

# A STRATEGY FOR RESTORATION OF THE INTERIOR HIGHLANDS UPLAND OAK ECOSYSTEM



**Current Condition**  
Dense Oak Woodlands



**Desired Condition**  
Oak Woodland Restoration

Prepared by:

## Oak Ecosystem Restoration Team



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*The Nature Conservancy*   
SAVING THE LAST GREAT PLACES ON EARTH

## **Strategy for Restoration of the Interior Highlands Upland Oak Ecosystem**

### **CONTEXT**

The Interior Highland's ecosystem of oak forests, woodland, savannas, and related communities forms the largest contiguous remnant of an ecosystem type that once stretched from Oklahoma to the middle Appalachians and Eastern seaboard. The region's three national forests, six national parks, numerous state wildlife management areas and natural areas, and high gradient rivers provide excellent outdoor recreation opportunities. The ecosystem also supports a wood products industry. In addition, the area is a center of biodiversity, supporting diverse upland wildlife populations, fisheries, and over 200 species of animals and plants only found in the Interior Highlands. For over 12,000 years, this historically open landscape has been shaped and maintained by frequent, low intensity fires.

As part of a national fire suppression effort, the fire regime of the region changed. These changes significantly impacted the structure and diversity of the oak ecosystem over the last 100 years. The oak forests, woodlands, and savannas became much denser, with many more stems per acre. This increased density has caused stress on the ecosystem, leaving it vulnerable to outbreaks of native insect pests. These outbreaks have killed a majority of the oak trees on over a million acres, shifting the communities to a different forest type. There is great concern that the shift in forest type will cause declines in wildlife populations and rare species dependent on the oak ecosystem, in addition to the loss of wood products available to local communities. Abundant information and experience exists to begin restoring this ecosystem.

The current state of declining forest health on federal lands clearly demonstrates a need for immediate action. A team of organizations and state and federal agencies has formed to address the issue. Partners include the Arkansas Wildlife Federation, Arkansas Game and Fish Commission, Arkansas Forestry Commission, Arkansas Natural Heritage Commission, US Fish and Wildlife Service, University of Arkansas Cooperative Extension Service, The Nature Conservancy, US Forest Service, and US Forest Service – Southern Research Station. This strategy forms a broad outline for the partners to pursue in collaboratively restoring the ecosystem.

### **PROJECT VISION**

The Oak Ecosystem Restoration Team's vision is: "To enhance the understanding of restoration and management needed in the upland oak ecosystem to maintain its health, sustainability, and diversity through public awareness, research, demonstration, and education."

This project strategy is composed of five components each with a five-year goal included in the strategy and specific two-year outcomes or objectives. The strategy components are:

1. *Management*: Develop six, landscape-scale, multi-ownership restoration demonstration projects across the region for use in interpreting ecosystem conditions and restoration techniques.
2. *Monitoring/Research*: Develop a project monitoring program for use at restoration demonstration sites that measures progress in restoring ecosystem health and achieving project objectives.
3. *Education*: Develop a multi-level information and educational campaign to solidify broad-based public support for oak ecosystem restoration.
4. *Policy*: Address policy gaps or needs related to facilitating extensive ecosystem restoration.
5. *Funding*: Secure funding to build oak ecosystem restoration capacity on priority, collaborative, public and private projects throughout the region.

## **STRATEGIES**

1. **Develop and/or support seven, landscape-sized, multi-ownership oak ecosystem restoration demonstration projects across the region suitable for interpreting ecosystem conditions and restoration techniques to many audiences.**

### **Year two objectives or outcomes**

- A. Identify six oak ecosystem restoration demonstration sites (10,000-50,000 acres each). Secure agency administrative approval. Form public and private interagency teams.
- B. Complete collaborative restoration planning at all demonstration sites.
- C. Complete interpretive plans (How will the site be utilized for maximum interpretation to target audiences?) for all restoration demonstration sites.
- D. Complete baseline monitoring at 4 of 7 restoration demonstration sites.
- E. Hold annual field days for public, private and resource managers at 3 sites: Camp Robinson, Poteau Ranger District, and Bayou Ranger District.

- F. Host one landscape fire restoration planning workshops for restoration site teams in the first year to facilitate completion and implementation of landscape ecosystem restoration plans.
- G. Develop a systematic way to facilitate communication between demonstration or participating sites to share best practices of restoration planning, treatments, monitoring, interpretation, and funding. This would entail initiating a Fire Learning Network throughout the region.

**2. Develop a project monitoring program for use at restoration demonstration sites that measures progress in restoring ecosystem health and achieving project objectives.**

**Year two objectives or outcomes**

- A. Develop an overarching set of research monitoring protocols for common baseline measurements across all demonstration sites. Complete overall baseline monitoring protocols in 6 months that include photo points and control stands.
- B. Install research studies at subset of demonstration sites selected by scientists and driven by science questions, to publish in refereed outlets. Fund \$200K of research studies from existing SRS funding. Supplemental studies could be developed if Fire Plan Proposal is funded.
- C. Develop research literature database to support education, management, and policy groups. Funded by SRS, done through coop agreement with university faculty – Complete in 6 months.
- D. Provide technical expertise for any overview or summary technology-transfer publications that are to be developed for each or all demonstration sites. Complete half of the demonstration site monitoring in 2 years, publish as available through SRS.
- E. Provide technical support for stand-level demonstrations and field tours, including economics (e.g. data and graphs for use in handouts given to participants at field tours.) Three sets of data prepared for Camp Robinson, Poteau, Bayou, and Hobbs sites linked to timing of the respective field tour.

**3. Develop a multi-level information and educational campaign to solidify broad-based public support for oak ecosystem restoration.**

**Year two objectives or outcomes (In desired sequence of completion)**

- A. Complete and implement an interpretive plan for each of the six restoration demonstration sites to ensure site and messages are tailored for target audiences. (e.g., brochures, bus routes, interpretive signs, self-guided tours - walking and/or

- driving). Before going on the site visit, develop a packet describing background of the site, maps, aerial photos, restrictions, and prohibitions.
- B. Develop an oak ecosystem restoration manual of best management practices targeted at natural resource managers. Content of the manual will be used to develop Cooperative Extension fact sheets. (Resources: upland management guide, special issue of AR Wildlife, Marty's flow chart, California and Boulder, Colorado websites.)
  - C. Host technical workshops about the issue and need for ecosystem restoration tailored for particular audiences, e.g., environmentalists, timber industry.
  - D. Develop a packaged PowerPoint presentation about this effort for presentation by any team member at key formal and informal state meetings by July 03. (e.g. Ark Farm Bureau, AFA, SAF, Governor's Breakfast)
  - E. Develop a brochure that tells the oak ecosystem story (flowing from the follow-up article written for AR Wildlife magazine). Include the demonstration sites on a map. Develop a foldout that can be easily copied in district/regional/county offices.
  - F. Host a joint legislative tour (federal and state politicians) with oak restoration as a key theme involving all the partnering agencies and visiting one or more of the demonstration sites. Conduct a 2-day tour in May 2004.
  - G. Develop an article for publication in AR Wildlife magazine (or is it National Wildlife Federation national magazine), National Wildlife magazine (NWF contact Lisa Madry in Austin); The Nature Conservancy, Smithsonian, National Geographic that reports the success of the symposium and follow-up implementation of the strategy.
  - H. Reprint the special issue of AR Wildlife magazine Oct/Nov. 2001
  - I. Develop four interpretive displays for use at events and environmental education facilities. Ensure included within the AGFC Nature Centers.
  - J. Develop a teacher packet of classroom-ready materials and conduct four training workshops.
  - K. Develop a public outreach web site (examples below):  
[www.ci.boulder.co.us/openspace/xForest/forestmain.htm](http://www.ci.boulder.co.us/openspace/xForest/forestmain.htm)  
[www.fs.fed.us/oonf/ozark/resources/oakmortality.html](http://www.fs.fed.us/oonf/ozark/resources/oakmortality.html)
  - L. Refine initial landscape ecosystem restoration workshop, incorporating lessons learned from workshop for initial demonstration and participating sites.
  - M. Develop interactive oak management software program.

- N. Develop interactive oak management CD/games for children.
- O. Participate in radio programs (e.g., Ozarks At Large, Fayetteville)
- P. Develop AETN special on the Ozarks and the Oak ecosystem issues and restoration.

Identified Audiences ( in order of priority)

- Media
- “General public”
- Private and public resource managers (includes private landowners, industry land managers, government foresters, forest consultants, forest planners)
- Environmentalists
- Timber industry
- Agency leadership
- State and federal legislators
- School teachers
- County judges

**4. Address policy gaps or needs related to facilitating extensive ecosystem restoration.**

- A. Support USFS in completing forest plan amendment(s) to support oak ecosystem restoration projects.
- B. Consolidate support for and facilitate a forest plan revision that includes ecosystem restoration as a priority.
- C. Develop a strategy to facilitate safe and responsible prescribed burning by private landowners (possibly through liability protection in a prescribed burners law).
- D. Develop a strategy to address the regulatory issues related to smoke management of prescribed burns.

**5. Secure funding to build oak ecosystem restoration capacity on priority, collaborative, public and private projects throughout the region.**

Year two objectives or outcomes

- A. Secure four million dollars to fund strategy components in two years through various public and private sources.

## **List of Demonstration and Participating Restoration Sites –30 September 2003 –**

### **Demonstration Sites (Name, Size - Ownership)**

Bayou Ranger District Restoration Sites, 59,200 acres - USFS and private landowners  
Camp Robinson and WMA, ca 35,000 acres – DOD and AGFC  
Hobbs State Management Area, ca 12,500 acres – ASP, ANHC, AGFC  
Magazine Mountain, 10,000 acres – USFS, AGFC, and ASP  
Pleasant Hills Little Piney Watershed Restoration, 50,000 acres – USFS and private landowners  
Poteau Ranger District oak component of pine bluestem restoration, ca 50,000 acres - USFS

### **Participating Sites (Name, Size - Ownership)**

Big Creek Natural Area , 2000 acres– ANHC and Green Bay Packaging  
Caddo Ranger District, 16,000 acres - USFS  
Fort Chaffee, 65,000 acres – DOD and AGFC  
Gene Rush/Buffalo National River WMA, 10,000 acres – AGFC/NPS  
Gulf Mountain WMA, 10,000 acres – AGFC (combine with above?)  
Kings River NA and adjacent USFS lands, 10,000 acres – ANHC and USFS  
Madison County WMA/Bear Hollow NA/Ozark Natural Science Center, 10,000 acres – AGFC, ANHC and ONSC  
Petit Jean WMA, 10,000 acres – AGFC  
Simpson Preserve on Trap Mountain, 10,000 acres – TNC and Ross Foundation  
Sylamore Ranger District and Devil’s Knob Devils Backbone, ca 10,000 acres – USFS and ANHC