-year rotation.
- Maintain genetic viability of the red-cockaded woodpecker population by establishing corridors and buffer zones between the project's population and those nearby (i.e. Potlatch, Plum Creek, Casey Jones WMA) and possibly by trading birds with Ouachita and Kisatchie National Forests.
- Use Watershed Restoration and Enhancement Agreements (Wyden Authority) to further partnerships with the public and maximize the benefits of prescribed burning.

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St. Francis National Forest Ecosystem Restoration Project, *Arkansas*

SOUTH CENTRAL FLN | 11,400 ACRES

Horner's Neck Lake © John Crockett

The St. Francis National Forest, located on the east central edge of the state, derives its name from the St. Francis River. Most of the forest is situated on Crowley's Ridge, but some is in the low, flat lands along the Mississippi and St. Francis Rivers. This area is an important ecological corridor along the major river systems for numerous wildlife species. Crowley's Ridge consists of loess slope forest. Emphasis in this part of the forest is primarily on maintaining and, where necessary, restoring the oak component within the Loess slope forest community.

In the bottomland hardwood forest, which encompasses a narrow band along the floodplains of the St. Francis and Mississippi Rivers and their tributaries, fire is relatively infrequent, occurring at seven- to ten-year intervals where high-quality examples of canebreaks are present. Canebrakes, a native community frequently embedded within the bottomland and floodplain forest, is enhanced by moderate fire return intervals. Canebreak habitat within this ecosystem has been lost due to lack of fire and fewer canopy gaps.

A population of Swainson's warblers uses the giant cane *(Arundinaria gigantean)* scattered throughout the project area. This Fire Learning Network collaborative was formed in 2007 to develop a landscape vision for the project and to determine how fire affects this rare species. A strong historical association between Swainson's warbler and cane suggests that spring burns should benefit landscape structure and species habitat. The partnership is working through challenges related to the potential effects of March and April burning on turkey nesting.

Collaborative Objectives:

- Maintain fire in the upland forest on a three- to seven-year rotation
- Encourage oak regeneration
- Discourage yellow poplar reproduction
- Create openings and add fire to encourage canebreak restoration in the upland and bottomland forest

Collaborative Vision Statement:

Managers will focus on oak-versus-poplar management, cane brake restoration and fire effects on Swainson's warbler.

To encourage oak regeneration and dominance, the St. Francis Ecosystem Restoration project integrates techniques such as prescribed fire, herbicide application, pre-commercial thinning and vegetation management. The absence of fire has led to canopy closure, which results in a shaded understory, reducing oak regeneration and increasing habitat for fire-sensitive, shade-tolerant species. Fire can help regenerate upland hardwood stands to oak and discourage yellow poplar.

Currently, the South Central Fire Learning Network is the only formal, institutionalized system for peer-reviewed support and planning, education regarding techniques and implementation of projects. The St. Francis landscape team is designing its collaboration to engage partners in Network-hosted workshops. The workshops will focus on scientific and ecological foundations for fire management in multi-partner landscapes and the evaluation of strategies to achieve desired conditions.

The Conservancy has two burn crews that play critical roles in the restoration of Arkansas' forests and prairies © TNC

PARTNERS:

Arkansas Forestry Commission

Arkansas Game and Fish Commission

Arkansas Natural Heritage Commission

Arkansas State University

National Wild Turkey Federation

Oak Ecosystem Team

The Nature Conservancy

USDA Forest Service, St. Francis National Forest

CRITICAL PARTNERSHIP FUNDING NEEDS:

$30,000 for a comprehensive monitoring program

KEY SUCCESSES

PARTNERS JOINED THE SOUTH CENTRAL FIRE LEARNING NETWORK in 2007 to enhance collaboration in fire management.

ST. FRANCIS WOODLAND RESTORATION project recently burned 1,066 acres during the growing season and 322 acres during the dormant season.

2008–2009 PLANNED ACTIONS

- Participate in two Network workshops focusing on the scientific justification for fire restoration, implementation schedules, collaborative fire management and identification of top barriers and solutions.
- Conduct burns on 4,000 acres in a mix of growing and dormant season applications.

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Upland Forest Ecosystem Restoration Project, *Arkansas*

SOUTH CENTRAL FLN | 60,000 ACRES

Ozark highland watershed © TNC

The Upland Ecosystem Restoration Project includes the West Morgan and the Little Piney Watershed projects, totaling 60,000 acres. Historically the oak-pine woodlands of the Ozarks contained about 45 to 75 trees per acre. Today those densities are more likely to be in the range of 300 to 1,000 trees per acre—an unhealthy and potentially dangerous situation intensified by many decades of fire exclusion. The unnaturally dense forest represents a serious fire hazard and also poses problems for native plants and animals that evolved in a patchy, more open woodland setting. In the late 1990s an outbreak of a native insect, the red oak borer, began devastating oak forests of the Ozarks' Interior Highlands, capturing public attention.

Epidemic-scale outbreaks of red oak borer and associated oak decline agents such as root disease fungi and canker fungi now seriously affect oak ecosystems of the Ozark Highlands. Oak decline syndrome has impacted at least 300,000 acres of the Ozark National Forest and the inter-mixed private property.

COLLABORATIVE OBJECTIVES:

- Re-establish the historical fire return interval to the 60,000-acre project area
- Develop pine and oak woodlands on 24,000 acres within 10 years
- Provide multiple recreational opportunities
- Develop public support through continuing partnership involvement

Collaborative Vision Statement:

Landscape ecosystem components and processes are maintained within the historical range of variation by periodic fire use and ecologically based resource management, providing healthy watersheds and safety for communities at risk.

THE PLEASANT HILL RANGER DISTRICT is experiencing a severe, unprecedented increase of the red oak borer. Broad areas with near 100 percent mortality of red oaks are common. Oak mortality is contributing significantly to hazardous fuel accumulations in the wildland-urban interface, as well as resulting in negative impacts to biodiversity.

Due to the mixed ownership landscape, much of the action on this project will protect communities in the wildland-urban interface. A small portion of the treatment areas will occur on private inholdings within the Ozark National Forest boundary. This project will restore oak woodland ecosystems in areas severely impacted by oak mortality.

NEPA decisions are in place for all-season prescribed fire use at three- to five-year intervals on the entire project area and for tree thinning treatments on 29,500 acres. Thinning treatments are re-establishing the historical tree density based on 1830s Government Land Office survey records.

The project team is monitoring bird species and abundance, the density and diversity of vegetation both in the forest canopy and on the ground, fuel loads, fire effects on soils and vegetation, white-tailed deer populations and stream water quality. Results are showing that the variety of plants in the understory has increased significantly. Partners actively share the monitoring data with the public through field trips and presentations, thus building confidence and support for forest restoration.

Southern lady's slipper is found in mature floodplain forests and the slopes of mesic (relatively dry) ravines © Mark Robinson

PARTNERS:

Arkansas Forestry Commission

Arkansas Game and Fish Commission

National Wild Turkey Federation

Oak Ecosystem Restoration Team

Quail Unlimited

Southwest Fire Use Training Academy

The Nature Conservancy

USDA Forest Service, Ozark-St. Francis National Forest Bayou Ranger District

U.S. Fish and Wildlife Service, Arkansas Field Office

Watershed Restoration and Enhancement Agreements (Wyden Authority)

CRITICAL PARTNERSHIP FUNDING NEEDS:

$300,000 per year to match federal funds available for prescribed fire

KEY SUCCESSES

COMPLETION OF MAJOR ECOLOGICAL THINNING AND PRESCRIBED BURNING projects. Over 20,000 acres have been burned, including several private tracts. Thinning treatments are re-establishing the historical tree density based on 1830s Government Land Office survey records.

A STEWARDSHIP CONTRACT has been awarded for the project area and will soon be implemented.

SERVICES AND PRODUCTS from many of the treatments support the economies of local communities.

A COLLABORATIVE, COMPREHENSIVE MONITORING PROGRAM is currently in place and documenting ecosystem responses to prescribed fire and vegetation management treatments.

2008–2009 PLANNED ACTIONS

- Continue current prescribed fire and thinning operations in the restoration project area.
- Expand these treatments into the newly designated Ozark-St. Francis National Forest Land Management Plan management areas dedicated to oak and pine woodland restoration.
- Use Watershed Restoration and Enhancement Agreements (Wyden Authority) to develop partnerships with the public and maximize ecosystem benefits of prescribed burning.
- Continue with monitoring and communicating findings to local citizens and communities in order to understand the effects of prescribed fire and thinning.

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White Rock Ecosystem Restoration Project, *Arkansas*

SOUTH CENTRAL FLN | 40,475 ACRES

Post oak ridgetop Boston Ranger District spring burn 2003 © Rhea Rylee

The White Rock Ecosystem Restoration Project area—primarily Forest Service ownership with some private inholdings—includes 16 sites in the Boston Mountain Ranger District of the Ozark-St. Francis National Forest. Sites comprise four ecological classification system land type associations (LTA): Mesic Atoka Mountain Uplands, Hale Mountain, Lower Atoka Hill and Mountain and Atoka Mullberry Mountain. The restoration targets lie in oak-woodland, mixed forest, old growth, riparian corridors and high-quality forest products management areas. Over half reside within the five-mile secondary Indiana Bat Management Zone.

All areas received prescribed fire treatments on a three-year rotation, generally in March and April, at least twice, with the exception of 1,600 acres. Generally, fires taking place late in the early growing season burn period are most successful in reducing fuel loads and producing the best plant community response. The partnership is working through challenges related to the potential effects of March and April burning on turkey nesting.

COLLABORATIVE OBJECTIVES:

- Use adaptive ecosystem management to reach multiple-use and multiple-resource objectives
- Garner public support through partnerships and education
- Develop partnerships to address critical research questions.

Collaborative Vision Statement:

The White Rock landscape partners strive to restore and maintain a healthy forest ecosystem that will provide optimal wildlife habitat for both game and non-game species; multiple-resource/use objectives can be met through periodic fire and mechanical treatments.

THE AREA IS LARGELY A FEDERAL LANDSCAPE within the Ozark-St. Francis National Forest. This Fire Learning Network collaborative was formed in 2007 to develop a landscape vision for the project that is not limited by administrative boundaries.

This project will link restoration projects on adjacent federal and state lands to improve ecosystem health, provide educational opportunities, improve the public's ability to participate in project development and gain support for the Network's collaborative efforts. The project monitoring program will incorporate measures and observations required by the Forest Plan as well as contribute to the District's ability to apply adaptive management techniques.

Being a part of the South Central Fire Learning Network provides for refinement of the scientific ecological basis for fire management, evaluation of alternative management strategies to achieve desired conditions, identification of barriers to success and implementation of activities that contribute to a healthy ecosystem.

Biological Tech Eric Cain checking smoke contaminant monitor at a cave at the Whitzen Hollow prescribed burn. Crawford County, Arkansas © Rhea Rylee

PARTNERS:

Arkansas Forestry Commission

Arkansas Game and Fish Commission

Arkansas Natural Heritage Commission

Oak Ecosystem Team

National Wild Turkey Federation

Quail Unlimited

Southwest Fire Use Training Academy

The Nature Conservancy

USDA Forest Service, Ozark-St. Francis National Forests

USGS Arkansas Cooperative Fish and Wildlife Research Unit

CRITICAL PARTNERSHIP FUNDING NEEDS:

$30,000 for a comprehensive monitoring program

KEY SUCCESSES

PARTNERS WHO JOINED THE SOUTH CENTRAL FIRE LEARNING NETWORK in 2008 improved collaboration in fire management.

WHITE ROCK WOODLAND RESTORATION area has the Burr Ridge project nested within it. Burr Ridge partners have completed fuels reduction and restoration projects, including prescribed fire, pine/hardwood shelter wood, pine seed tree and hardwood overstory removal, hardwood salvage/sanitation, pine thinning, hardwood release and Non-Native, Invasive Species (NNIS) treatments.

2008–2009 PLANNED ACTIONS

- Participate in two Network workshops focusing on the scientific justification for fire restoration, implementation schedules, collaborative fire management and identifying top barriers and solutions.
- Implement fuels reduction work including 12,000 acres of prescribed burns—3,200 acres of mechanical treatments and 1,000 acres of NNIS treatments.
- Conduct wild turkey telemetry research.

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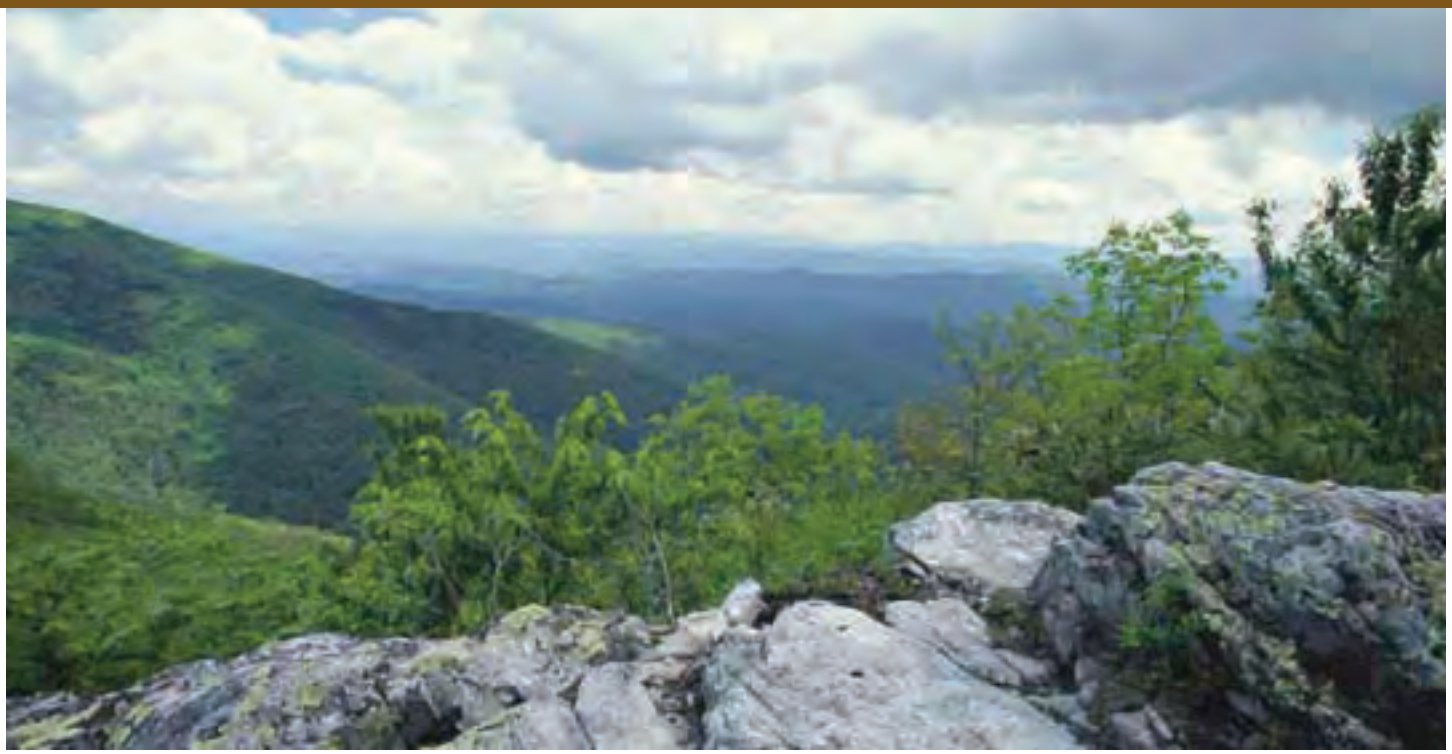
Appalachian Fire Learning Network



Central Appalachian mixed hardwood forest © Byron Jorjorian

The Appalachians are characterized by ancient peaks and valleys that take on different characteristics as they unfold from north to south. The sheer beauty of the forests and their abundant wildlife exemplify some of the most impressive, intact temperate forests in the world. The area is characterized by rolling and mountainous terrain, hardwood and mixed-pine hardwood forest, pine-oak-heath shrublands and woodlands, small-patch grasslands, including hillside prairies and cedar glades and numerous endemic species.

The Appalachian Fire Learning Network began in 2007 in order to revolutionize the use and effectiveness of prescribed fire as a management tool in the eastern hardwood forests of the Central Appalachian Forest, Western Allegheny Plateau and Cumberlands and Southern Ridge Valley Ecoregions. These regions contain both fire-adapted and fire-dependent species with lightning-caused fires playing a role in establishing and maintaining the region's forest communities and species. This natural need for fire strongly suggests that ecological fire management should be a primary strategy in restoration efforts, and that the network should continue to engage multiple federal, state and private land management agencies in a collaborative effort to implement ecological fire management.

Network Long-Term Vision:

Project sites throughout the region have adequate technical capacity, funding and stakeholder support for increased restoration of fire-adapted ecosystems. Landscapes demonstrate measurable progress toward achieving ecological management objectives.

Demonstration Landscapes

Allegheny Highlands (VA, WV)
Cumberland River (KY)
Shawnee Forests of Southern Ohio (OH)

Participating Landscapes

Clinch Mt. Ranger District (VA)
Pine Creek Historic Forest Restoration Project (OH)
Shenandoah National Park – Blackrock Project (VA)
West Branch Wilderness (PA)

Map © 2008 Gen Green/TNC

THE NETWORK SEEKS TO

- collaborate with stakeholders to strengthen the scientific basis for fire management and develop landscape-scale desired future condition and fire management objectives;
- transfer knowledge and lessons learned throughout the landscapes to facilitate ecological objective setting, effective stakeholder engagement, efficient compliance with regulatory requirements and successful funding of ecological fire management projects; and
- identify critical barriers to implementing restoration of fire-adapted ecosystems and develop strategies to overcome these barriers.

SEVEN LANDSCAPE SITES IN THE APPALACHIAN FIRE LEARNING NETWORK will actively seek opportunities to transfer individual and collective knowledge and experiences to the broad prescribed fire and land management community directly relevant to managers of oak-hardwood, oak-conifer and high-elevation conifer forests in the central hardwoods and Appalachian forests.

Stakeholders from a variety of federal and state agencies and private groups will develop key ecological attributes for species and ecosystems of interest, compile information on threats, develop current vegetation and desired ecological condition maps and clarify barriers to implementation. With goals and threats identified at some landscapes, network partners can test a variety of management strategies that meet the needs of agencies and landowners.

The future of the unique Appalachian forests hinges on developing long-term, sustainable forest stewardship. The Network provides an avenue to unite under a common vision and set of strategies and to develop effective tools to accelerate and apply restoration fire in order to enhance natural resources while preserving local economies.

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Allegheny Highlands, *Virginia & West Virginia*

APPALACHIAN FLN | 763,221 ACRES

View from Warm Springs Mountain © Byron Jorjorian

The Allegheny Highlands includes the Central Appalachians mixed-hardwood forest comprising large patches of old-growth oak-hickory, rich stands of sugar maple, basswood, ash and poplar in coves and eastern hemlock forests that occur in ravines and gorges and along steep riparian zones.

The drier pine-oak-heath woodlands found on ridge tops and exposed side slopes are fire-dependent communities of chestnut oak, pitch pine and various species of blueberry and mountain laurel. The rare montane pine barrens appear as dwarfed shrublands and are known to occur in Virginia only on Warm Springs Mountain in the heart of the Allegheny Highlands.

This unbroken forest landscape helps safeguard the region's lands and waters and forms an impressive wildlife corridor. This greenway provides habitat for several rare natural communities and an amazing diversity of native plant and animal species.

COLLABORATIVE OBJECTIVES:

- Utilize collaboratively developed ecological fire management plans and conceptual ecological models to drive land management objectives
- Develop stakeholder analyses and situation diagrams to analyze landscape-scale threats
- Develop a monitoring protocol to use across the landscape

Collaborative Vision Statement:

Promote ecosystem health and biodiversity by fostering restoration and maintenance of fire-adapted ecosystems while ensuring public safety. Improve the capacity to apply and manage fires by increasing collaboration and partnerships of interested agencies, organizations and communities.

LAND MANAGERS AND ECOLOGISTS from several Appalachian states met in 2006 to help develop fire management approaches for Warm Springs Mountain in Virginia's Allegheny Highlands. This meeting helped launch the Appalachian Fire Learning Network when participants at this meeting voiced their interest in working together to meet the challenge of restoring Appalachian forests.

Using the Fire Learning Network methodology, the partnership has developed strong conceptual ecological models, collaborative goal statements and maps of current and desired future condition, all of which evolve continually to help guide management decisions. In addition, the partners have written drafts of key attributes of the fire-adapted ecosystems, threats to those attributes and barriers to achieving desired future condition of targeted ecosystems. Further, peer review workshops included presentations by experts on the latest research in Appalachian fire regimes, effects of fire on Appalachian forests and issues linking fire and climate change.

Pitch pine. Dominant fire-dependent species in the globally rare montane pine barrens © Byron Jorjorian

PARTNERS:

National Park Service, Shenandoah National Park

The Nature Conservancy

Virginia Department of Conservation and Recreation

Virginia Department of Forestry

Virginia Department of Game and Inland Fisheries

USDA Forest Service, George Washington, Jefferson, Monongahela National Forests

USDA Forest Service, Northern Research Station

CRITICAL PARTNERSHIP FUNDING NEEDS:

Funding is needed to support planning and implementation outside of Conservancy and Forest Service properties, including land owned by the Virginia Department of Game and Inland Fisheries and Virginia Department of Conservation and Recreation.

KEY SUCCESSES

PRESCRIBED FIRE MANAGEMENT PLAN FOR WARM SPRINGS MOUNTAIN is near completion and the partners are working to determine best fire practices for the entire Allegheny Highlands landscape.

PARTNERS ACQUIRED FUNDING FOR PLANNING AND IMPLEMENTATION of a prescribed fire on a 23,000-acre parcel of land owned by the Conservancy and Forest Service.

MONITORING PROTOCOL that can be adapted to various stakeholder needs is being developed by partners.

2008–2009 PLANNED ACTIONS

- Implement 1,100 acres of prescribed fire in 2008, and add several more thousand acres in 2009 and beyond.
- Refine monitoring protocol to adapt to additional landscapes in the Appalachian network.
- Complete NEPA planning process for Forest Service lands to accelerate the use of prescribed fire in the area.
- Share fire management resources across agency boundaries.

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Cumberland River, *Kentucky*

APPALACHIAN FLN | 251,000 ACRES

Project area includes Daniel Boone National Forest, Cumberland Falls State Resort Park and private lands © John Omer/Daniel Boone National Forest

THE CUMBERLAND RIVER LANDSCAPE is located along the western edge of the Cumberland Plateau within the Cumberland and Southern Ridge and Valley Ecoregions. The Cumberland Plateau's ridge tops are generally oak-hickory dominated stands with the drier sites having a mixed oak-pine component. Historically the ridge tops, currently in pine-oak or dead pine, would have been dominated by a short-leaf pine or oak-pine woodland and savanna systems that have essentially disappeared. Further, the overall oak-hickory forest matrix needs fire to be maintained. Much of this area has had enough fire exclusion over the past several decades to reduce oak regeneration and allow more mesic species to become a part of the canopy. On many of the ridge tops a southern pine beetle outbreak has killed much of the pine.

The rivers and streams sustain some of the country's greatest variety of fish and mollusk species and the ravines are among the richest wildflower areas. A once-remote wilderness now attracts increased recreational use and second-home development, placing new pressures on habitat and water quality.

COLLABORATIVE OBJECTIVES:

- Re-introduce fire use across the landscape to increase diversity of plants and animals
- Reduce or eliminate fire-intolerant species from upland, fire-mediated areas
- Restore fire-mediated habitat where appropriate

Collaborative Vision Statement:

Through partnership efforts and community support, our forests and watersheds will be improved by the restoration and maintenance of fire-adapted ecosystems. Fire will be integrated into the management of our natural resources, will be evident upon the landscape and will lead to enhanced habitat diversity.

THIS REGION'S FOREST COMMUNITIES AND SPECIES EVOLVED WITH FIRE and the Fire Learning Network's collaborative process quickly brought the stakeholders together and provided a roadmap to develop ecological management objectives. The Cumberland River site was part of the original Appalachian Fire Learning Network that started in the summer of 2006. This location was originally driven by the desire of the Daniel Boone National Forest managers to reintroduce fire back on the landscape and to provide habitats for species that rely on fire-adapted ecosystems. The group quickly branched out to include multiple state agencies and private organizations in order to include them in large burns.

In addition to assessing current and desired future landscape conditions, the partners identified economic, cultural, social and recreational values that influence desired future conditions and integrated those values into the process. The progress of activities and acquisition of new knowledge will be shared through education, public outreach and the involvement of multiple landowners and natural resource managers.

Restoration to savanna/woodland habitat in progress © John Omer/Daniel Boone National Forest

PARTNERS:

Daniel Boone National Forest

Kentucky Department of Fish and Wildlife Resources

Kentucky Division of Forestry

The Nature Conservancy

University of Kentucky, Lexington

University of Tennessee, Knoxville

KEY SUCCESSES

WITH RECOGNITION THAT FIRE PLAYS AN IMPORTANT ROLE in the landscape of the Cumberland River, the Network has helped us bring together a diverse group of agencies and individuals into a productive, interactive and highly motivated team.

PARTNERS ARE INTEGRATING NETWORK PRODUCTS into the development of the Daniel Boone National Forest Plan.

2008–2009 PLANNED ACTIONS

- Develop strategies that target areas of highest feasibility of success in restoring landscape viability.
- Identify key stakeholders affected by proposed programs and develop strategies that address stakeholder concerns.
- Develop a multi-partner, three-year implementation plan.
- Draft a plan to measure the effectives of the project strategies.
- Develop funding plans in partnership with stakeholders.

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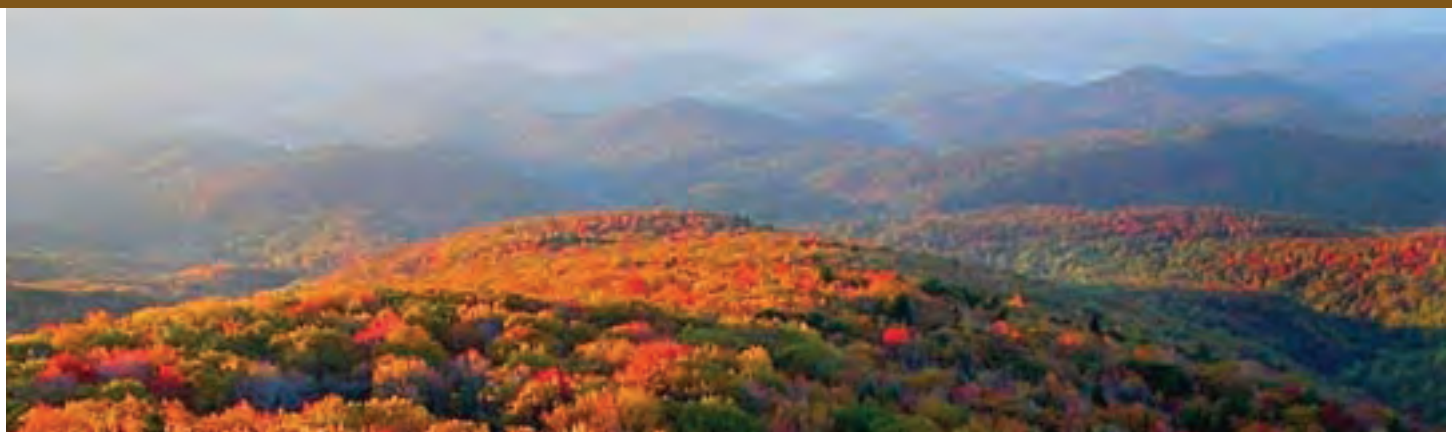
Southern Blue Ridge Fire Learning Network



High-elevation red oak forest, North Carolina National Forests © Gary Kauffman/USFS

The Southern Blue Ridge region of the Appalachians is one of the most biologically significant regions in the United States. Covering portions of Georgia, North Carolina, South Carolina and Tennessee, the participating landscapes in this network influence 2.7 million acres. The ever-changing terrain and geology, together with high rainfall, provide the base for a broad array of plants and animals, including nearly 400 rare plant species and an exceptional diversity of freshwater systems.

Since the 19th century, this once fire-dependent ecosystem has undergone extensive fire exclusion, which has reduced the presence of important species and made the area more vulnerable to severe wildfire, especially in areas with evergreen understory of mountain laurel. In addition, fire exclusion is a likely contributor to increased devastation of pine stands from southern pine beetles. When fire ceased to play its traditional role, fire-intolerant mesic species became established. White pines and red maple, once confined to fire-protected coves and mesic slopes, began appearing in pine and dry oak communities. Prescribed fire is needed to restore the historical woodland character of pine-oak and oak-hickory forests and sustain indigenous wildlife species such as bear and turkey with fall mast through the winter. This would very likely create ecosystems which are more resilient to drought, reduce fuel loads and fire intensity, and hence lessen the threat of wildfires to homes.

The Network plans to enhance fire planning on a landscape level to restore and maintain fire-adapted ecosystems, transfer lessons learned about fire effects among partners, develop outreach tools regarding the benefits of fire for public and agency staff, develop joint monitoring protocols and explore opportunities to increase and share resources for implementation. Sharing fire ecology (e.g., fire history, fire effects) resources using a variety of outlets is a high priority. In 2008, the Network will refine areas and methods that test and demonstrate restoration approaches among partners and the public.

Network Long-Term Vision:

Restore and maintain fire-adapted ecosystems on lands within the Southern Blue Ridge landscape. Increase the capacity for, and reduce obstacles to, conducting prescribed burning.

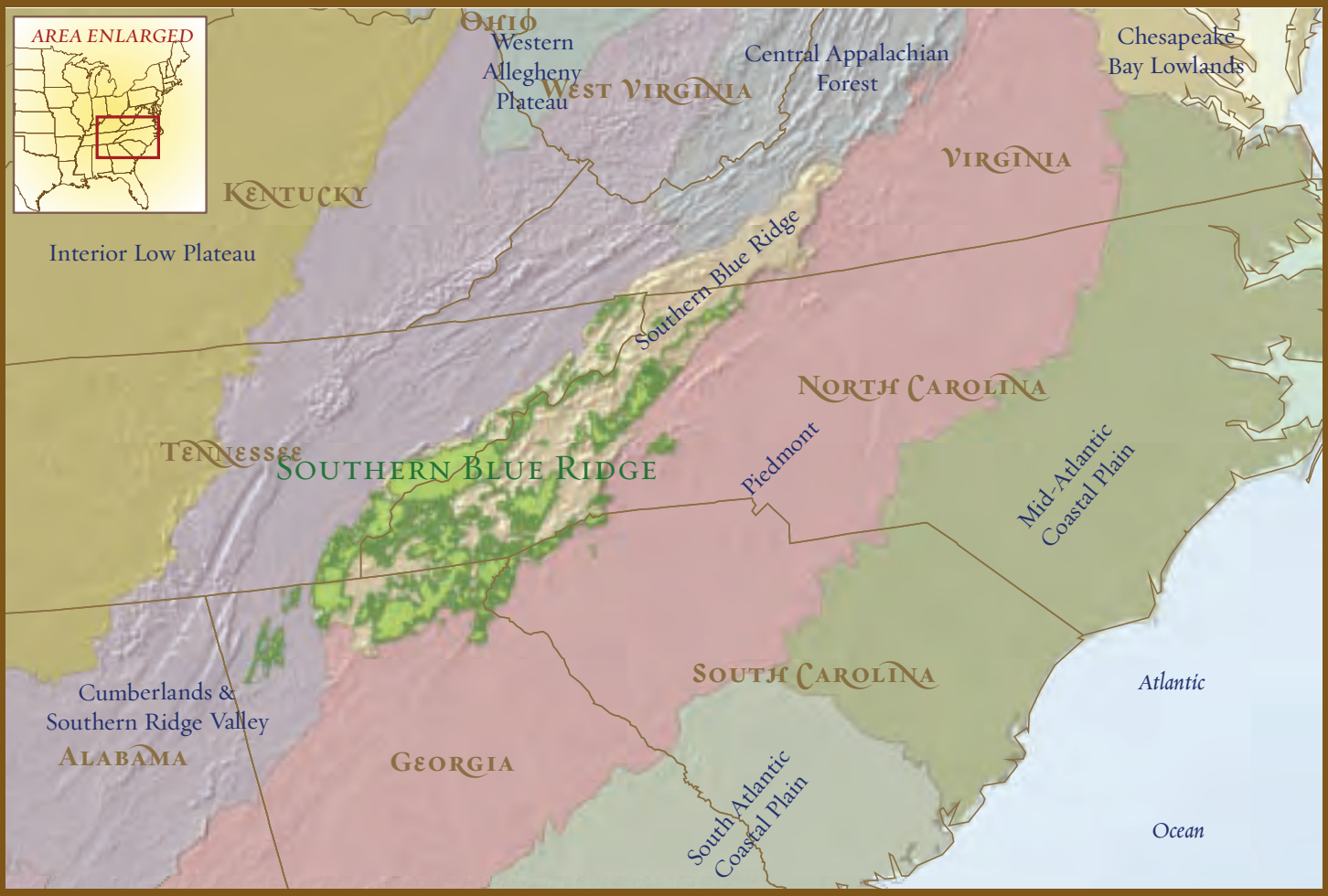
Partners:

Georgia
Georgia Department of Natural Resources
Georgia Plant Conservation Alliance
The Nature Conservancy
USDA Forest Service, Chattahoochee-Oconee National Forest

North Carolina
Bureau of Indian Affairs Cherokee Agency
Green River Preserve
North Carolina Division of Parks and Recreation
North Carolina Natural Heritage Program
North Carolina Wildlife Resources Commission
The Nature Conservancy
U.S. Fish and Wildlife Service, Asheville
USDA Forest Service, Southern Research Station
USDA Forest Service, National Forests in North Carolina

South Carolina
South Carolina State Parks
The Nature Conservancy

Tennessee
Great Smoky Mountains National Park
USDA Forest Service, Cherokee National Forest
Tennessee Wildlife Resources Agency
University of Tennessee



KEY SUCCESSES

MORE THAN 40 KEY LAND MANAGERS AND RESEARCHERS came together to describe paths that trace how the landscape is changing, to set goals for restoring this region and to determine how we can re-establish focal ecosystems informed by the ecological models.

WE CONDUCTED BASIC FIRE TRAINING for The Nature Conservancy, the USDA Forest Service (USFS), the North Carolina Wildlife Resources Commission, Fish and Wildlife Service and the North Carolina Division of Parks and Recreation. Collaborative burning between USFS Chattahoochee National Forest and other members of the Georgia Plant Conservation Alliance helps the sites build capacity.

PARTNERS CONDUCTED PRESCRIBED BURNS in 2007 on 43,000 acres. Due to exceptional drought conditions, an additional 8,800 acres burned as wildfires. Rough estimates of fire needs based on the four target communities and fire regimes suggest about 200,000 acres should burn annually to maintain healthy forests in the Southern Blue Ridge landscapes.

2008–2009 PLANNED ACTIONS

- The partnership will define three to four demonstration areas and develop implementation plans specific to those areas.
- Team members will refine the existing vegetation maps for the landscape fire needs and feasibility assessment.
- Explore the applicability of Southern Fire Risk Assessment and LANDFIRE data in the landscape assessment.
- Build a communications plan for internal and external audiences, including an outreach brochure.
- In addition to devising a monitoring plan and shared protocols, we intend to secure $130,000 a year for monitoring.
- The partnership hopes to secure $40,000 to implement a collaborative research approach for high-elevation red oak restoration.

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Independent Landscapes

The independent landscapes, while not currently tied into the regional Fire learning Networks, exist at the local level and may expand to join or become regional networks in the future. These places are representative models of collaboration and receive U.S. Fire Learning Network support with a goal of expanding to additional landscapes. Currently, two independent landscapes are located in Utah and Washington. There, site managers join with partners to highlight and learn from past practices, identify desired future conditions and use models to prioritize treatments. The collaborative process is helping partners scale up treatments by combining resources and coordinating efforts with their neighbors.

Wildcat Creek, Raft River Mountains © Elaine York/TNC

Sagebrush and mountains stream are two of the many important habitats for the diverse terrestrial and aquatic species in the Raft River Mountains. Land managers in this arid Great Basin landscape have shared data and used cutting-edge technology to gain a better understanding of current vegetation conditions and alternative future management options with an objective of long-term health of this region's ecosystems, ultimately benefiting human and natural communities.

Example of South Puget Sound prairie clearly showing encroachment of Douglas-firs due to lack of managed fire © Mason McKinley/TNC

SOUTH PUGET SOUND landscape is new in 2008 and is just beginning to develop into a larger collaborative effort. The stakeholders and land managers have worked together since 1993 and are tasked to develop their current project into a learning network where shared values lead to common goals, strategies and tactics. The intent is to become a demonstration landscape for other Pacific grassland ecosystems in the western U.S.

Modeling workshop with northwest Utah partners © Elaine York/TNC

THE GROUSE CREEK MOUNTAINS-RAFT RIVER MOUNTAINS demonstration landscape in northern Utah on the Idaho and Nevada borders covers portions of the Great Basin and Columbia Plateau ecoregions. While this landscape is like other demonstration landscapes, it is not currently associated with a regional Fire Learning Network. Landscape project teams are composed of federal and state agency and Conservancy staff, scientists, experts and additional stakeholders who represent specific community-based projects. The site managers intend to host demonstrations for partners regarding successes and lessons learned in planning, implementing, training, monitoring and adaptive management practices. The sites offer great potential to make tangible progress in fire restoration and hazardous fuel reduction.

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Grouse Creek Mountains - Raft River Mountains, *Utah*

INDEPENDENT LANDSCAPE 1.1 MILLION ACRES

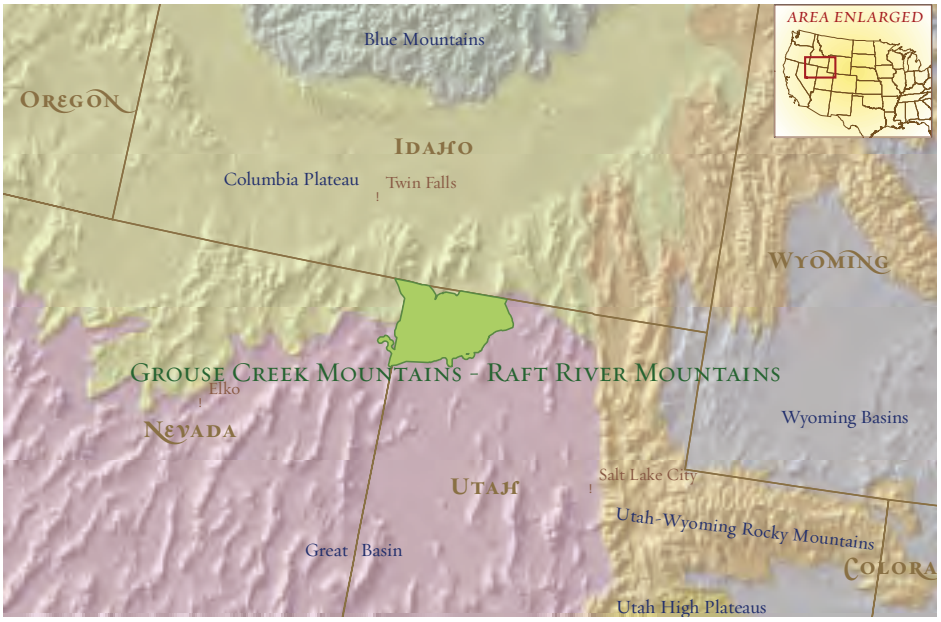
Raft River Mountains © Dr. Renée Van Buren/Utah Valley University

The slopes and cliffs of the Grouse Creek Mountains and Raft River Mountains intersect in Utah's northwest corner to form an impressive million-acre landscape bordered by Nevada and Idaho. The region supports both common and rare species of special management interest, including mule deer, pronghorn, pygmy rabbit, greater sage-grouse, ferruginous hawk, northern goshawk, Yellowstone cutthroat trout, Crittenden's springsnail, Cottam's cinquefoil and more. The landscape is home to the third largest historical population of greater sage-grouse in Utah and overlaps with an important raptor migration flyway.

The area overlaps with the Great Basin ecoregion while including a smaller portion of the Columbia Plateau ecoregion to the northwest. In elevations ranging from approximately 4,300 to 9,600 feet, vegetation types include salt desert shrublands, sagebrush shrublands, woodlands of pinyon-juniper, stable and seral aspen, curlleaf mountain mahogany and subalpine conifers; mountain streams and springs support riparian corridors and wet meadows. In the Grouse Creek and Raft River Mountains, stakeholders are using cutting-edge technology, including computer modeling, remote sensing and Geographic Information System (GIS) analysis, to understand and address critical land and wildlife management issues.

PROJECT STAKEHOLDERS SHARE AN INTEREST in quantitatively modeling the cumulative impact of past land management practices and exploring alternative future management scenarios on the integrity of ecological systems of the Grouse Creek Mountains and Raft River Mountains. Partners developed project objectives during workshops and the Conservancy compiled GIS data layers (land ownership, fuels and vegetative treatments, type/seasons of uses, etc.). Together the partners developed non-spatial and spatial models including Vegetation Dynamics Development Tool models (VDDT) and Tool for Exploratory Landscape Scenario Analyses (TELSA). VDDT and TELSA models provide comparisons among various land management scenarios and against the natural range of variability and structural vegetation complexity.

The maps, computer models and other products summarized in the project report provide land managers with a powerful toolbox to analyze landscape health and take actions to improve the region's viability in the future. The pioneering efforts of this collaboration have delivered the suite of tools to landscapes throughout the Great Basin.



Map © 2008 Gen Green/TNC

PARTNERS:

Bureau of Land Management, Salt Lake Field Office

Natural Resources Conservation Service

Private landowners

Quality Resource Management

The Nature Conservancy

USDA Forest Service, Sawtooth National Forest

Utah Association of Conservation Districts

Utah Division of Wildlife Resources

Utah Partners for Conservation and Development

CRITICAL PARTNERSHIP FUNDING NEEDS:

Funding is needed to design, implement and monitor restoration of aspen and shrub-steppe communities, including treatments to address altered fire regimes.

KEY SUCCESSES

COMPLETED FINAL PROJECT REPORT, a two-year collaborative effort, which includes the following:

- Maps of 17 potential vegetation types in this landscape
- State and transition models for these 17 vegetation types
- Maps of current condition, locations of vegetation and seral classes
- Quantitative measures of ecological departure from the natural range of variability
- Information on rate of disturbances (invasive forbs, cheatgrass, altered fire regime, etc.)
- Computer modeled outcomes of current and alternative management strategies
- Specific recommendations on size, geographic distribution and methods for future restoration

2008–2009 PLANNED ACTIONS

- Develop fire regime condition class maps based on the 2008 project report (size, geographic distribution and methods) that can inform restoration planning.
- Explore and implement collaborative actions to restore fire as an important component of ecosystem health.

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South Puget Sound, *Washington*

INDEPENDENT LANDSCAPE 450,000 ACRES

Oak underburn at Glacial Heritage Preserve © Mason McKinley/TNC

The South Puget Sound region of Washington was once largely dominated by a diverse mosaic of grasslands interspersed with conifer and deciduous woodlands and wetlands. Its prairie landscape is underlain with well-drained glacial outwash. These soil conditions, along with fire management from indigenous people until the mid-1800s, helped to sustain grasslands and oaks against encroachment by the surrounding conifer forests. The South Puget Sound prairies form the globally imperiled Roemer's fescue/white-topped aster community, which is part of a family of grasslands that extends from northern California into southern British Columbia. Residual prairie and oak sites provide habitat for several rare animal and plant species.

Puget lowland prairies and oak woodlands once mixed extensively with coniferous forest and wetlands to form a biologically diverse network of habitats that ranged throughout the Puget Trough. As settlement occurred, burning was halted, resulting in encroachment by conifer forests. Large portions of these habitats were also converted to agriculture and housing and industry development. Today residual native grasslands are thought to be restricted to about three percent of their former extent.

A robust and highly active collaborative program has evolved over the past 15 years to protect and restore the remaining prairie and oak mosaic habitat and its dependent species. There is a growing consensus among stakeholders that prescribed ecological fire is a critical conservation tool in these systems and the partnerships that have already developed will greatly facilitate efforts to conserve habitats at the landscape scale.

Through the Army Compatible Use Buffer program, partners were able to initiate a South Sound fire working group in 2007 to address constraints to building a successful fire program. The forming of a fire working group led the program to the Fire Learning Network at the beginning of 2008. As a fledgling program, the early focus is to build capacity for land managers to conduct prescribed burning in the 2008 summer/fall fire season. An end-of-year workshop is scheduled to encourage the partnership to conduct after-action reviews and begin long-range visioning. See *www.southsoundprairies.org* for more information.

PARTNERS:

- Department of Defense, Fort Lewis
- Department of Defense, McChord Air Force Base
- The Nature Conservancy
- Thurston County
- Washington Department of Fish and Wildlife
- Washington Department of Natural Resources
- Wolf Haven International

KEY SUCCESSES

A COMPLETED CONSERVATION ACTION PLAN by the South Sound Prairies partnership identified the importance of a strategic, landscape-level program to restore socially and ecologically appropriate fire.

In 2006, the **SOUTH PUGET SOUND PRAIRIES PROGRAM** became a trial site for the Army Compatible Use Buffer program.

SOUTH SOUND FIRE WORKING GROUP was initiated in 2007 to help build a successful fire program.

2008–2009 PLANNED ACTIONS

- Develop shared vision statement and goals.
- Conduct a series of prescribed burns that demonstrate success to partners and regulatory agencies.
- Use the long-range vision and plan for ecological fire management to inform strategies to restore regional habitat and conserve plant and animal species.
- Evaluate opportunities to develop a broader Pacific Grasslands Fire Learning Network that might include Willamette Valley and north Puget Sound.

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U.S. Fire Learning Network Field Guide 2008