

TREASURED LANDSCAPES, UNFORGETTABLE EXPERIENCES

Ozark Mountains

Stewardship and Restoration on the Ozark National Forest, Arkansas

**2009-2014
Final Site Report**



Partners



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Supporters

Project partners included national and local community-based nonprofit organizations, contractors in the community, and state and federal agencies. To connect the diverse partner groups and support the restoration and outreach efforts of all, the NFF convened a group of stakeholders to help implement this work.

Implementation Partners: Arkansas Wildlife Federation, National Wild Turkey Federation, Ozark Highlands Trails Association, North American Trail Ride Conference, and Bowden Specialties.

Financial Support: Southwestern Energy, USDA Forest Service, and the Remington Outdoor Foundation.

In-Kind Support: Arkansas Game and Fish Commission, Rocky Mountain Elk Foundation, Arkansas Chapter of the National Audubon Society, Yell County Wildlife Federation, Arkansas Technical University, University of the Ozarks, National Park Service, and University of Arkansas Cooperative Extension Service.

Treasured Landscapes, Unforgettable Experiences • • •

The National Forest Foundation (NFF), chartered by Congress, engages America in community-based and national programs that promote the health and public enjoyment of the 193-million acre National Forest System, and accepts and administers private gifts of funds and land for the benefit of the National Forests.

The NFF launched the *Treasured Landscapes, Unforgettable Experiences* conservation campaign to address critical forest and watershed restoration needs across millions of acres nationwide – focusing on iconic places that resonate with the American public. Our goals are to:

- Raise awareness about America's public lands and our unique National Forest System – and reconnect our people to these great places.
- Generate expanded media attention, public interest, and partnerships in the Treasured Landscapes campaign.
- Grow the support base to ensure successful restoration projects at a suite of 14 or more campaign sites across the nation.

The Ozark National Forest located in Northwest Arkansas is a designated *Treasured Landscapes* site.



Site Overview • • •

Ozark Mountains

The Ozarks are ancient mountains. The underlying siltstone, shale and sandstone rock formations were deposited on the bottom of prehistoric oceans, later uplifted and eroded. Carved by fast-flowing rivers, steep cliffs, natural bridges and rock promontories punctuate the mountains. These rocky landmarks once sheltered early Native American residents. In fact, the name "Ozark," is an Anglicized version of "Aux Arcs," French for "with bows." The name was used by the early French

Framed and dissected by Wild and Scenic Rivers, the Ozark Mountains are known for their wild beauty and many opportunities for outdoor recreation.

explorer, deTiene, to describe the native Bow Indians. The vertical landscapes still harbor a range of habitats for the region's extraordinarily diverse flora. Framed and dissected by Wild and Scenic Rivers, including the Buffalo, the Mulberry and Big Piney Creek, the Ozark Mountains are known for their wild beauty and many opportunities for outdoor recreation.

"[It is a] vast trackless wilderness of trees where all is rude nature as it sprang into existence, still preserving its primeval type, its unreclaimed exuberance."

-- Thomas Nuttall, Explorer, traveling in the Ozark region in 1819.

This impression, shared by the earliest Spanish, French and colonial American explorers, was the same natural abundance that drew the first homesteaders in the early 1800s. Within one hundred years after the first European settlers arrived, vast ecological changes were affecting the Ozarks. Timber that once had seemed inexhaustible, proved finite. By the end of the 1800s, human activity had stripped bare the mountainsides and river corridors. Erosion, flooding, and the loss of game species followed.

Ecosystems in Decline

Before the arrival of European settlers, the Ozark Mountains looked very different from the forests of today. Early explorers' descriptions of pre-settlement forest conditions indicate that the forest was dominated by oak and hickory woodlands, with widely spaced trees forming an open canopy. Open forest glades and areas of prairie grass dotted the landscape. Shortleaf pine forest ecosystems occupied drier, south and west-facing slopes.

Rapid deforestation of the Ozarks spurred President Theodore Roosevelt to create the Ozark National Forest in 1907. Its formation marked the first Forest Reserve in the American South and the first to protect a hardwood forest. Creation of the National Forest marked the first step on a road to landscape recovery that continues today through habitat restoration and enhancement measures. The Ozark National Forest now encompasses 1.2 million acres of northwestern Arkansas and occupies a dominant place in the lives and economies of northwestern Arkansas. It is managed as the combined Ozark-St. Francis National Forest, which includes the smaller St. Francis lands in eastern Arkansas.

Because the Ozark National Forest is a patchwork of relatively undeveloped territory within a landscape of private developed land, it provides valuable habitat for a diversity of regional flora and fauna. Together, the Ozark and St. Francis National Forests contain over 500 species of trees and woody plants. The bounty of public land is especially important to species requiring large areas of undeveloped habitat, such as black bear and



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elk. It supports species like forest songbirds which require large blocks of mature forest. Species dependent on the regular ecological disturbance of periodic low-intensity fire are also reliant on the Ozark National Forest.

Today, while over 70 percent of the forest is still characterized by the mixed oak and hickory hardwood ecosystem, the number of trees per acre is much higher. The tree growth of the National Forests today is two to three times denser than it was before the arrival of large-scale timber harvest and routine fire suppression. The natural grassland component of the Ozark forest ecosystem has been reduced to a small fraction of what it was before settlement began in the early 1800s.

Nineteen federally listed threatened and endangered species make their home on or near the Ozark-St. Francis National Forests. The lands also sustain 31 Forest Service-listed sensitive species and sensitive plants. Mussels, insects and crayfish are on the list due to changes in watershed habitat quality. Several listed species live in the region's underground water ecosystems. They have been impacted by the quality of water flowing below ground through caves and limestone channels. The Gray bat, Indiana bat and Ozark Big-Eared bat are endangered species with summer roosting areas in Ozark National Forest caves. They feed in nearby forest edge and riparian areas. This limited habitat type requires forest openings and healthy riparian areas with plentiful insects. Because the entire regional population utilizes a limited number of caves, they are also vulnerable to human interference at roosting sites.

Restoring a Treasured Landscape

The NFF developed specific goals for the restoration of the Ozark watersheds and the surrounding forests. We worked with local and national organizations to select prioritized projects that helped improve wildlife habitat, maintain trails, and enhance recreational facilities. Restoration work included the creation and maintenance of forest openings, habitat protection, and increases in wildlife browse and nesting areas at Bearcat Hollow. We provided resources to improve the maintenance of the Ozark Highlands Trail, and improve the sustainability of recreational facilities to better accommodate increased visitation. This important work directly benefits Northwest Arkansas's wildlife, local communities, and recreational visitors.

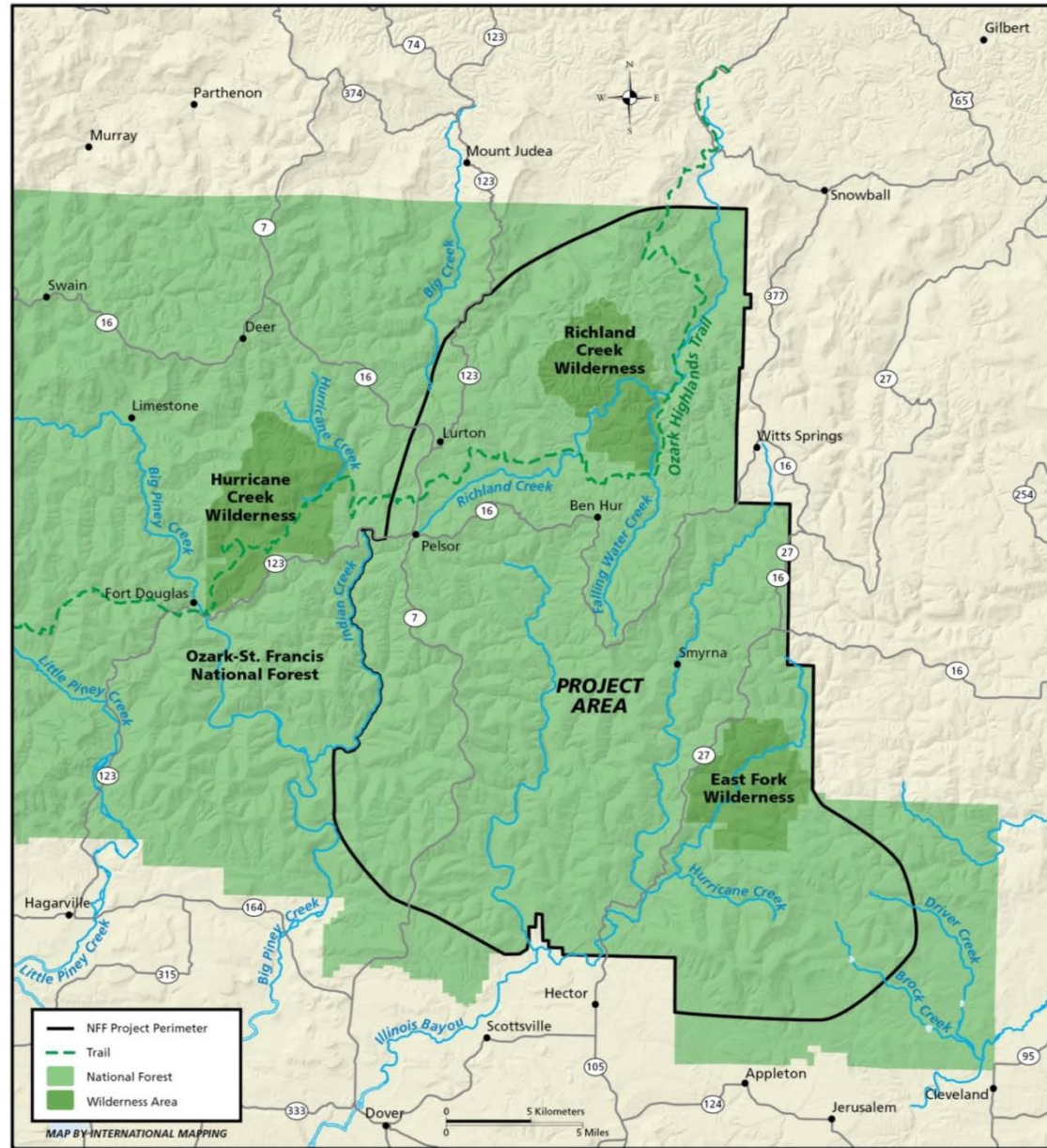
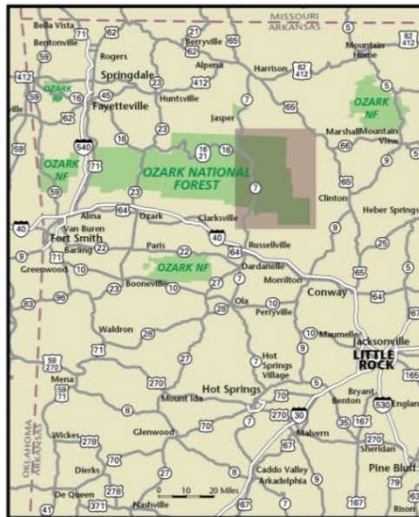


Location Map • • •



Treasured Landscapes, Unforgettable Experiences

OZARK NATIONAL FOREST



Restoration in Practice • • •

Action-Oriented Projects

The NFF worked closely with conservation organizations and the U.S. Forest Service through a partnership-based approach to revitalize the Ozark National Forest. Through the implementation of action-oriented projects, these partnerships set the foundation for effective and sustainable restoration efforts. This work helped create forest openings, enhance habitat for a variety of wildlife species, created forest ponds, and made improvements to trails and recreation facilities, helping to restore the ecosystem to ensure the long-term health of the landscape.

Project Accomplishments

Our collaborative efforts resulted in a set of three high-level project goals:

1. Wildlife habitat improvement
2. Recreation enhancement
3. Connect science and action with community

Together with our partners, we implemented projects that accomplished each of these goals.

Wildlife habitat improvement

In the 36,500 acres Bearcat Hollow cooperative habitat project, we implemented broad scale restoration work to enhance a diverse spectrum of habitat for game and nongame species. In partnership with the Ozark National Forest, National Wild Turkey Federation, Arkansas Wildlife Federation, and Arkansas Game and Fish Commission, paid crews, contractors and hundreds of volunteers helped create critical ecosystem improvements. To improve early seral habitat, contractors created 600 acres of forest openings and planted cool-season browse species. Local community partners will help maintain these areas over the long-term. To provide habitat security and reduce soil compaction, 32 gates were installed at entrances to fields. Volunteers removed unnecessary fences throughout the project area, improving habitat connectivity.



Under the guidance of the Ozark National Forest and Arkansas Wildlife Federation, volunteers planted more than 1,000 native plum trees in the newly-created openings. When established, the trees will create thickets to provide cover and food for a variety of species. Ice storms and activity from the red oak borer have limited the availability of natural nesting sites for cavity-nesting birds. Volunteers from Arkansas Wildlife Federation worked with other partners to install 40 birdhouses in the Bearcat Hollow area.

Invasive species are a major management challenge in the Ozark Mountains, voraciously expanding in disturbed areas. Crews performed spot and broadcast treatment for noxious weeds on an as-needed basis to ensure the overall success of the project. In all, nearly 300 acres were treated.

To provide habitat for amphibians and a water source for other wildlife, the National Wild Turkey Federation and Arkansas Wildlife Federation helped create 10 new forest ponds habitats. For most sites, this included seeding and mulching the area surrounding each pond, and the placement of woody debris in each.

Recreation enhancement

Improving the recreational resources of the Ozark National Forest, trail, picnic area, and campground improvements was another important component of this project. The Ozark Highlands Trail Association, North American Trail Ride Conference, Arkansas Wildlife Federation, Ozark National Forest, volunteers from Southwestern Energy and local contractor, Bowden Specialties accomplished these recreational enhancements. Along the 218-mile Ozark Highlands Trail, the Ozark Highlands Trail Association performed maintenance and re-routes on 13.6 miles of trail in the Hurricane Creek Wilderness Area. Additionally, volunteers completed 3 miles of maintenance on the trail near Richland Creek Wilderness Area.

Because of damage to the road accessing the site, the Ozark National Forest closed the Richland Creek Campground several years prior. Forest Service repaired the road damage and Arkansas Wildlife Federation volunteers helped clean up the area. Local contractor, Bowden Specialties, brought in heavy equipment to re-gravel access roads and construct 20 new campsites.



At the Moccasin Gap Campground, the North American Trail Ride Conference installed highline posts at campsites. Bowden Specialties installed a horse-trailer pull-through, and water and electric service at campsites. Additionally, more than five miles of new multi-use trails were constructed to benefit equestrian users, ATV riders, and hikers. Three miles of unsustainable trails were decommissioned to protect water quality and reduce erosion. Volunteers from Southwestern Energy helped install picnic tables, post-and-pole fencing and picked up litter.

Connecting science and action with community

Community involvement is an important part of the partnership-driven work the NFF supports across the country. By encouraging this work, community interests are able to develop capacity and resources to engage actively as stewardship partners. By working together with land managers and resource scientists, communities are better able to provide input to help sustain forests and watersheds over the long term, help implement project work, and collect data on changes to help inform management decisions over time.

At the Ozark Mountains *Treasured Landscapes, Unforgettable Experiences* site, this type of direct engagement took place in all phases of implementation and monitoring. Through identification of wildlife habitat restoration priorities, implementation of restoration treatments and recreation enhancements, and effectiveness and implementation monitoring, residents of Northwest Arkansas played an active role in learning about and restoring the landscapes they value.

Prior to the start of any work at the Ozark *Treasured Landscapes* site, we convened a habitat restoration conference to collaboratively set priorities for restoration work. There, Forest Service regional scientists, local conservation leaders and community members identified the existing Bearcat Hollow project as a regional priority, which guided the entirety of the restoration work that followed. More than 250 volunteers contributed 5,500 volunteer hours to the implementation and monitoring of the projects and local contractors implemented the more technical aspects of the habitat restoration and recreation enhancement work. Direct engagement of volunteers provides a critical connection between people, communities and landscape.

To monitor the long-term impacts of habitat restoration work, volunteers from the Arkansas Chapter of the National Audubon Society annually conducted bird counts consistent with the USFS Southern Region Migratory and Resident Landbird Monitoring Strategy. In partnership with the Arkansas Game and Fish Commission, volunteers from Arkansas Wildlife Federation helped collect estimates of deer and wild turkey population through visual and audio surveys.



Project Spotlight: Bearcat Hollow Cooperative Habitat Project • • •



The Bearcat Hollow Cooperative Habitat project is a long term, community-driven wildlife habitat restoration project that began in to gain momentum in the mid-2000s. It was incorporated into the NFF's *Treasured Landscapes, Unforgettable Experiences* work on the Ozarks from 2009 to 2014. Because of the previous century's patterns of chronic forest fire suppression and conversion of agricultural lands back to forest, large swaths of the Ozark Mountains became atypically dense. The Bearcat Hollow project sought to improve the variation in habitat types including open meadows, savannas, and forest glades, and increase the number of forest ponds.



Across a 36,500-acre multi-jurisdictional landscape, local, regional and national partners mutually coordinated work on the Bearcat Hollow project. The NFF's involvement on the Ozark National Forest fostered the completion of work to enhance habitat for game animals such as turkey, elk, deer, and northern bobwhite quail, and nongame animals such as Neotropical migratory birds, reptiles and amphibians. The direct restoration activities involve noncommercial thinning to reconstruct forest openings, prescribed burning and enhancement of pine-oak savannas, establishment of high quality forage, and installation of large woody debris in stream channels. A series of forest ponds were

created throughout the area to be characteristic of historic conditions and were constructed in areas of known previous pond and wetland presence. They serve as an important water source for wildlife and important habitat for reptiles and amphibians.

Following prescribed burning, some grass species that had not been documented in the area in decades emerged on the site – having likely re-sprouted from the dormant seed bank. The newly created meadows will be maintained through a partnership with community members, who will mow the area on a consistent basis in exchange for the ability to remove cut vegetation as hay. Wildlife populations in Bearcat Hollow have increased steadily since the project began. In 2013 the area opened to elk hunting for the first time in 150 years.

The NFF is pleased to have been able to support this key regional restoration partnership.

Lessons Learned • • •

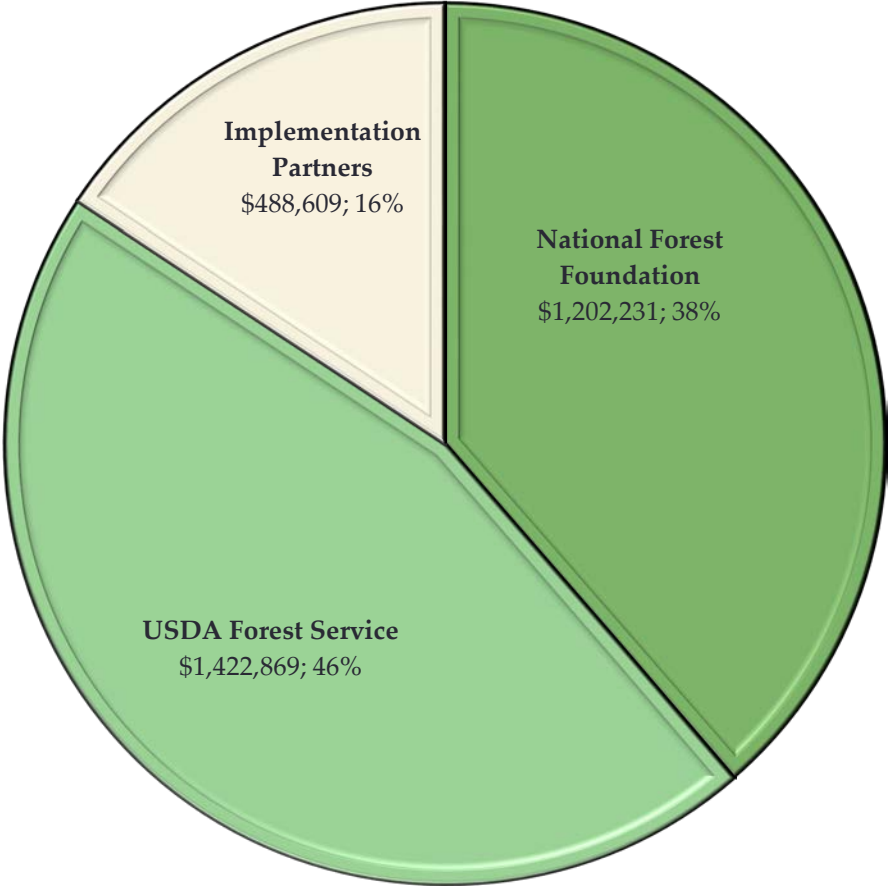
One of the key lessons learned at the Ozark Mountains *Treasured Landscapes, Unforgettable Experiences* campaign site is the incredible power of partnerships in accomplishing conservation work at scale. The support that comes from having local grassroots, regional and national conservation organizations working with state and federal agencies, and committed private funders is incredible. By leveraging the resources these partnerships provide, more work can be accomplished than any one group could do on its own.

Another key lesson is the ability to adapt to change in a long-term project like this. In developing and implementing projects, it is important to remain nimble in order to readily respond to changing project dynamics. Some projects that were initially conceived became untenable because of funding challenges and changes in support. By being able to respond to new opportunities as they arose, project partners were able to accomplish an exceptional amount of work. Work in the Hurricane Creek Wilderness was not initially anticipated when the *Treasured Landscapes* site and site boundary was drawn, but it ended up being an important piece of work that was accomplished at the site.

Finally, because the NFF did not have a local staff presence at the site, we realized the importance of having reliable local partners in the area. The dedicated staff, volunteers and contractors of the Ozark-St Francis National Forest, National Wild Turkey Federation, Arkansas Wildlife Federation, Ozark Highlands Trail Association, and North American Trail Ride Conference share an unparalleled passion for stewardship that was critical in completing the site work.



Project Contributions • • •



A Committed Community • • •

Although the NFF's formal role in the Ozark National Forest *Treasured Landscapes* site wrapped up in 2014, work continues through the vigorously engaged local partners. Restoration, stewardship, trail maintenance, and community engagement events will continue to thrive on this special Arkansas landscape.

- **Ozark Highlands Trail Association:** NFF provided support for this volunteer-driven organization to perform important trail maintenance on the Ozark Highlands Trail. In addition to funding direct expenses, NFF funds purchased trail maintenance tools for the organization to use to continue to help maintain the hundreds of miles of trail under their purview.
- **U.S. Forest Service:** As the NFF transitioned out of the Ozark Mountains, the Ozark National Forest completed environmental compliance work for a second phase of project activity at Bearcat Hollow. This expansion of scope will provide opportunity for the restoration of significant additional acreage by the Forest Service and partners.
- **National Wild Turkey Federation:** The National Wild Turkey Federation is expected to continue its work in Phase II of Bearcat Hollow and will likely remain involved in the stewardship contracting process at the site.
- **Arkansas Wildlife Federation:** Arkansas Wildlife Federation was a key partner at Bearcat Hollow and the passion of its leaders and volunteers contributed immeasurably to the overall success of the current phase, and their work will continue at the site well into the future.

For More Information

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