

# Arkansas Interior Highlands

## Shared Stewardship, Co-Management, and Living with Fire!

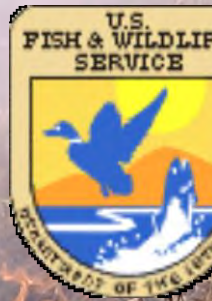
### A Partnership Model

The Nature Conservancy   
Protecting nature. Preserving life.™

# Shortleaf Pine

## INITIATIVE

RESTORING AN AMERICAN FOREST LEGACY

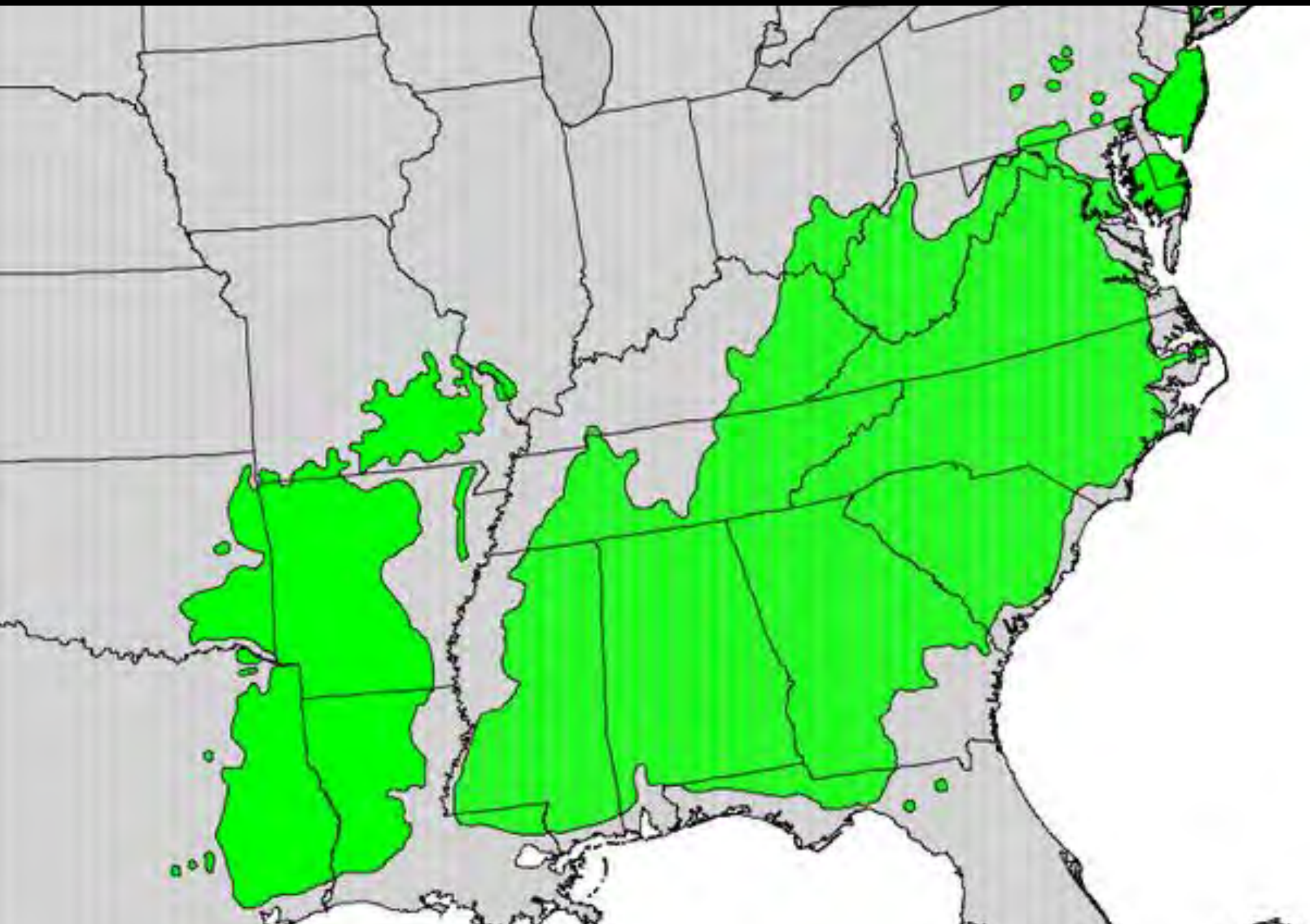


...the unified strategy to restore wild quail

# Discussion Topics

- **Quick History**
- **Current Restoration Projects**
- **Regional Issues and Challenges**
- **Co-Management and Future Directions**

# *Range of Shortleaf Pine (23 States)*



# *Shortleaf Pine Oak Woodlands*



# *Ouachita Mountain - Shortleaf Pine Woodlands*



# *Ozark Mountain - Oak Pine Woodlands*



# *Surface Fires*

## *Mixed Severity /Low Intensity*



Photo: FM9 Head Fire by McRee Anderson

# Historical Fire Burned At Landscape Scale Low Intensity Surface Fires





# Fire history of oak–pine forests in the Lower Boston Mountains, Arkansas, USA

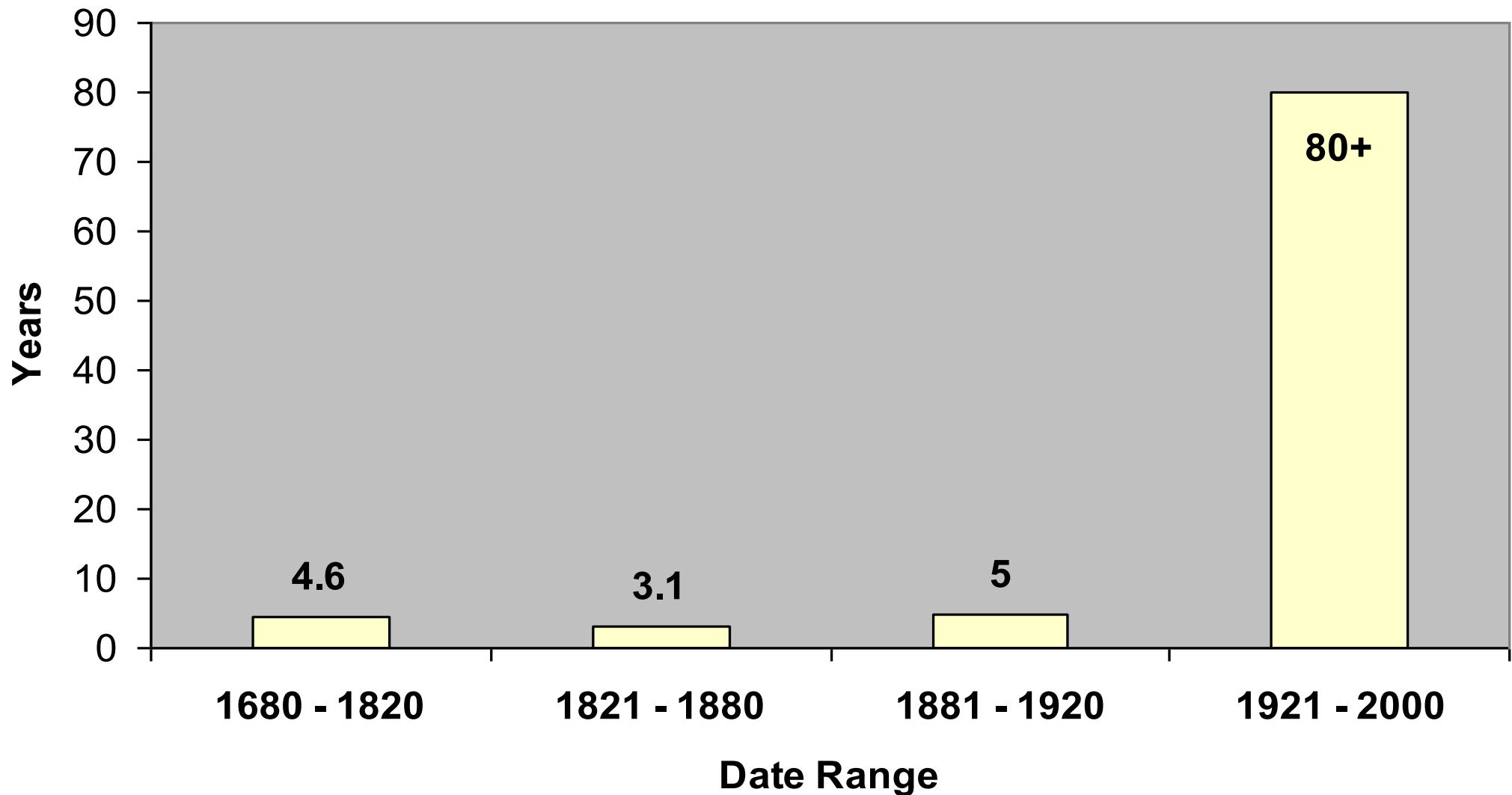
*R.P. Guyette and M.A. Spetich, 2003*



*Fire history of oak–pine forests in the Lower  
Boston Mountains, Arkansas, USA  
Guyette and Spetich, 2003*

**Fire Return Interval**

*(Guyette and Spetich, 2003)*



# Upland Hardwood Forests and Related Communities of the Arkansas Ozarks in the Early 19<sup>th</sup> Century

Thomas L. Foti (2001)

in

Upland Oak Ecology Symposium:  
History, Current Conditions, and Sustainability

***Ozark Mountains***  
***44 - 78 Trees/Acre***

***1.5M Acres***  
***Woodlands***





Photo: Ouachita NF circ 1920

102192

# Altered Ecosystem!



# Wildlife and Ecological Issues!



- Loss of Ecological Integrity at Scale



# Challenging Ecosystem!





# *Last Season!*

## *Annual Targets -- The Ecological Math?*

**3.6M acres = Short Interval Fire**

### **Regimes**

	<b>FY 2000</b>	<b>FY 2015</b>	<b>FY2016</b>	<b>FY2017</b>
<b>Ozark</b>	<b>3,000</b>	<b>80,000</b>	<b>30,000</b>	<b>75,000</b>
<b>Ouachita</b>	<b>31,000</b>	<b>120,000</b>	<b>70,000</b>	<b>120,000</b>
	<b>-----</b>	<b>-----</b>	<b>-----</b>	<b>-----</b>
	<b>34,000</b>	<b>200,000</b>	<b>100,000</b>	<b>195,000</b>

### **Future???**

**The Ozark-St. Francis - 250,000 acres**  
**The Ouachita NF - 400,000 acres**

*Shared Stewardship, Co-Management, and  
Living with Fire!  
A Partnership Model*



# Designing For Scale- Fire Program!



# Interior Highland/Fire Restoration

Protect Lands and Water NA Priority

Living With Fire –FLN Strategy

Currently 750,000 acres!

Strategies: 1) ARFO Fire Team 2) Training, 3) Partnerships on  
Demonstration Landscapes 4) Outreach and Messaging



OZARK OUACHITA

HIGHLANDS COLLABORATIVE

# Interior Highland/Fire Restoration

Protect Lands and Water NA Priority

Living With Fire –FLN Strategy



# *Interior Highlands Collaborative Strategy*

**Management:** Promote sustainable long-term management across the region with key demonstration areas maintained across the region.

**Science:** Integrate ecological science and monitoring into management activities.

**Public Engagement:** Actively engage the public through conventional and new multi-media platforms that enhances public knowledge of ecological restoration.

**Policy:** Address multi-level policy challenges and/or opportunities related to woodland restoration and management.

**Funding/Capacity:** Secure funding to maintain generational woodland restoration on public, private and state lands.

# ***Multiple Projects Ongoing.....***

- **Landscape-Scale NEPA -HAPPY Bat Project 80,000 Acres**
  - *7,000 Acres Woodlands YR*
  - *15K YR Burning*
  - *Ecological Assessment – Glades*
    - *SWG Grant for 500 acres of glade restoration*
- **2 CFLRP Projects Funding Opportunities**
  - *CFLRA Feds \$1.5M*
  - *8,000 Acres Woodlands YR*
- **Joint Chief Awards Ongoing**
  - *\$2.5M*
- **Landscape-Scale Plant Community Monitoring**
- *RX Fires – 200+K Acres 70K Ozarks, 130K Ouachita*



# CFLRP Projects

Ozark-St. Francis National Forest

Collaborative Forest Landscape Restoration Program (CFLRP)

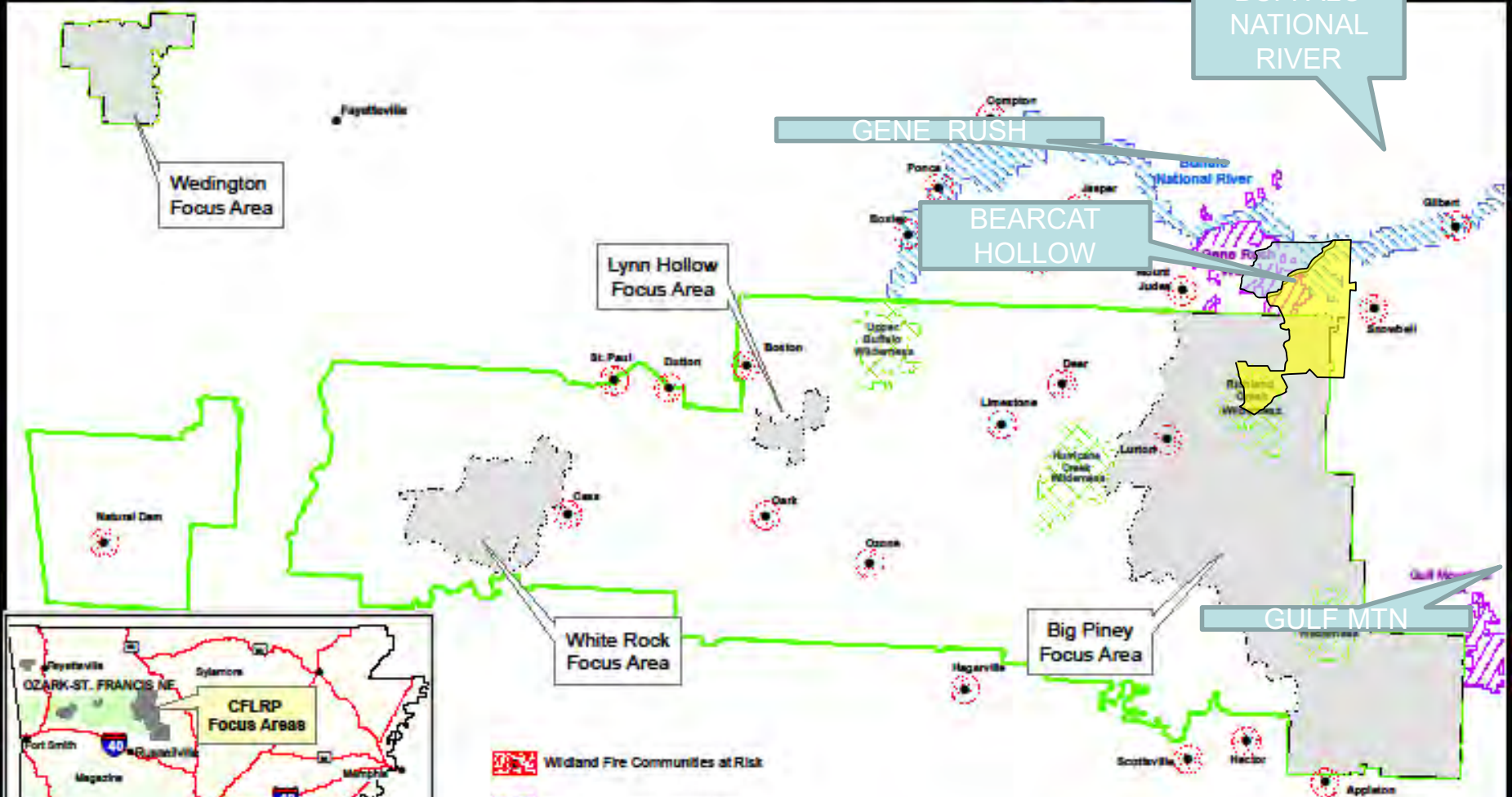


Rocky Mountain Elk Foundation



Arkansas Wildlife

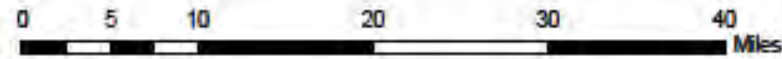
Ownership and Focus Areas Map

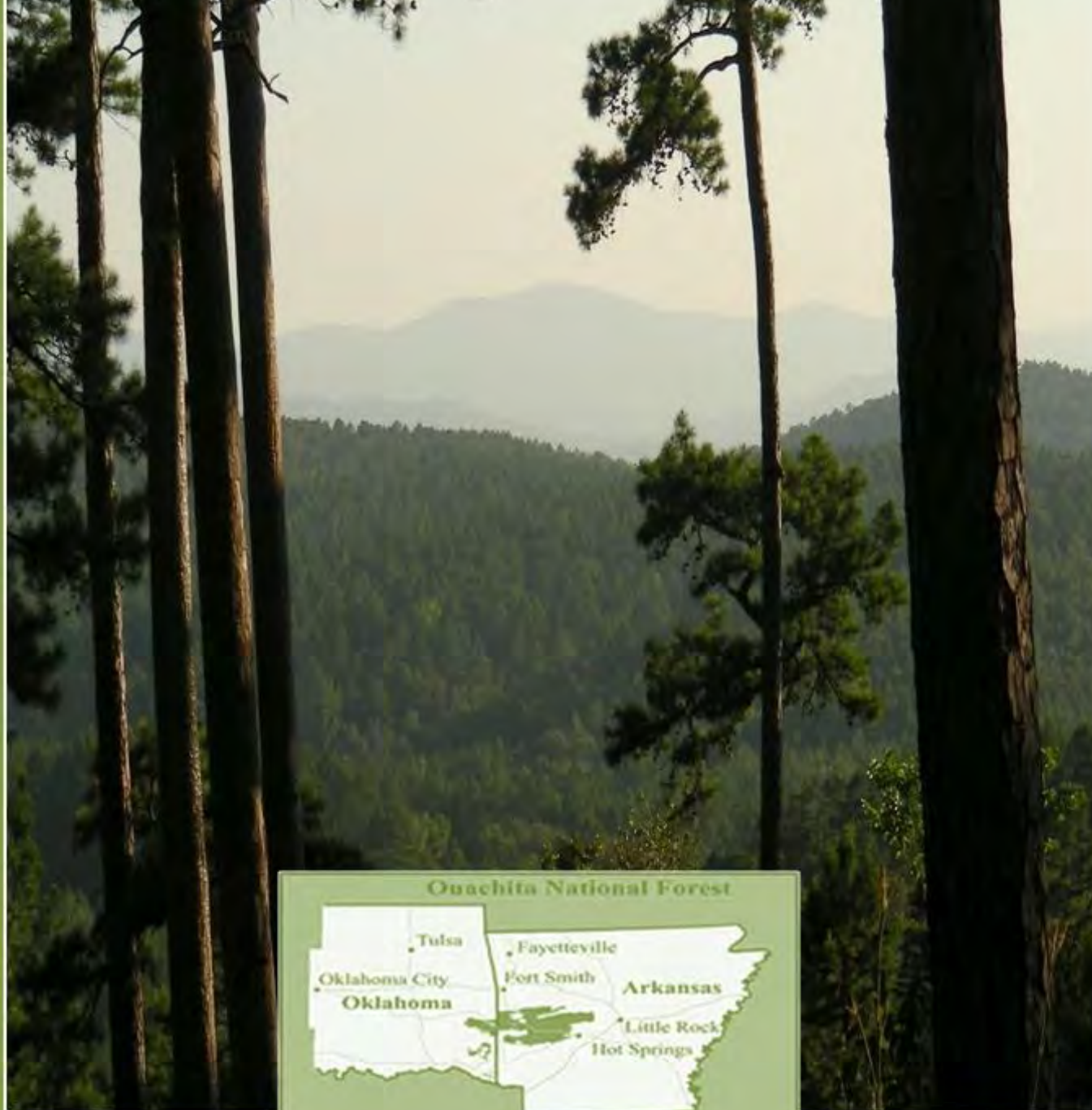


- Wildland Fire Communities at Risk
- State Wildlife Management Areas
- Buffalo National River
- Wilderness
- CFLRP Focus Areas

Total area of the landscape – 344,393 acres

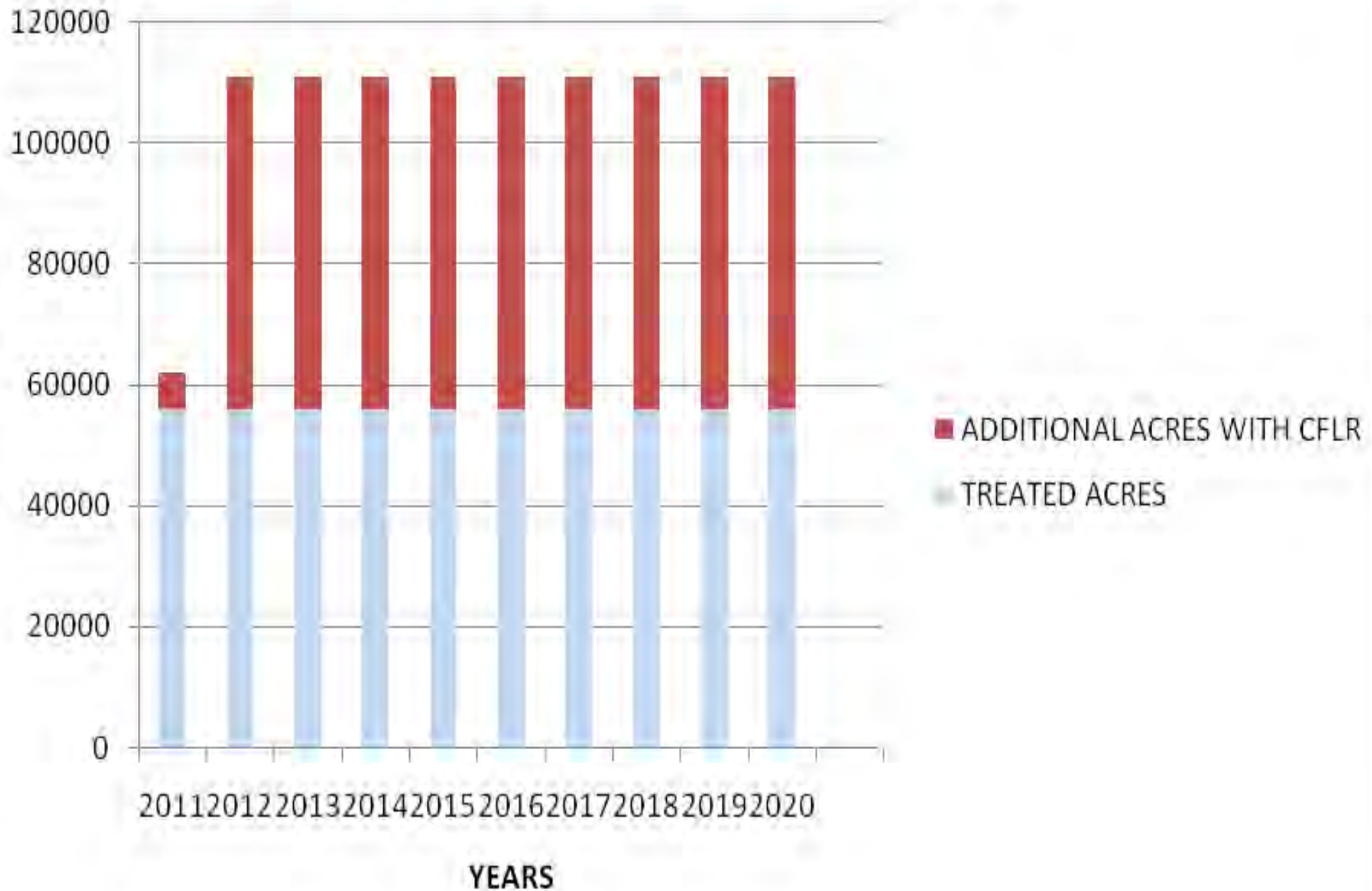
Total area receiving treatment – 217,892 acres



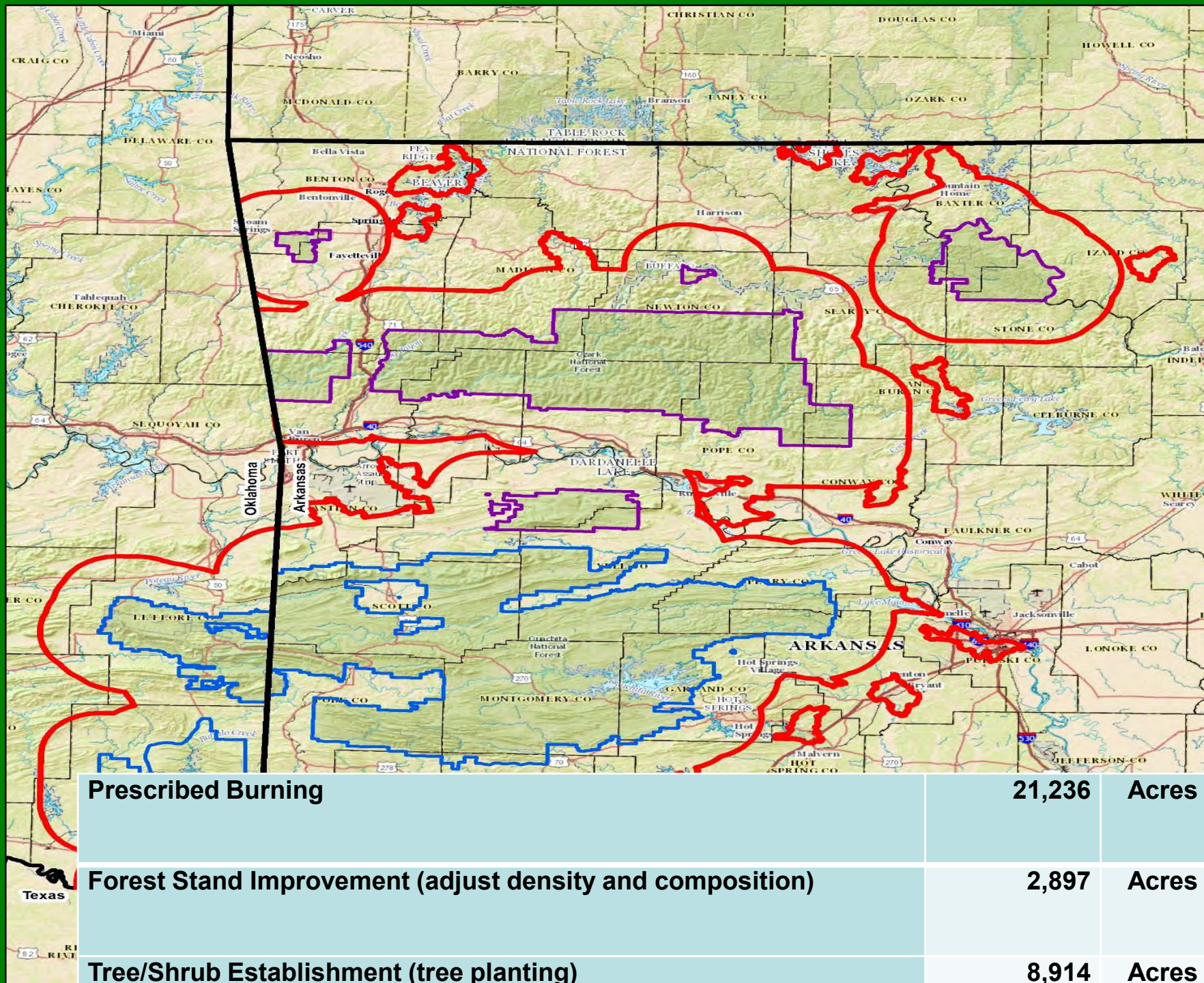


**SHORTLEAF-BLUESTEM COMMUNITY**  
**Ouachita National Forest**  
**Arkansas-Oklahoma**

# PROJECTED ACREAGE WITH CFLR



# Joint Chiefs Private Lands



# Pine/Oak Woodland Management 15,000+ Acres Annually

(Timber, WSI etc)



# Pine/Oak Woodland Management 15,000+ Acres Annually

(Timber, WSI etc)

This Program works and productivity is faster than fire can catch up!



# *Last Season!*

## *Annual Targets -- The Ecological Math?*

**3.6M acres = Short Interval Fire**

### **Regimes**

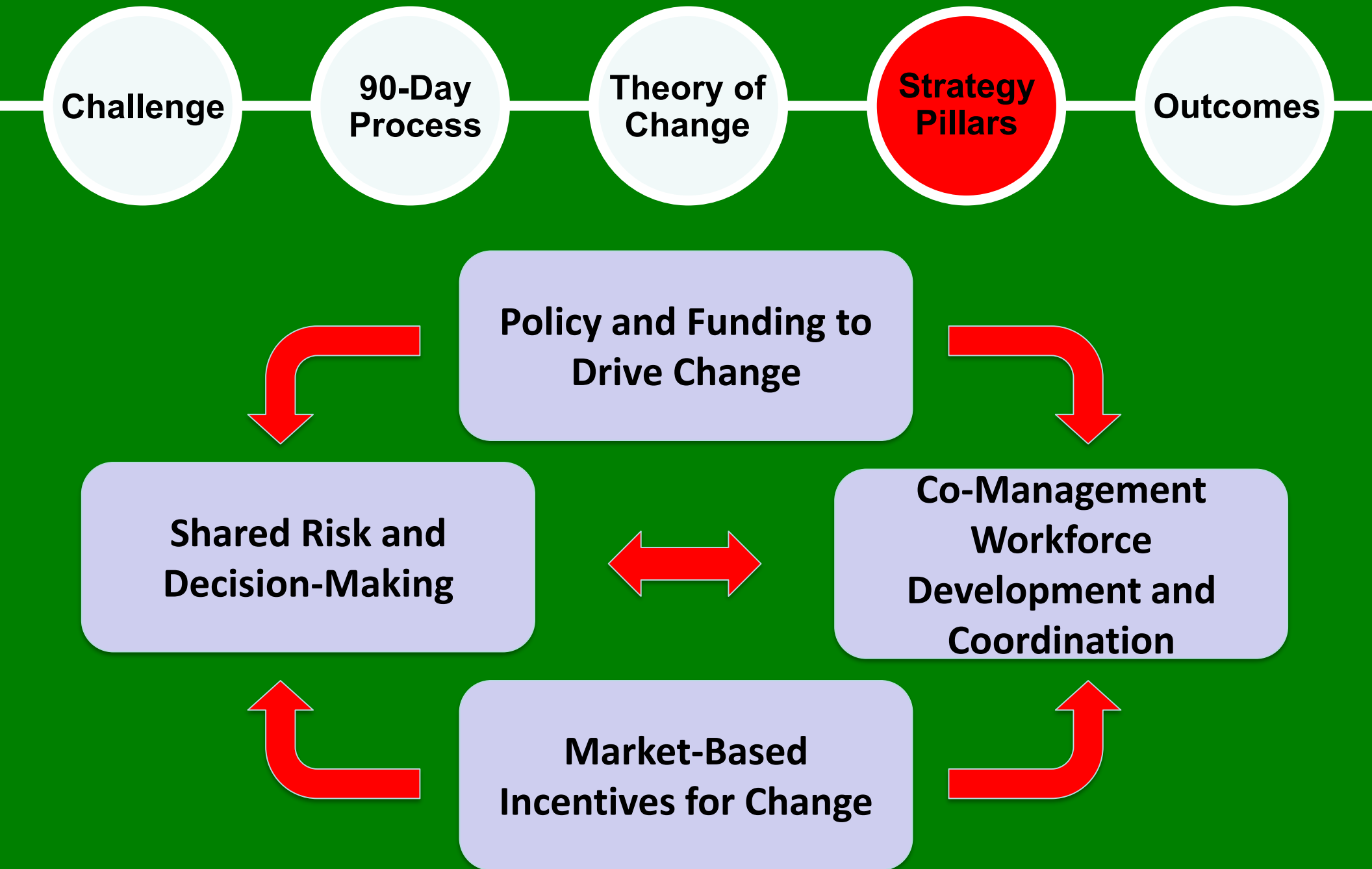
	<b>FY 2000</b>	<b>FY 2015</b>	<b>FY2016</b>	<b>FY2017</b>
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### **Future???**

**The Ozark-St. Francis - 250,000 acres**

**The Ouachita NF - 400,000 acres**

# Living with Fire: Forging a New Path Towards Resilience





## Current Model-RX Fire Partnership!

USFS Burns -	200,000
USFS/TNC Burns	<u>(8,000)</u>
Total	200,000 acres

### Why?

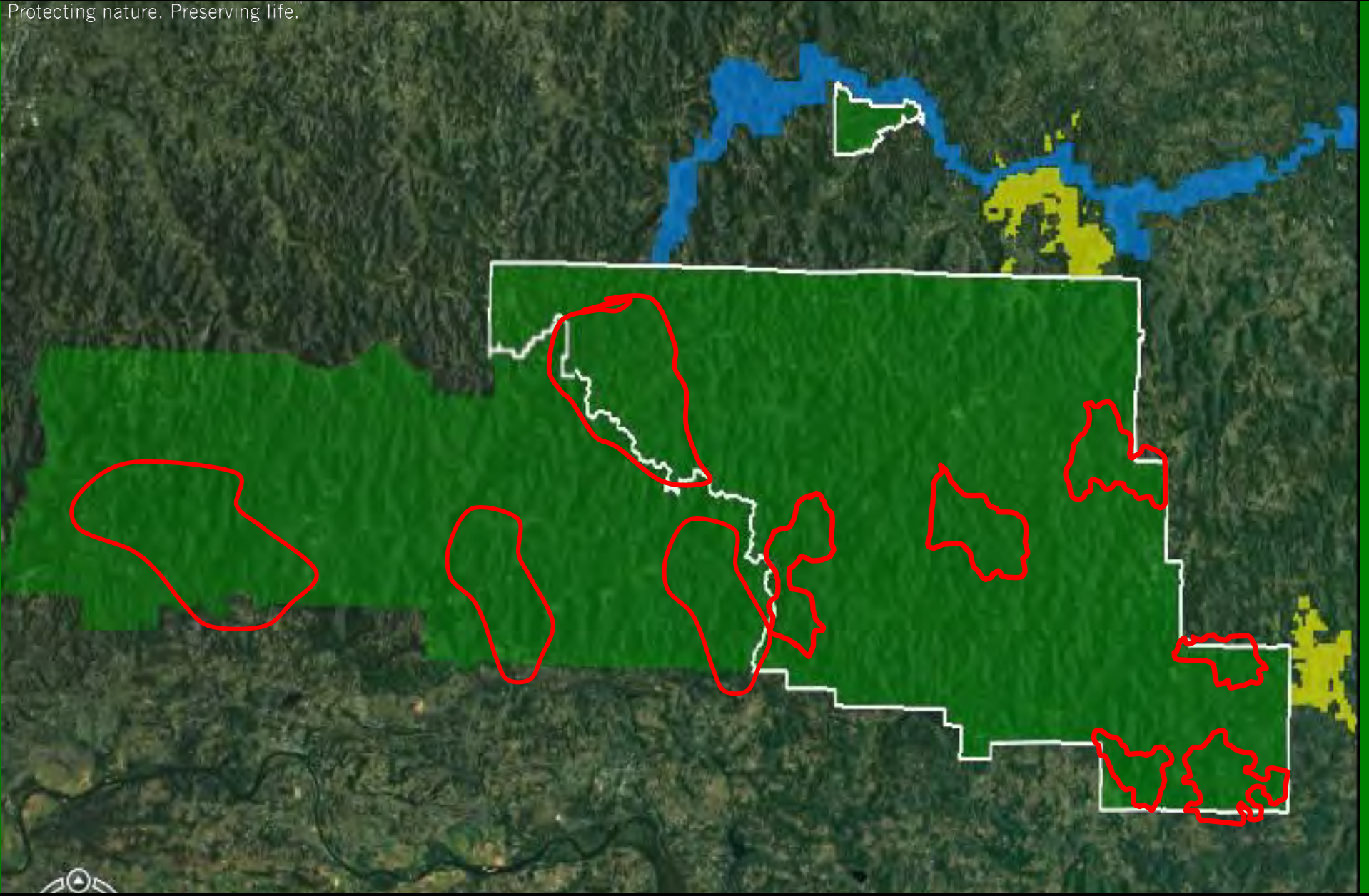
- Help in wet spring years where everyone is rushing to accomplish burns
- Limited burn windows in Spring for Coop-burns
- Most burns are assists to accomplish expected acres



# Partnership Model 2

Co-Management, Shared Stewardship, Living with Fire

Protecting nature. Preserving life.



*Restoration Areas = 280,000 acres*  
*10 YR Goal = 60,000 acres of woodlands*

# Interior Highland/Fire Restoration

Protect Lands and Water NA Priority

Shared Stewardship -Living With Fire –FLN Strategy

## Future Model -RX Fire Partnership!

USFS Burns	200,000
Fall Burns	<u>20,000</u>
Total	220,000 acres

### WHY?!

- Operational Easy Burn Units: Roads, low fuels,
- Focus on FRCC1/Restored areas
- Focus on Fall Burn Season Window

- Fire Staff on details or AL
- Hunting Season
- Hot

# Restore Fall Fire Regime



Photo: LBL, KY by Jim McCoy

# *“Fall Burning Benefits??”*



# *“Are We Losing the Battle??”*

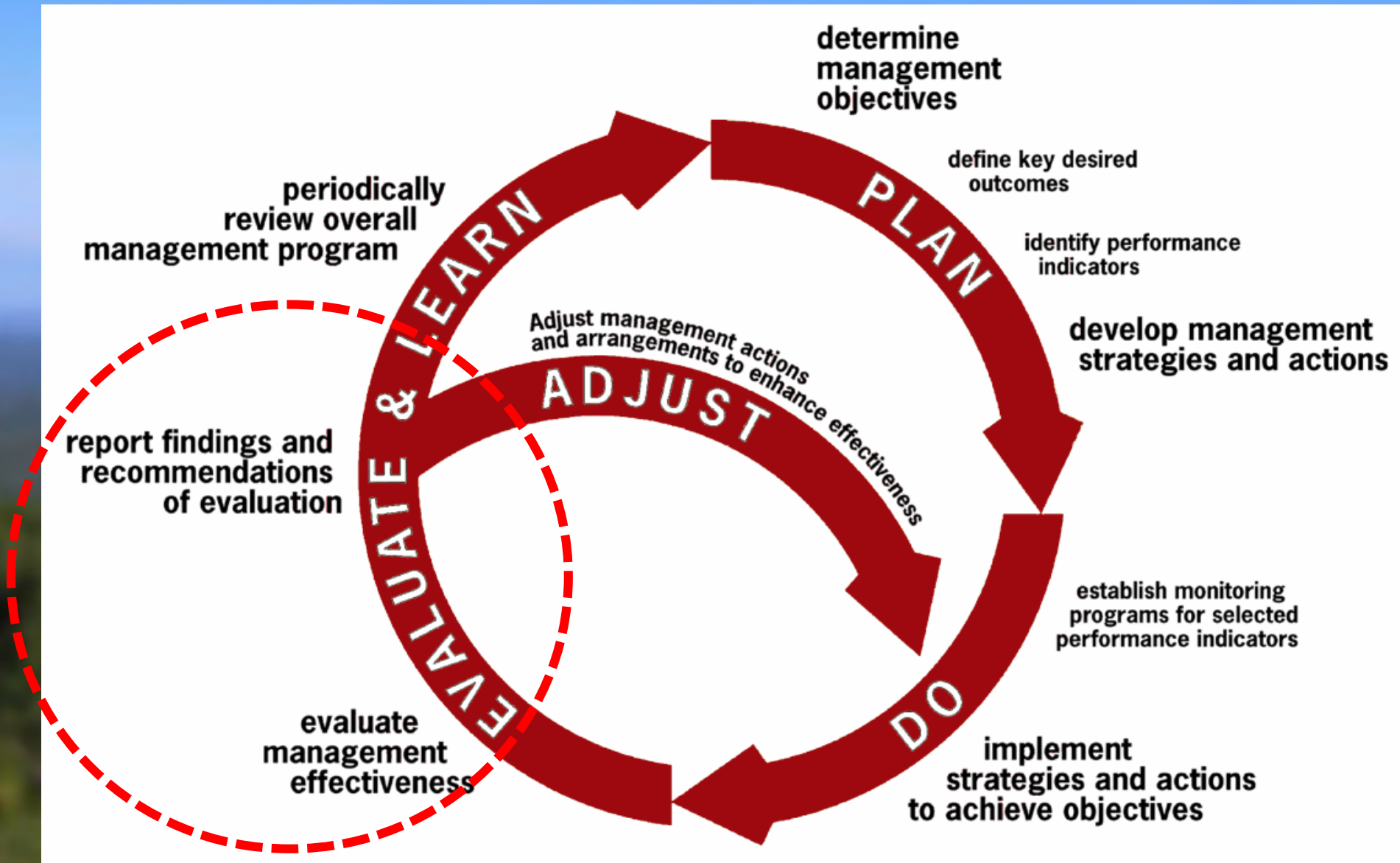
## Shrub Development



2 yr post burn !



# • Interior Highlands Collaborative Strategy



**Monitoring: Post Burn, First Order Fire Effects**



# Interior Highland/Fire Restoration

Protect Lands and Water NA Priority

Living With Fire –FLN Strategy



RESTORE MORE OF THIS!

# Demo Sites -Restoration Works!



**Restoration is Working!**



# Restoration is Working!



# Interior Highland/Fire Restoration

Protect Lands and Water NA Priority

Living With Fire –FLN Strategy



Questions ?

# Shortleaf Pine

## INITIATIVE



RESTORING AN AMERICAN FOREST LEGACY

# “Grocery” or Species Diversity



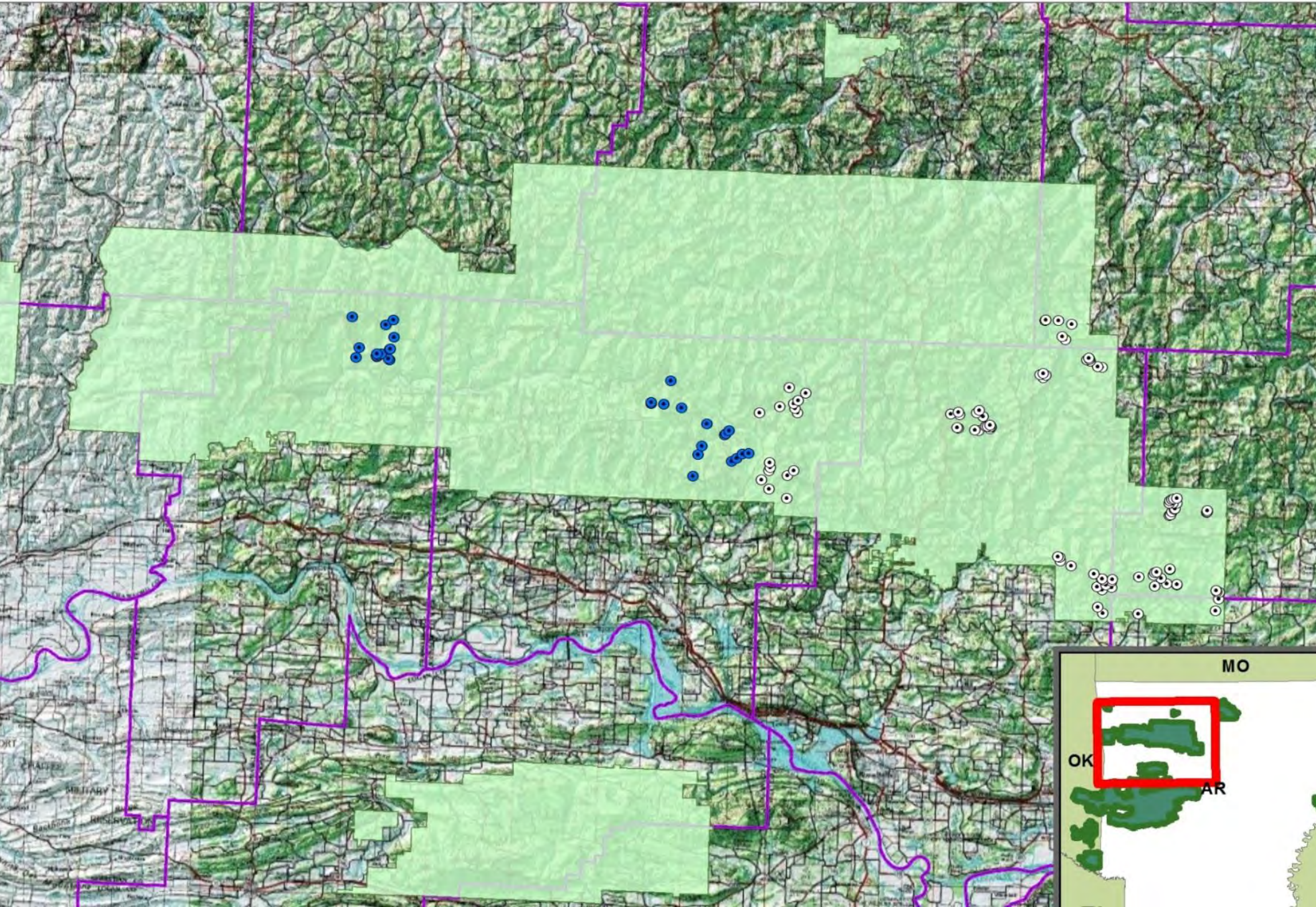
**Benefits**

**Water Quality, Soil Stability,  
Nutrients**



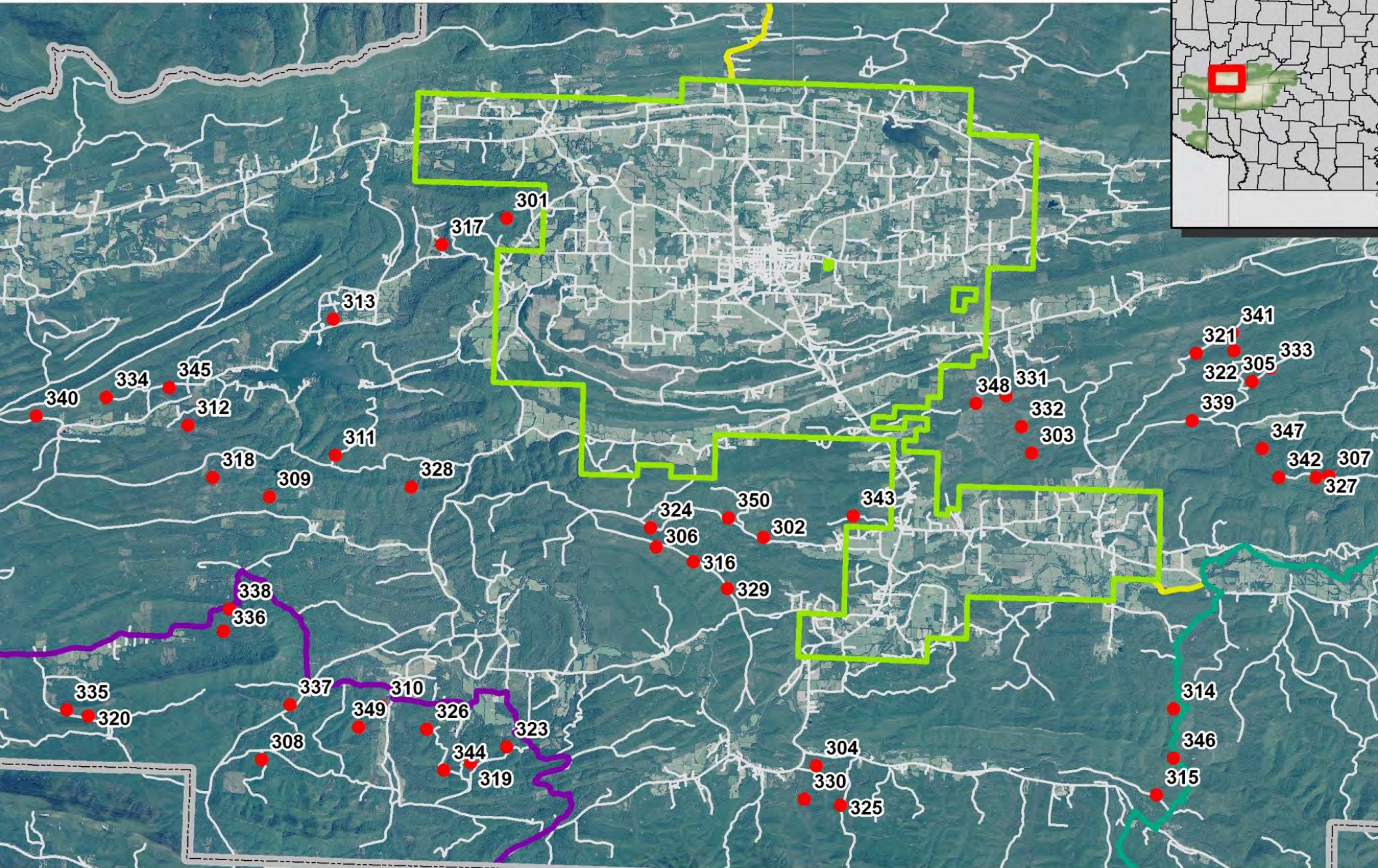


**Ozark-St Francis National Forest  
Monitoring Macro Plots  
Ozark Ecoregion - Arkansas**



# Ouachita National Forest - Ranger Districts in AR

## CFLRP June 2012 -- 50 Points



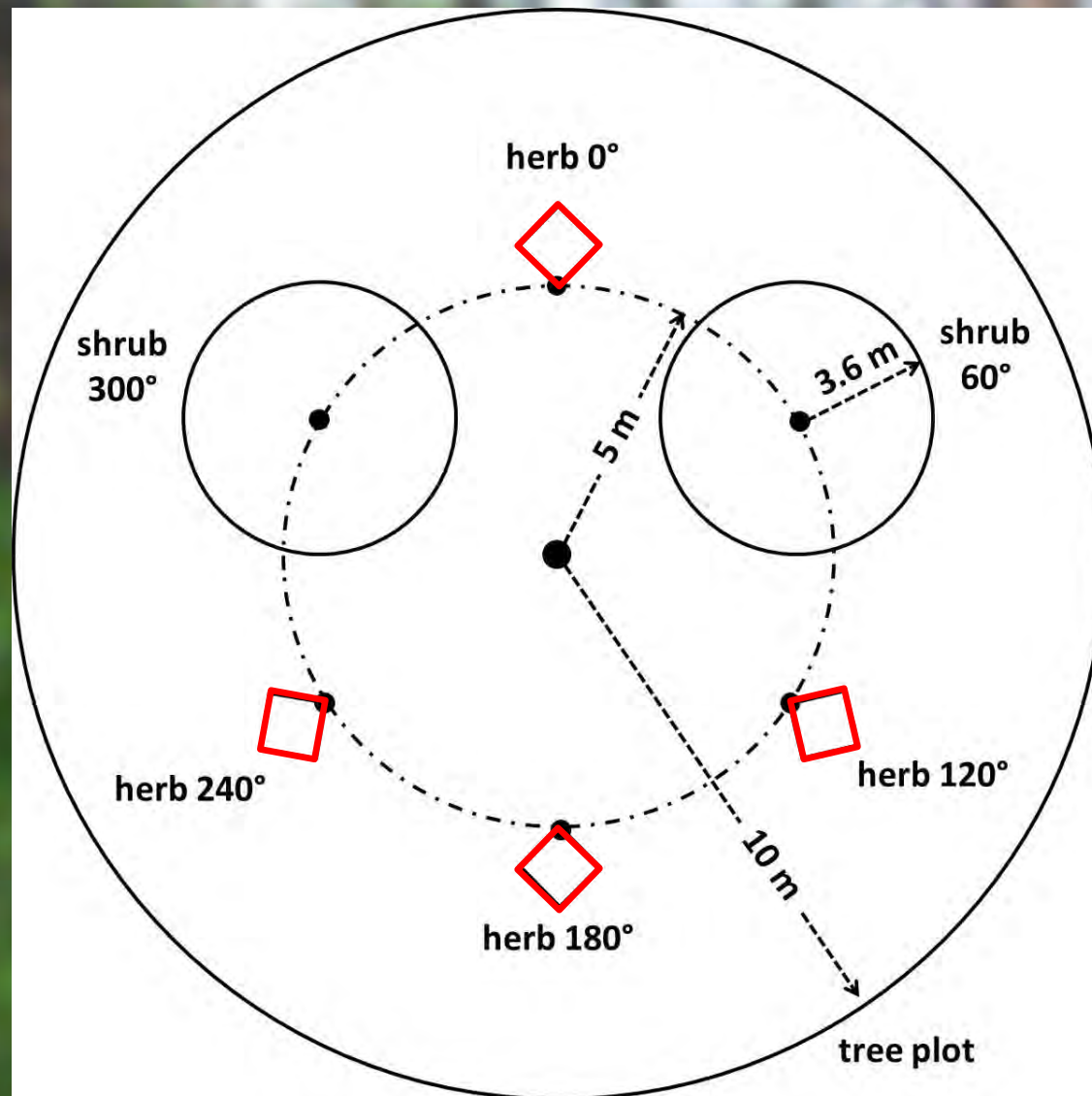
CFLRP points	<b>Ranger Districts</b>	4	12	Roads	
Ouachita NF Boundary	2	7	15	County Boundaries	

# Cooperative Monitoring

50 CLFR Plots this summer  
1- Monitoring Report Completed



# Macroplot



ground layer

# *“Monitoring Allows Project Teams To...”*

**Quantify Treatment Results**

**Adjust Fire Regime**

**Adjust Timber Harvest**

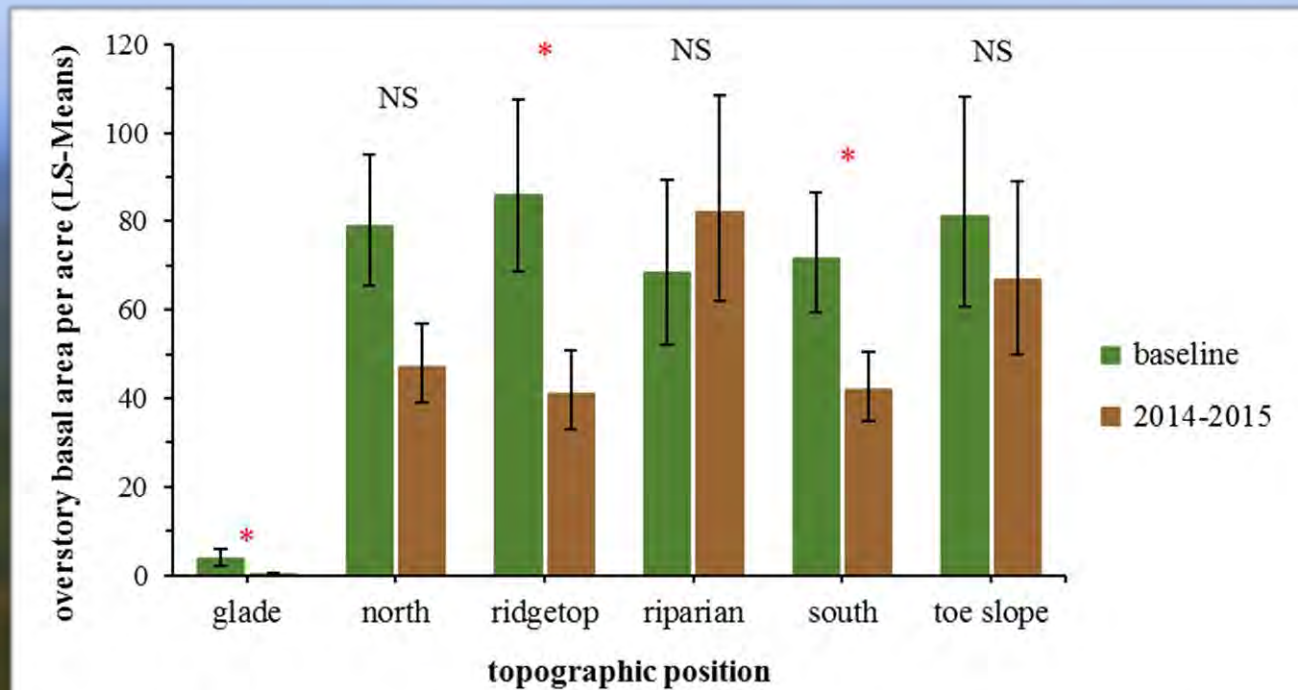
**Adjust Mid Story Treatments**



# Topographic position

## *Changes over time*

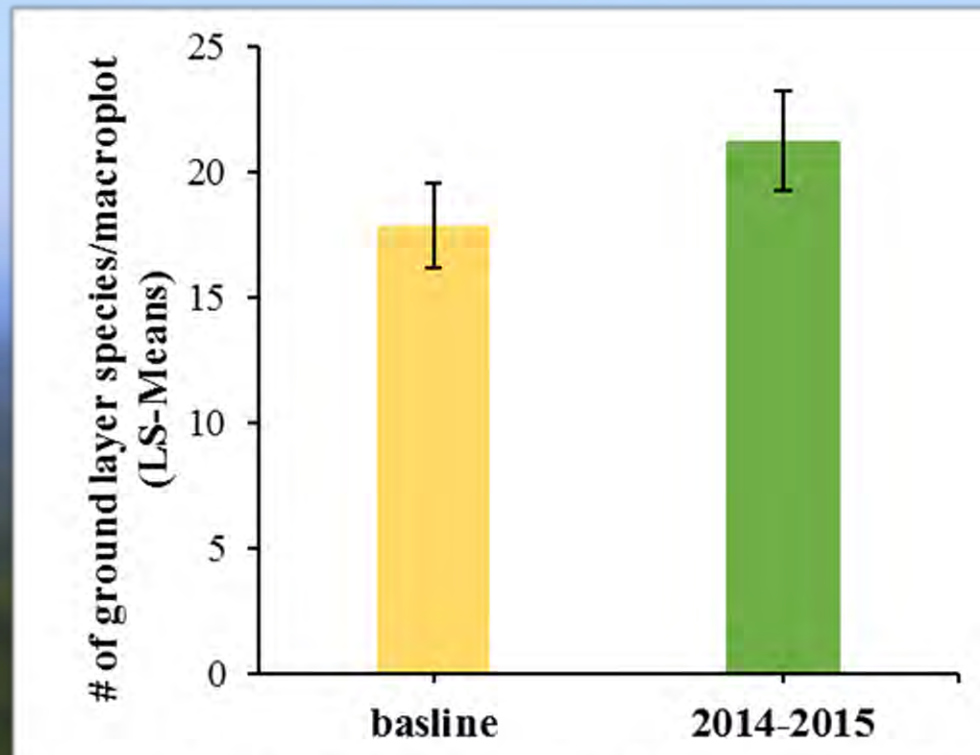
### Overstory basal area (ft<sup>2</sup>/acre)



**Figure 12.** There were significant changes in overstory BA between years, depending on topographic position (df = 116, F = 2.88, p = 0.017). Thick bars are least-squares means from the model. Error bars are standard errors. Asterisks (\*) indicate a statistically significant difference ( $\alpha = 0.05$ ) in overstory BA between years, within a given topographic position (otherwise, NS = not significant).

# All plots

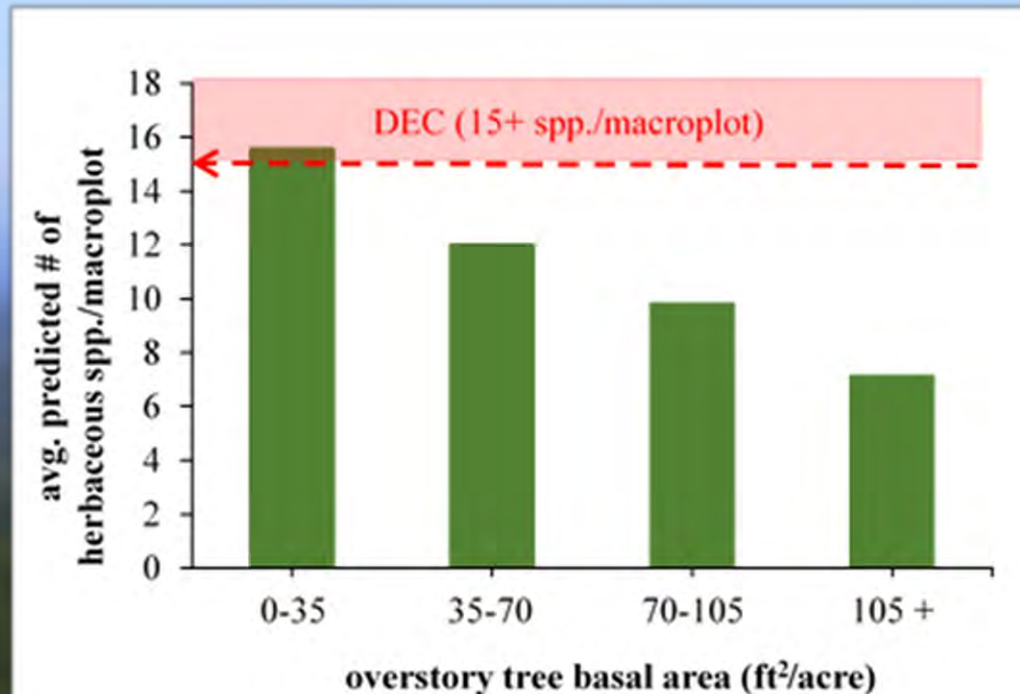
## Avg. # ground layer spp./plot



**Figure 9.** There was a significant increase in the number of ground layer species per macroplot between baseline and 2014-2015 ( $df = 110$ ,  $F = 6.73$ ,  $p = 0.0108$ ). Thick bars are least-squares means from the model. Error bars are 95% confidence intervals.

# Best predictors

## Avg. # herbaceous spp./plot



**Figure 4.** Overstory basal area was one of the best predictors of herbaceous species richness per macroplot in 2014-2015 (model selection based on AIC). There was a significant decrease in herbaceous species richness per macroplot with increasing overstory basal area (ft<sup>2</sup>/acre) (df = 110, F = 22.29, p = < 0.0001).



*“Is our Fire Regime Appropriate??”*







*“Are We Using All the Tools??”*



*“Are We Losing the Battle??”*  
Shrub Development





# Demo Sites -Restoration Works!



# “Grocery” or Species Diversity



**Benefits**

**Water Quality, Soil Stability,  
Nutrients**



*Liatris  
pycnostachya*



*Castilleja  
coccinea*



*Mimosa  
quadrivalvis  
ssp. nuttallii*



*Echinacea  
pallida*



*Silphium laciniatum*



*Asclepias tuberosa*



# Ecosystem Health and Sustainability



# Restored Ecosystem = Healthy System

**Herbaceous Diversity - 100- 150 species/ acre**

**Tree Density - 38-76 trees/ acre**

# Adaptive Management is about Tours!

6 tours, 100+ participants



# Community Engagement

5- Forest Resiliency/Restoration Panels

2-Glade Restoration Panels





**Restoration is Working!**



# Shortleaf Pine

## INITIATIVE



RESTORING AN AMERICAN FOREST LEGACY

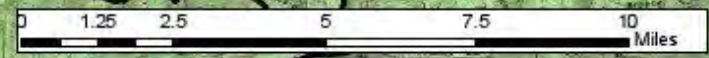
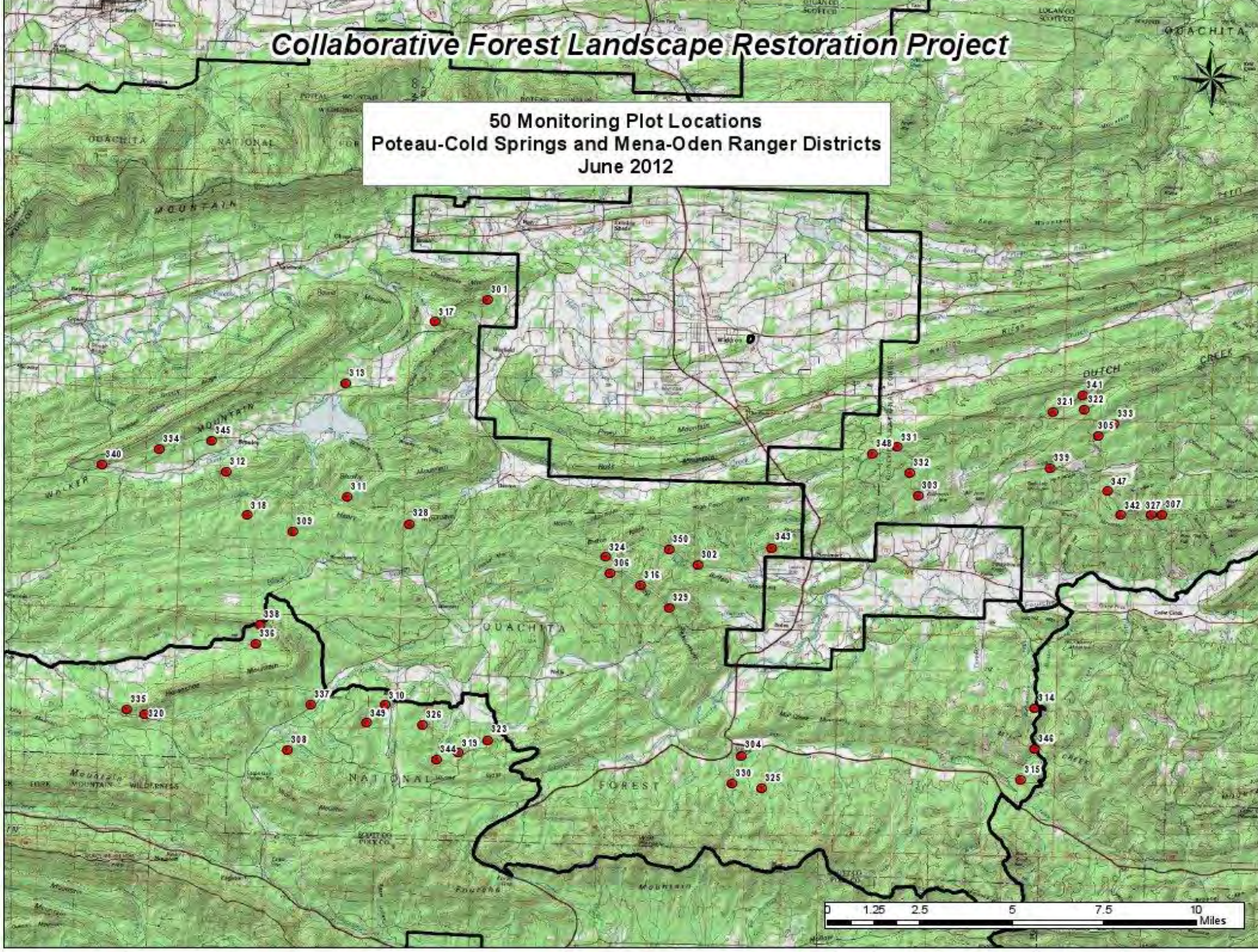


# Restoration is Working!



# Collaborative Forest Landscape Restoration Project

50 Monitoring Plot Locations  
Poteau-Cold Springs and Mena-Oden Ranger Districts  
June 2012









# Restored Fire Regime (Frequency/Seasonality)



Photo: LBL, KY by Jim McCoy

# Restored Ecosystem = Healthy System

A photograph of a restored ecosystem. The scene is dominated by a dense stand of trees, likely oaks, with a thick layer of green grass on the ground. The trees are tall and slender, with some showing signs of decay or being dead. The grass is vibrant green and appears to be a mix of species. The overall appearance is that of a healthy, well-managed forest.

**Reduced Fuels**

**Herbaceous Diversity - 100- 150 species/ acre**

**Tree Density - 38-76 trees/ acre**

# *Multiple Projects Ongoing.....*

- **Landscape-Scale NEPA -HAPPY Bat Project 80,000 Acres**
  - *Scoping Letter is out – Appealed!!*
  - *7,000 Acres Woodlands YR*
  - *15K YR Burning*
  - *Ecological Assessment – Glades*
    - *SWG Grant for 500 acres of glade restoration*
- **2 CFLRP Projects Funding Opportunities**
  - **CFLRA Feds \$1.5M**
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- **Landscape-Scale Plant Community Monitoring**
- ***RX Fires – 200+K Acres 70K Ozarks, 130K Ouachita***





# Gene Rush Wildlife Management Area

Habitat Management



# Current Condition

RX burn 5000 Acres

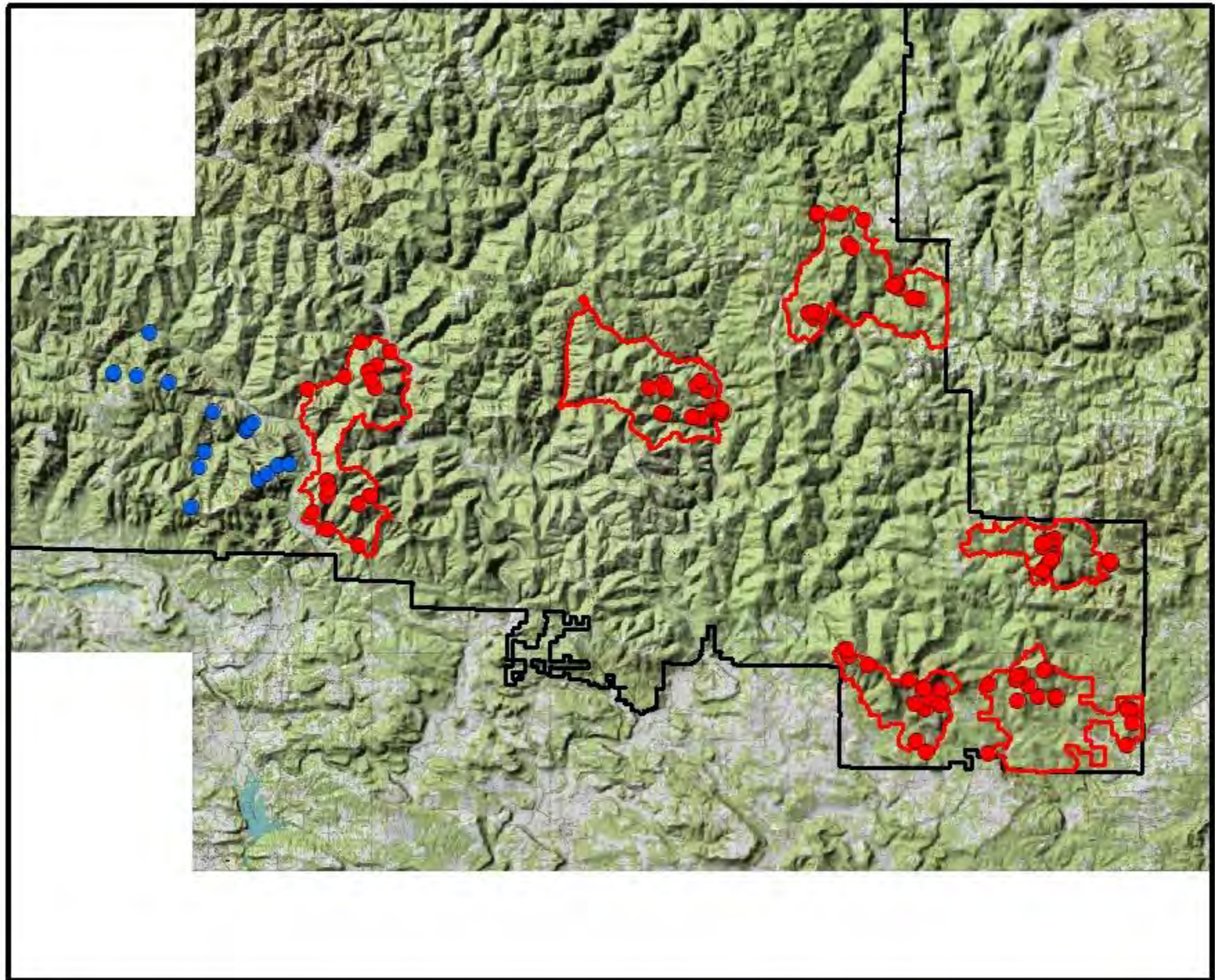
Treat 200 acres of  
Invasive species





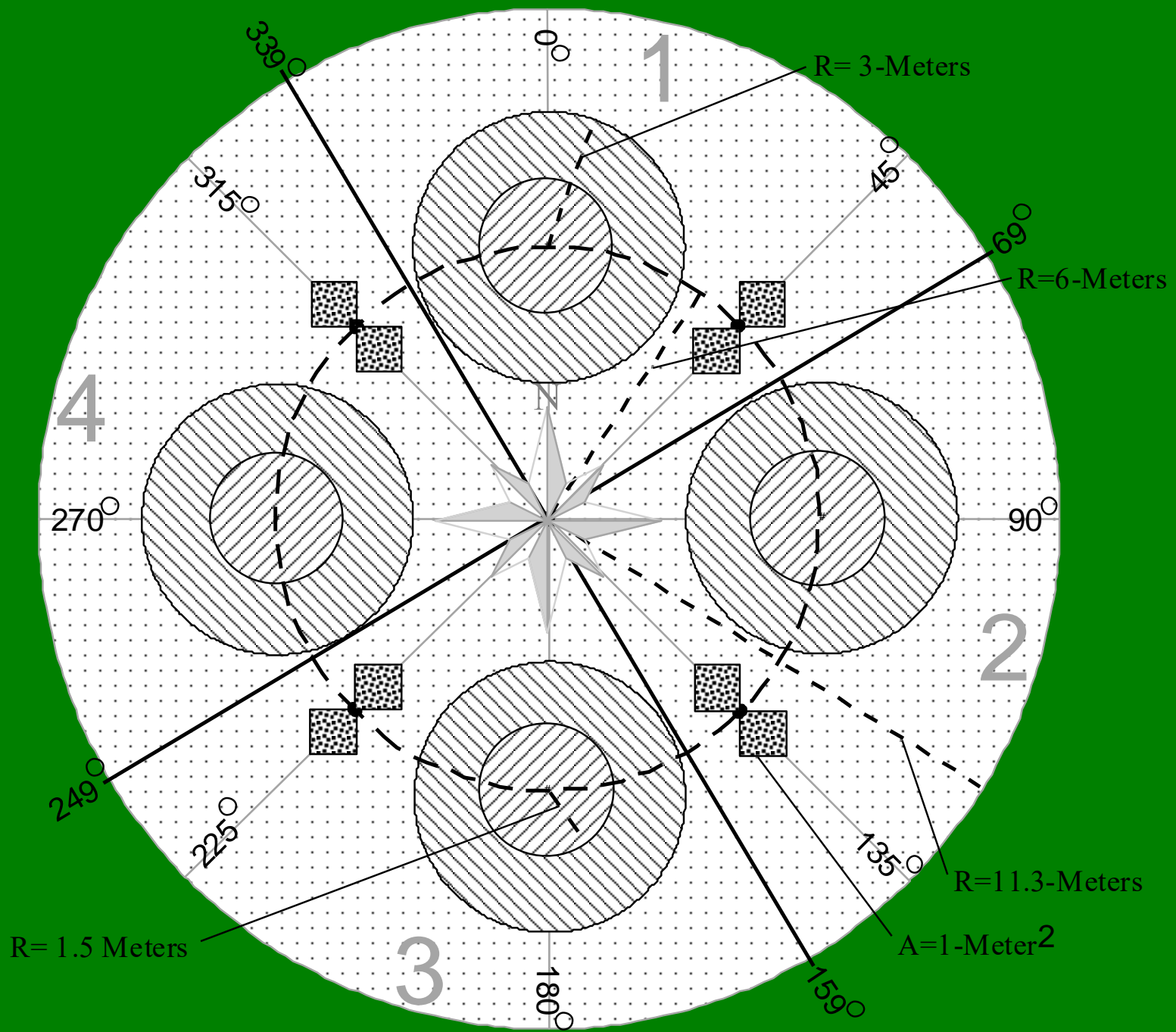


# Ozark National Forest Macro-Plots



Pleasant Hill RD (blue) Big Piney RD (red)

0 1.25 2.5 5 7.5 10 Miles



LEGEND	
#	Plot Centers
	Herb Plot
	Seedling Plot
	Tree Plot
#	Plot Quarters

# Landscape-scale Monitoring - It takes Partnerships



# Landscape-scale Monitoring Macro plot #8/120





# *Post Fire Effects – 3 burns*



# *“Is our Fire Regime Appropriate??”*

Frequency/Seasonality

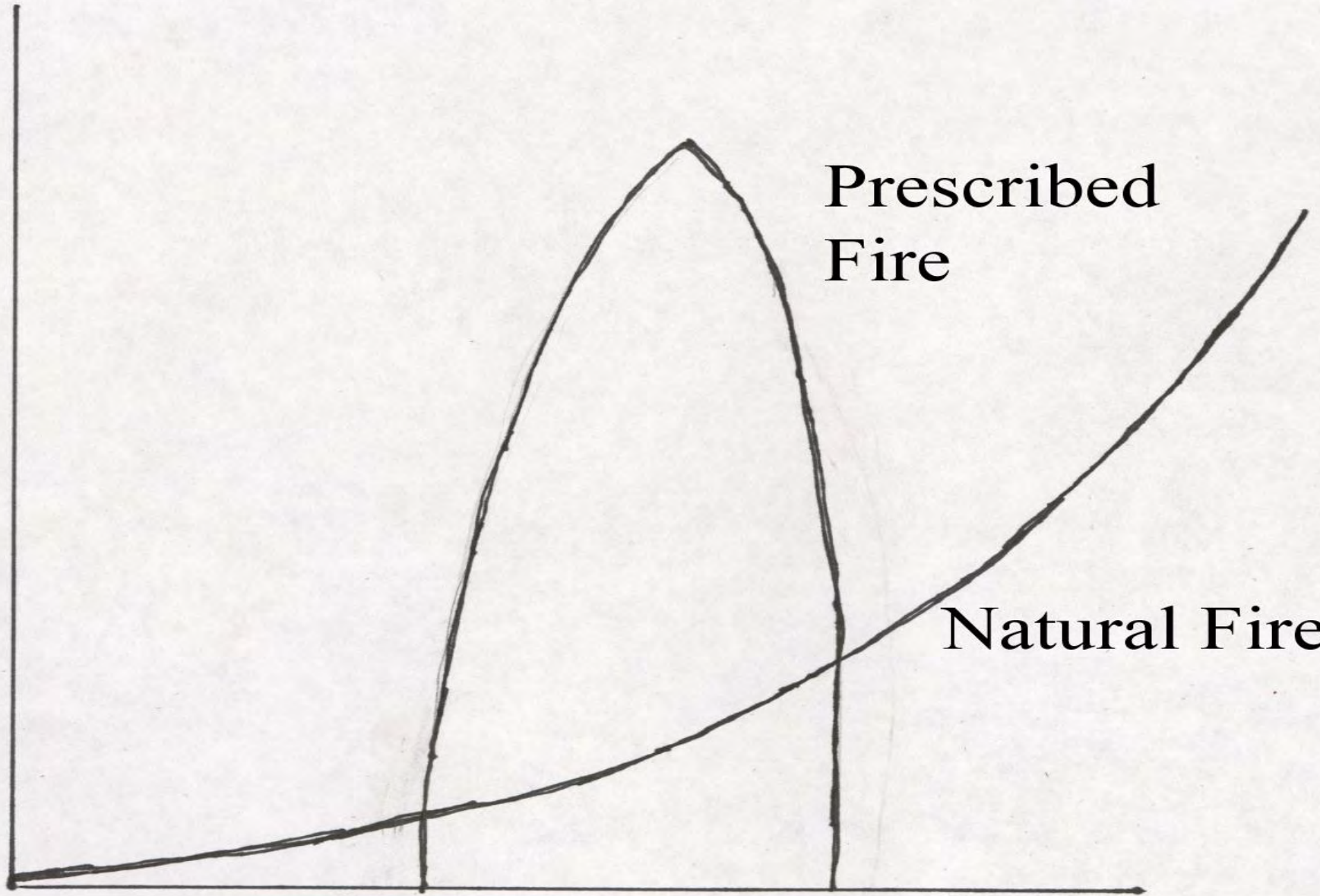
Hot/  
Dry

Prescribed  
Fire

Natural Fire

Cool/  
Wet

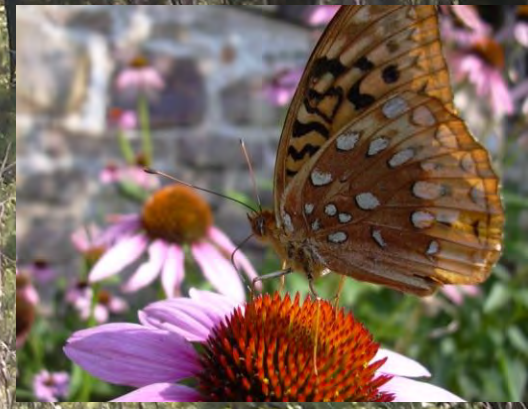
Acres Burned



*“Is our Fire Regime Appropriate??”*







# Questions ?

Photo: Oak Woodlands, Bayou Ranger District, John Andre

# GLO notes - 50 known glade points vs 50 random points

Distance to closest  
witness tree

glade = 205'

random = 21'

Glade point witness trees

shortleaf pine = 24%

black oak = 20%

post oak = 14%

cedar = 12%

white oak = 12%

*medium quality mixed glade*



# *“Glade Restoration at Scale!”*

GLO notes - 50 known glade points vs 50 random points

Distance to closest witness tree

glade = 205'  
random = 21'

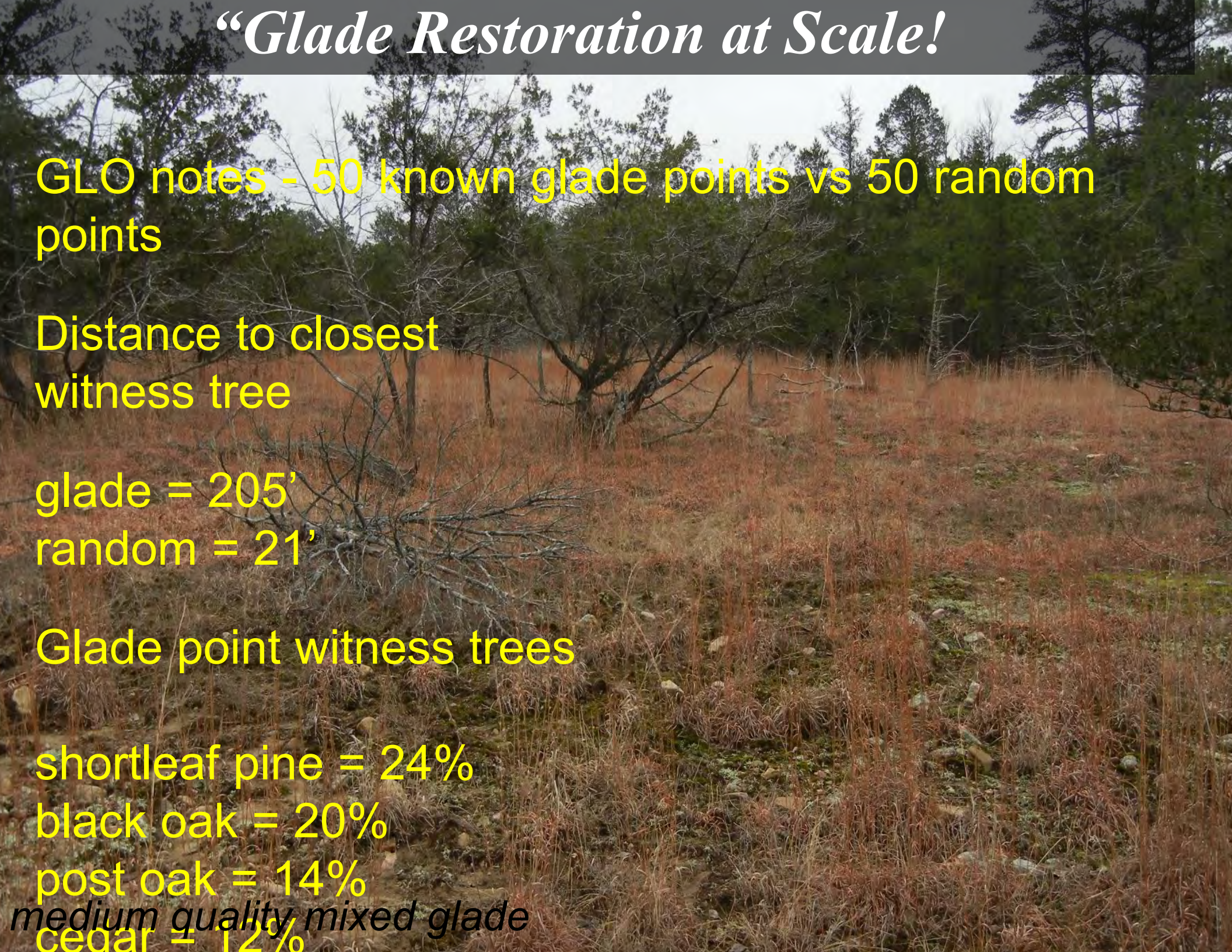
Glade point witness trees

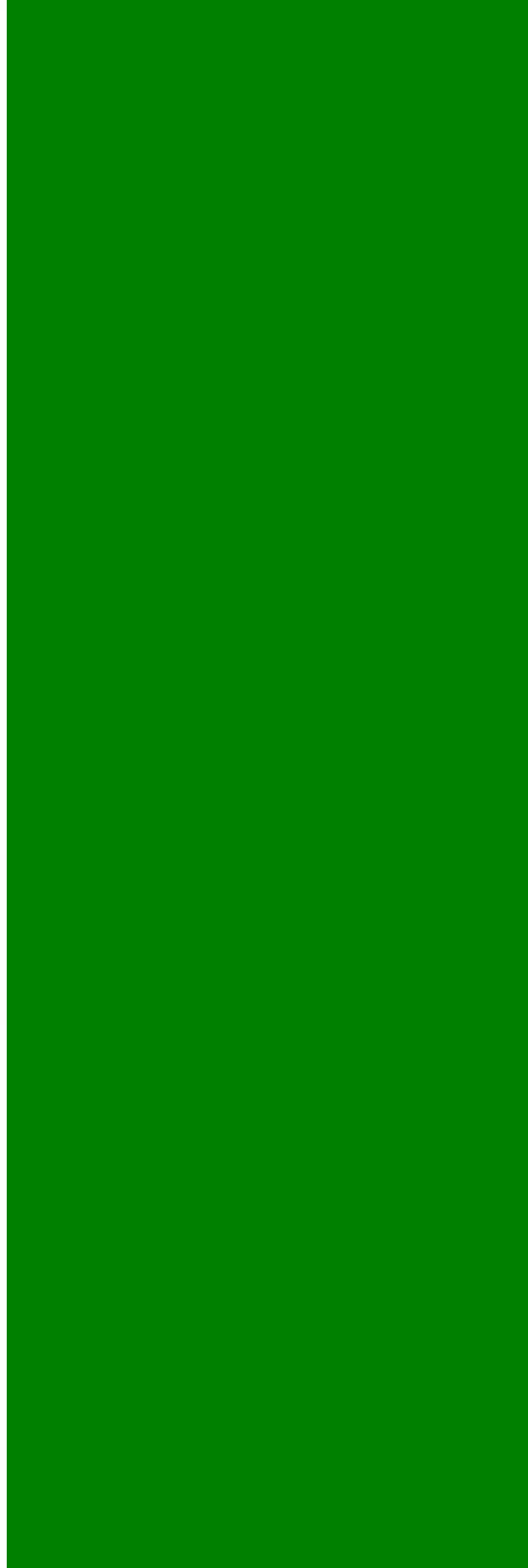
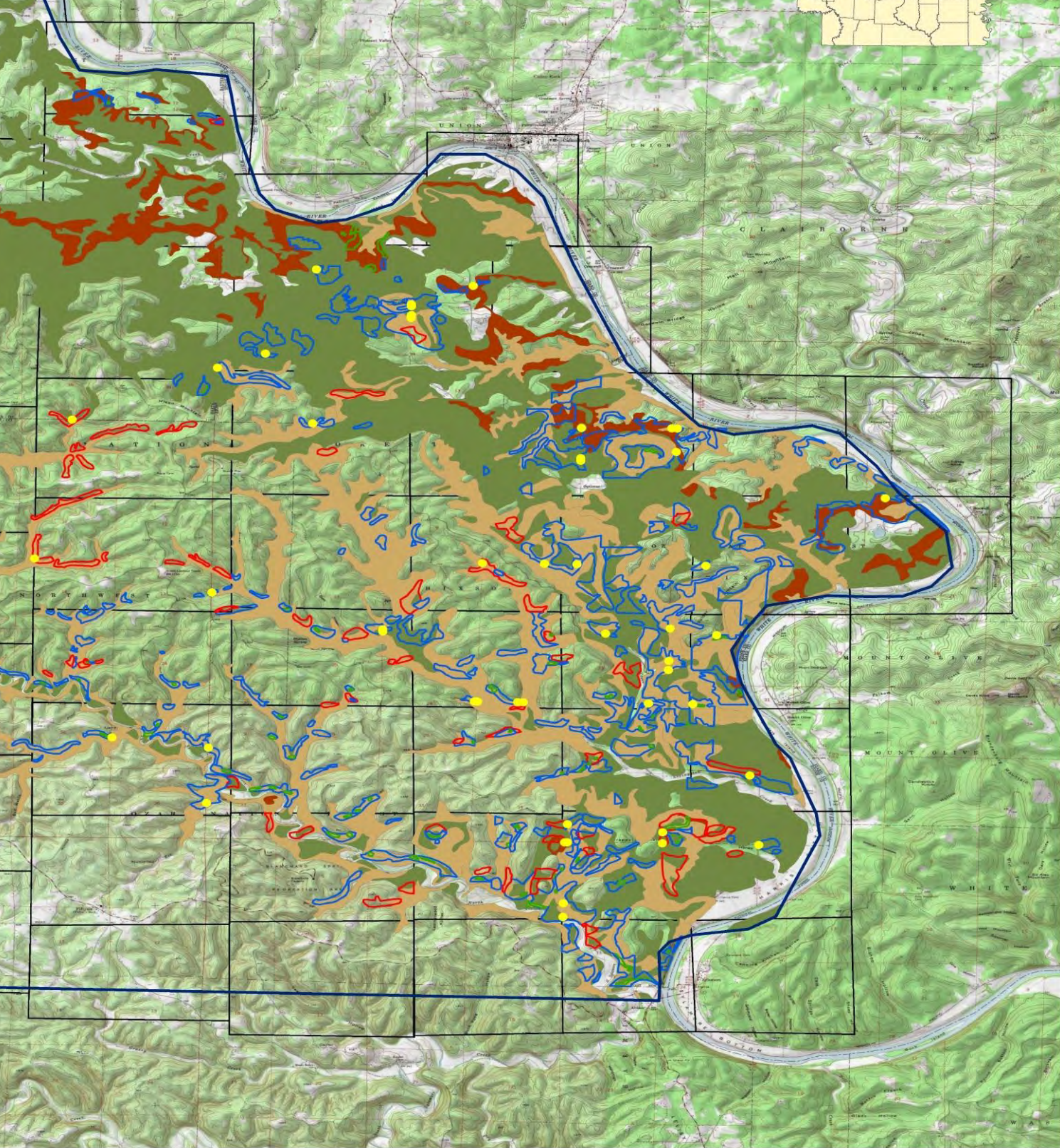
shortleaf pine = 24%

black oak = 20%

post oak = 14%

*medium quality mixed glade*  
cedar = 12%







# Background

## Current status of knowledge



Old flora reports  
Plant species lists  
Rare species list  
Potential glade map  
Ava glades report

*low quality  
sandstone glade*

# General Land Office (GLO) Data



- GLO
- Cedar
- Sylamore WMA

WMA: Wildlife Management Area  
Data: GLO Points from US Forest Service  
Projection: NAD\_1927\_StatePlane\_Arkansas\_North\_FIPS\_0301

Journey  
GLO map  
showing  
where  
cedar  
witness  
trees are  
located

# Inventory Methodology

aerials / topos with potential glades

go see

collect plants under various conditions

classify glades (calcareous/acidic)

assign quality rank

refine methodology

*low quality  
sandstone glade*



Glade quality was assessed based on three variables

- density of cedar
- presence of non-native species
- noticeable occurrence of fire

In general, the designation was applied to the mapped glade unit.  
*below two low quality glades*



**Eastern Collared Lizard**  
*(Crotaphytus collaris)*



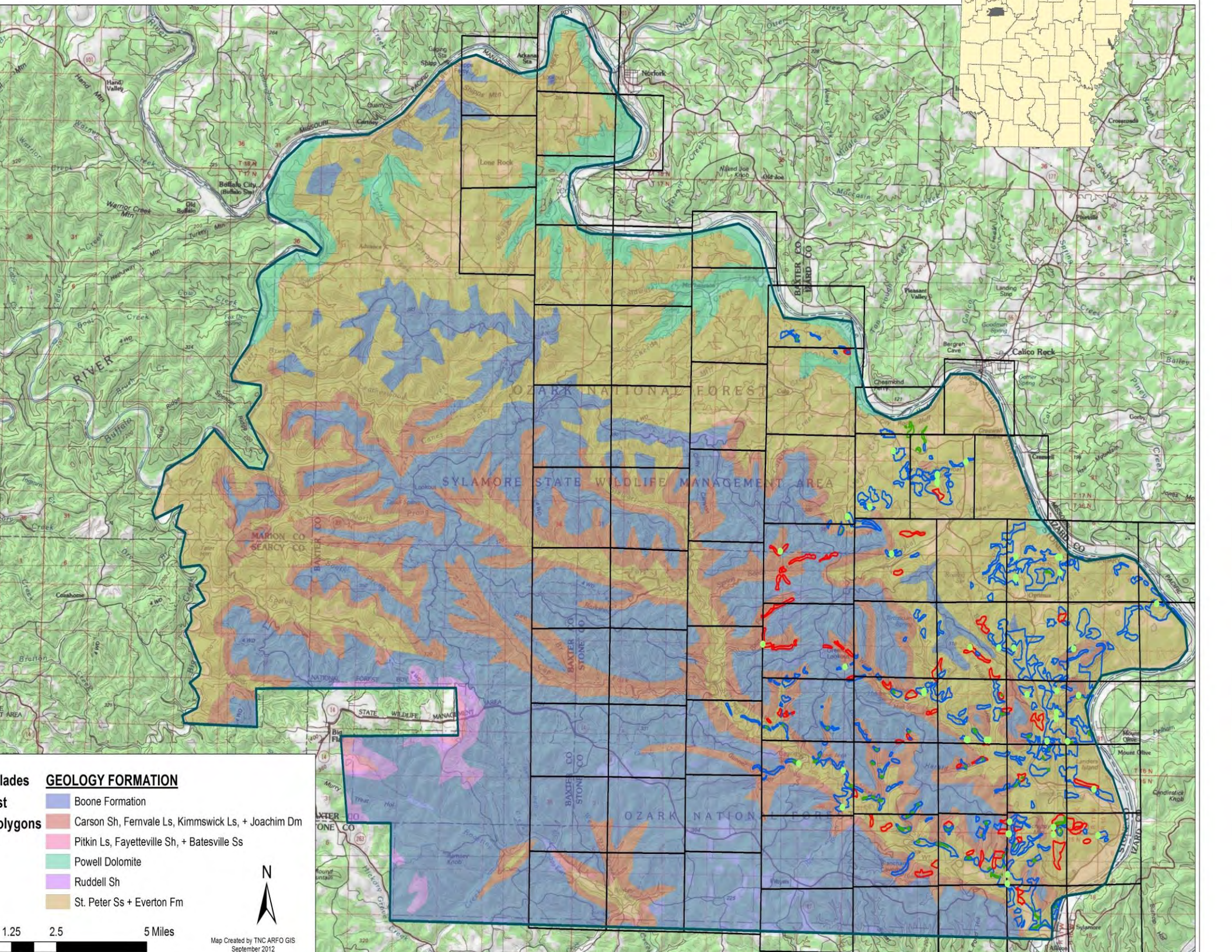
# Description

- Small light spots
- Dark bands across neck
- 8-14 inches in length
- Sexually dimorphic
  - Males most colorful during breeding season
  - Females with eggs will have red spots or bars on their necks



# Status & Concerns

- Species is considered rare by ANHC
- Species of greatest conservation need by the Wildlife Conservation Strategy Group
- Habitat degradation is biggest concern
- Fire suppression has allowed encroachment of cedars which is shading their open habitat
- Overzealous collection of species for the pet trade



**Legend** **GEOLOGY FORMATION**

- Boone Formation
- Carson Sh, Fernvale Ls, Kimmswick Ls, + Joachim Dm
- Pitkin Ls, Fayetteville Sh, + Batesville Ss
- Powell Dolomite
- Ruddell Sh
- St. Peter Ss + Everton Fm

1.25 2.5 5 Miles



Map Created by TNC ARFO GIS  
September 2012



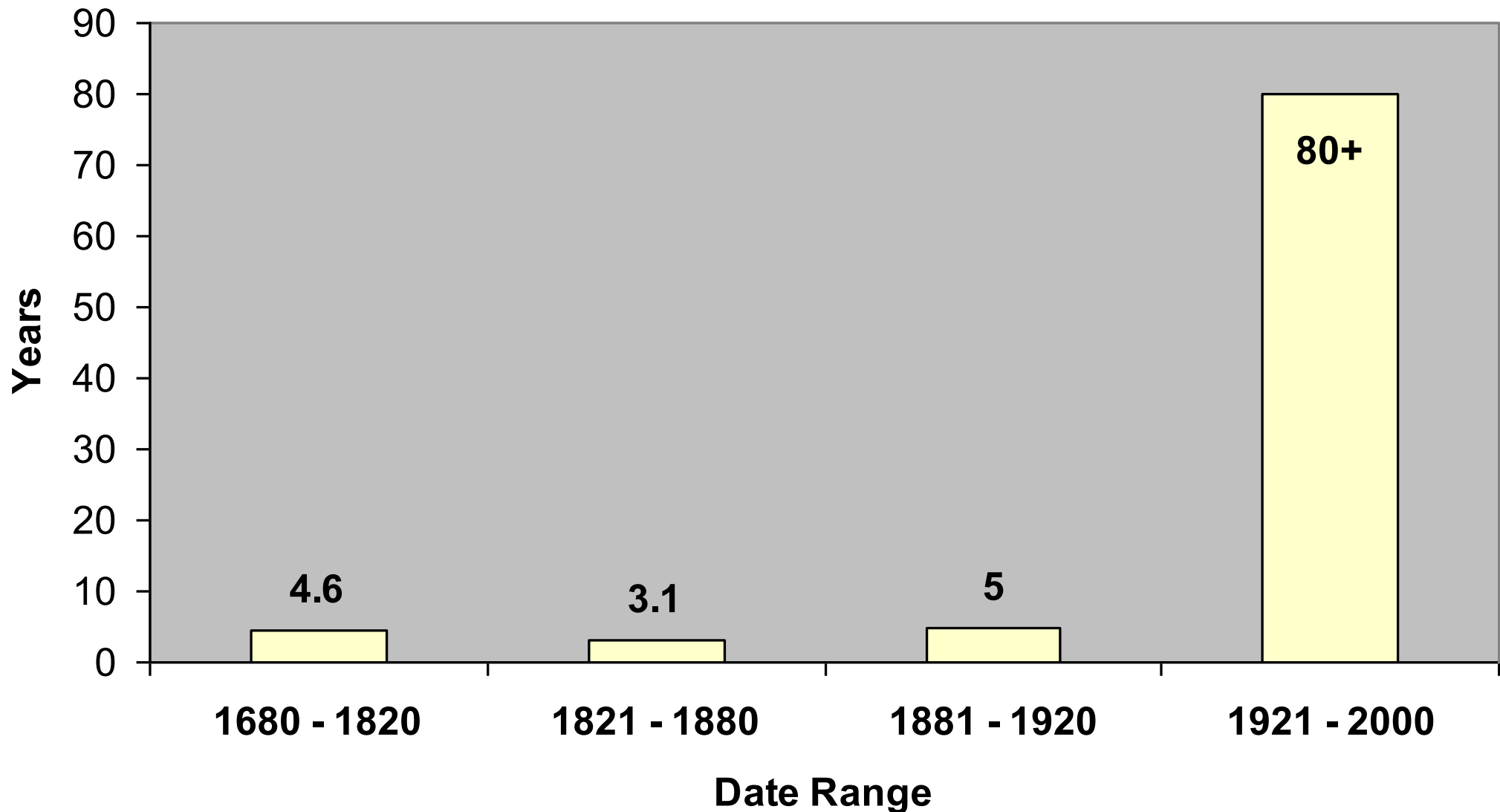
*“The status quo is going to lose.”*



*Fire history of oak–pine forests in the Lower  
Boston Mountains, Arkansas, USA  
Guyette and Spetich, 2003*

**Fire Return Interval**

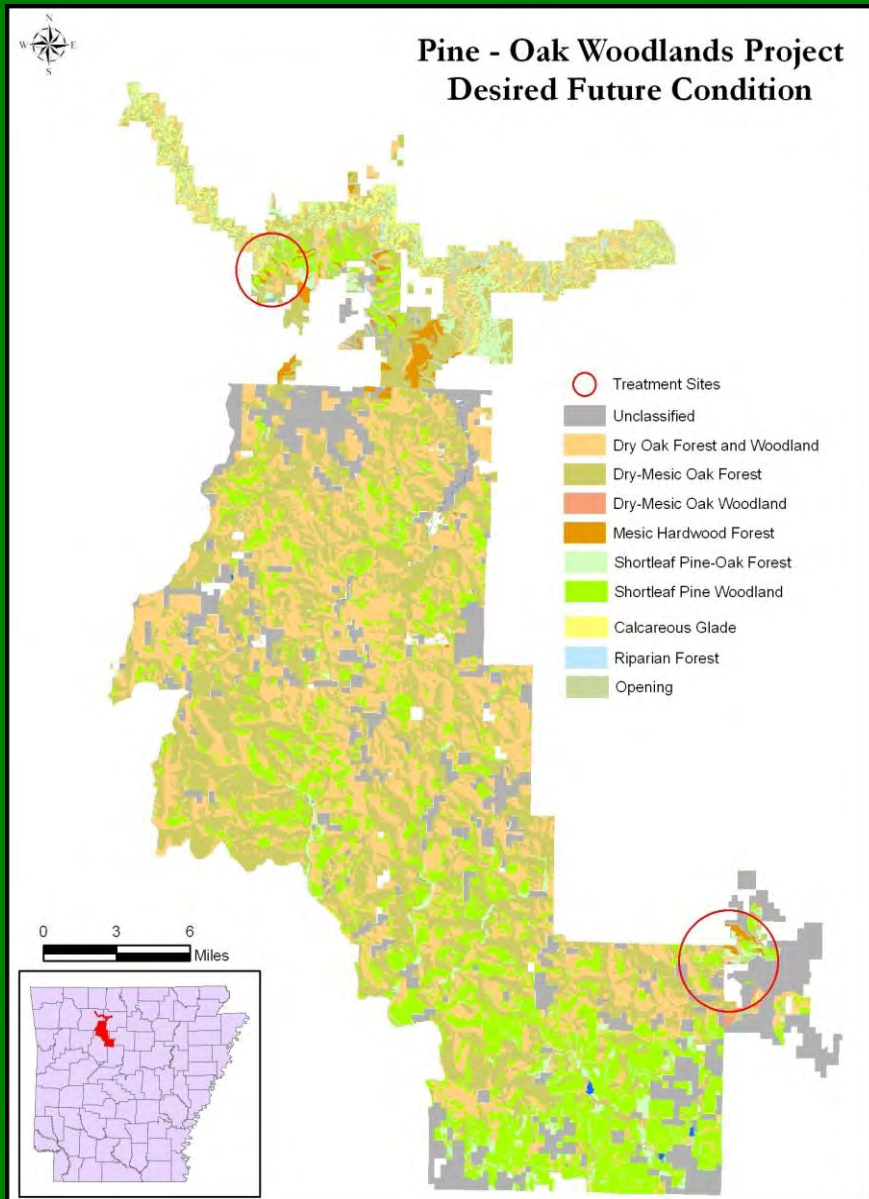
*(Guyette and Spetich, 2003)*





# Gene Rush and Gulf Mountain Wildlife Management Areas

Doris Duke – Arkansas Project Area



- 320,000 acre project area
- Includes (portions of):
  - Buffalo National River
  - Gene Rush WMA
  - Ozark National Forest
  - Scott Henderson Gulf Mountain WMA

# Upland Hardwood Forests and Related Communities of the Arkansas Ozarks in the Early 19<sup>th</sup> Century

Thomas L. Foti (2001)

in

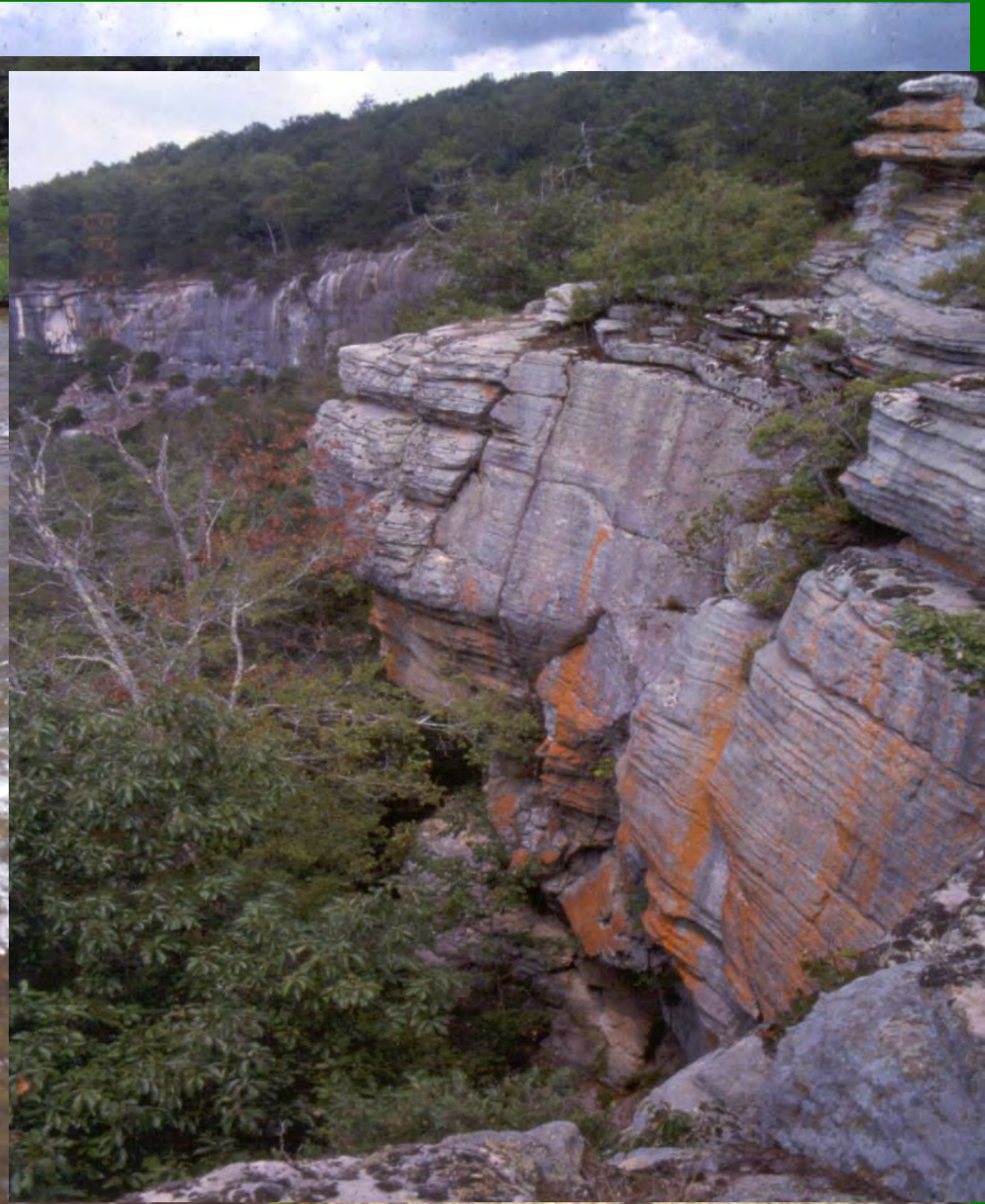
Upland Oak Ecology Symposium:  
History, Current Conditions, and Sustainability

***Ozark Mountains***  
***44 - 78 Trees/Acre***

***1.5M Acres***  
***Woodlands***



*Historically Fire Burned at Landscape Scale!!*



# Workshop 1

(Nov 07)

landscape-scale  
ecological models  
collaborative goals

# Workshop 2

(Sep 08)

spatially-explicit  
desired future  
conditions, restoration  
priorities, and

strategies

# Workshop 4

(May 09)

implementation capacity  
being adaptive

# Workshop 3

(Nov 09)

Identify top barriers  
collaborative priorities,  
responsibilities, schedules  
make tangible progress in  
one or more priority  
actions

# Multi-Level Education Campaign

## Media Strategy is critical!

- Complete Media Kit (CD, video, fire articles)
- Getting Media to Rx Burns
- Developing Brochures at Demonstration Sites
- Developing “Auto Tour” of particular sites
- Developing Magazine Articles with Partners

**Goal: Solidify broad-based public support to increased public acceptance of landscape-scale fire restoration projects**



**Current conditions**

**(did I set the brake?)**

**Partnerships**

**Fire history**

**Models**

**Monitoring**

**How to put it all together??**

**Fire Learning Network**



# Woodland Ecosystem Restoration



# Community Education

## Workshop # 3

### Fire and the Ozark Highlands

Throughout history, fire has played a significant role in shaping the plant and animal communities of the Ozark Highlands. Several thousand years prior to European settlement, Native American practices included setting frequent woodland fires for a variety of purposes. Early settlers of the 1800's continued this process, maintaining open, park-like, oak-hickory and pine woodlands with a rich mix of wildflowers and grasses.

Approximately 80-100 years ago, these woodlands were heavily cut and the fire regime was drastically altered. Long-term fire suppression changed the open woodlands, which had about 45-76 trees per acre, to the dense forests of today containing about 300 to 1000 trees per acre.



Current Condition

### Why Restore the Forest?

While oak trees do not survive or reproduce well in shade, many other trees such as maple, ash, elm, and black gum thrive. Drought and native insects, like the red oak borer have historically helped to produce and maintain fire-dependant oak and pine woodlands. In dense forests, competition among plants for resources, such as water, nutrients, and sunlight is fierce. This competition has resulted in more than 300,000 acres of stressed and unhealthy trees in the Ozark National Forest, resulting in a greater vulnerability to insect attack, drought, and premature death. These natural agents of change have an even more catastrophic affect in dense forests.



Desired Condition

### Ecosystem Restoration

The Bayou Ranger District, in collaboration with multiple partners, is embarking on a large scale, long-term project to restore the fire-dependant ecosystems of the Ozark National Forest. The desired future condition of the restored areas will be much like the landscape encountered by the early inhabitants and documented in the Government Land Office survey records from the 1830's.



Diversity in Woodland Ecosystems

Black-eyed Susans

### Urban Interface

Changes in structure and species composition not only have a negative effect on the forest ecosystem, but also on the surrounding community and its dependence on forest resources. The increased fuel from the dense forest and dead trees poses a significant wildfire risk and threatens human lives and private property in or near the National Forest. The potential for these high intensity wildfires also poses a threat to the municipal water sources, thereby affecting the population at large.



Prescribed Burn

### Wildlife and Forest Health

Over time, as oaks die from old age, shade tolerant trees such as maple and black gum will dominate the forest and impact the flora and fauna that have evolved with the system. Restoring the forest structure and prescribed fire use will allow for a more open canopy creating conditions favorable to oak and pine recruitment and an abundant and diverse herbaceous understory. This will subsequently attract wildlife such as deer, elk, and turkey.

## Collaborative Partnerships For Successful Projects in Woodland Ecosystem Restoration

Collaborative partnerships based on shared visions and common goals of private property owners, individuals, state and federal agencies, and non-governmental organizations are vital to the success of the Bayou Ranger District Woodland Ecosystem Restoration Project.



Published by The Nature Conservancy in cooperation with the USDA Forest Service - 2003

under sales, public firewood harvests, and contract thinning in wildland urban interface and wildlife stand improvement areas. These treatments will provide goods and services to the public while achieving ecosystem restoration goals.

**Monitoring** - A comprehensive monitoring program is in use to document ecosystem responses to prescribed fire and timber cutting treatments. Monitoring includes the overstory, understorey, and herbaceous plant community, fuel loads and fire effects on soils and vegetation, breeding and wintering bird community, white-tailed deer, and stream water quality.

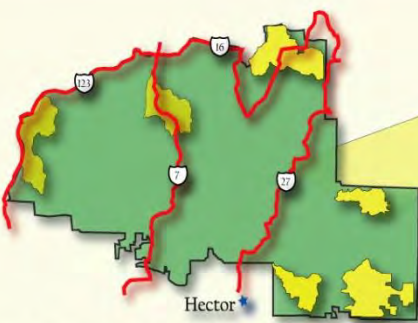
Restoring Forest and Woodland Ecosystem Health in the Wildland/Urban Interface Arkansas



Throughout the Ozark Mountains and maintenance



Decades of fire suppression result in dense forests with 300 to 1,000 trees per acre. Hazardous fuels accumulate and trees are vulnerable to drought, catastrophic wildland fires, and insect attacks.



Bayou Ranger District Office, 12000 SR 27, Hector, AR  
Phone: (479) 284-3150



*Liatris  
pycnostachya*



*Castilleja  
coccinea*



*Mimosa  
quadrivalvis  
ssp. nuttallii*



*Echinacea  
pallida*



*Silphium laciniatum*



*Asclepias tuberosa*



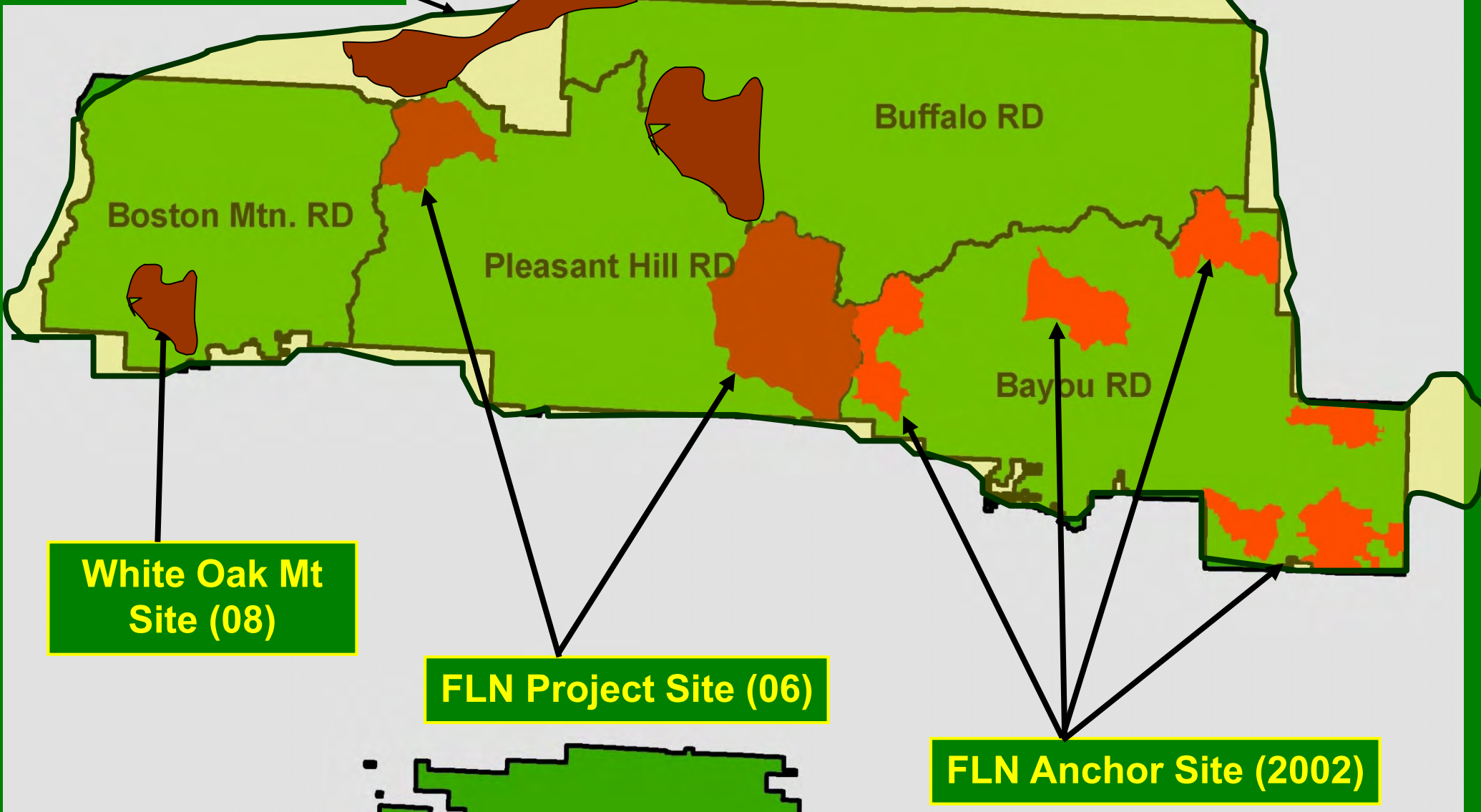
Ozark-St. Francis National  
Forest

1,056,813 Acres

The Nature Conservancy  
*Boston Mountains Portfolio Site*

1,447,993 Acres

**Buffalo River NPS  
Site (08)**



**White Oak Mt  
Site (08)**

**FLN Project Site (06)**

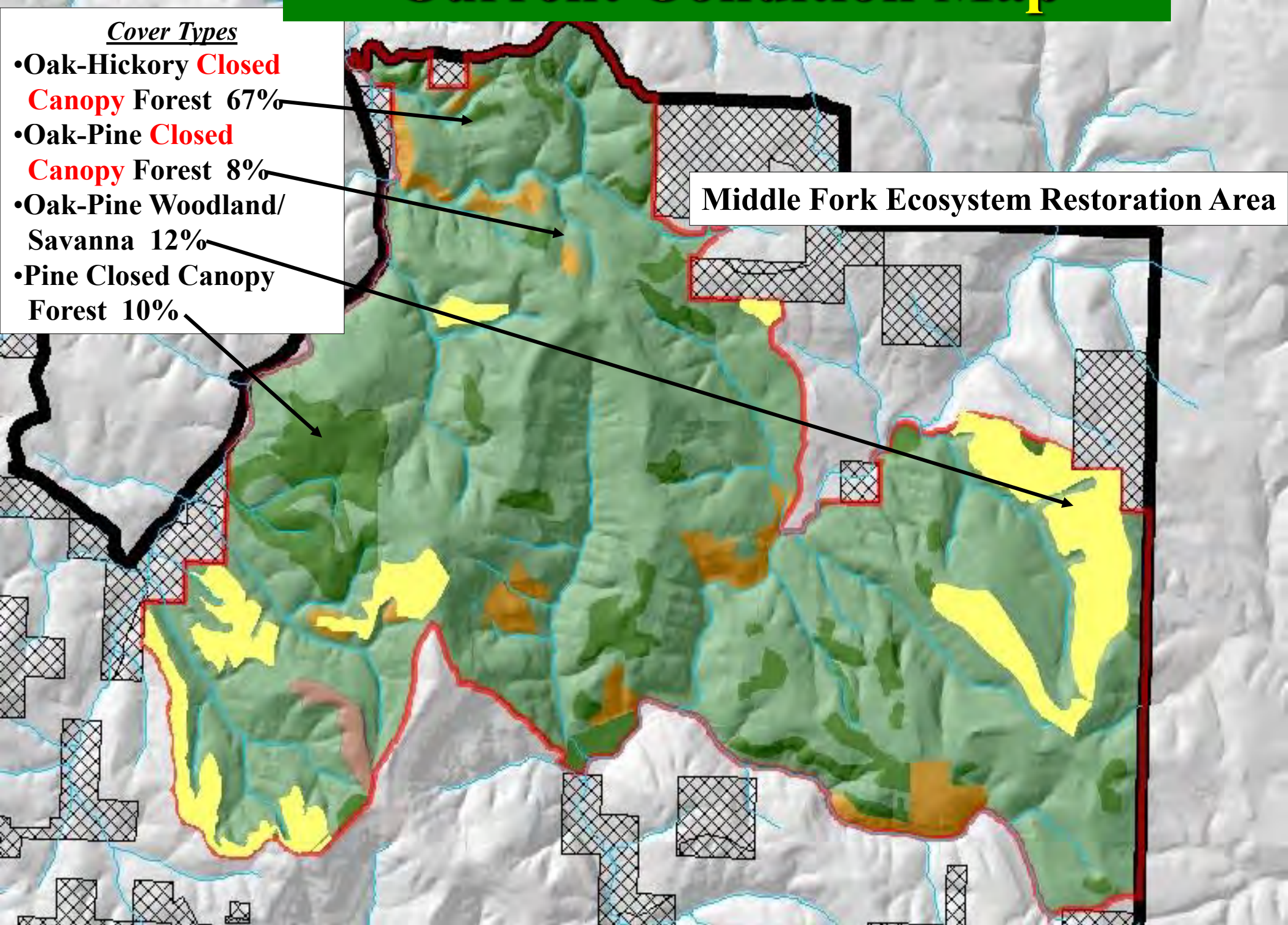
**FLN Anchor Site (2002)**

# Current Condition Map

## Cover Types

- Oak-Hickory **Closed Canopy** Forest 67%
- Oak-Pine **Closed Canopy** Forest 8%
- Oak-Pine Woodland/  
Savanna 12%
- Pine Closed Canopy  
Forest 10%

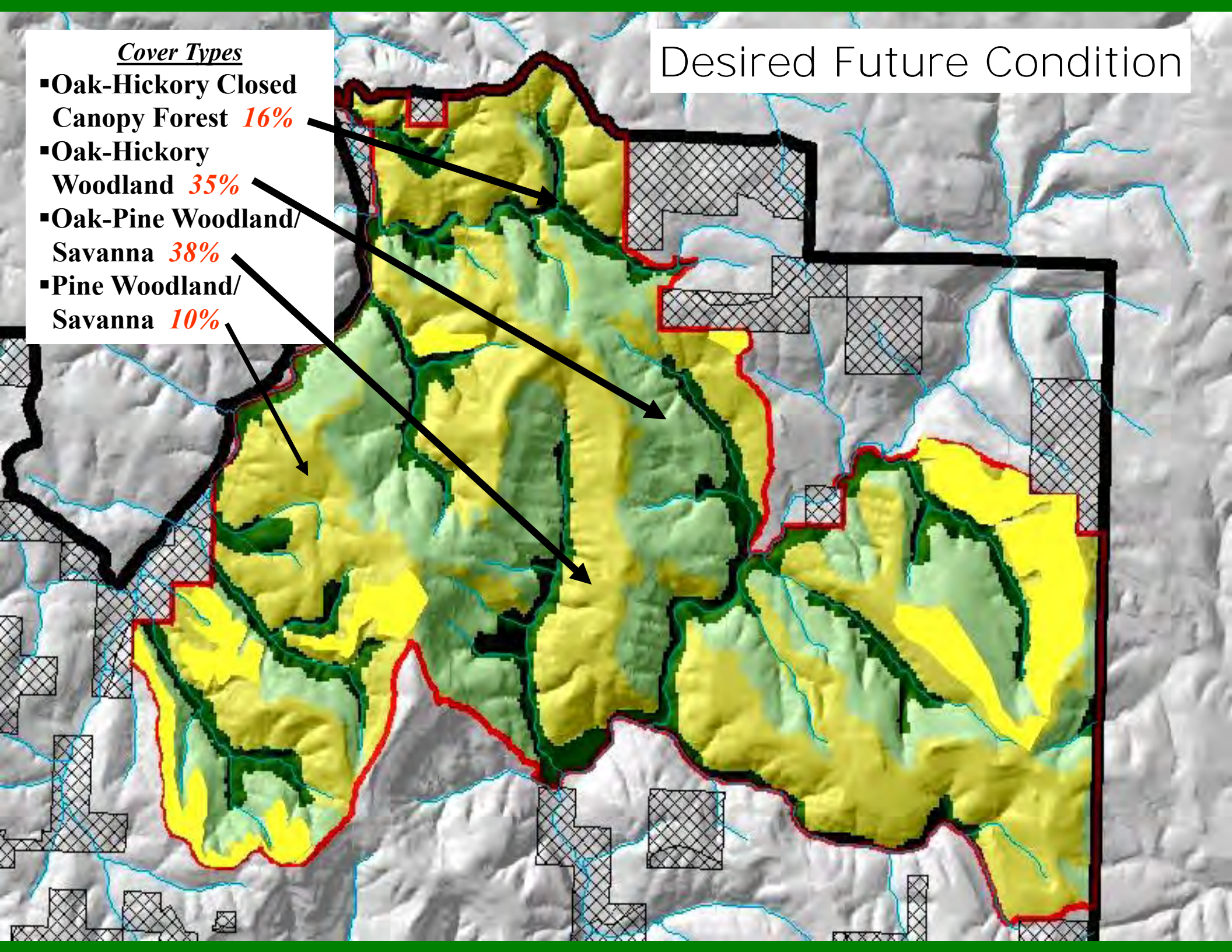
Middle Fork Ecosystem Restoration Area



# Desired Future Condition

## Cover Types

- Oak-Hickory Closed Canopy Forest **16%**
- Oak-Hickory Woodland **35%**
- Oak-Pine Woodland/Savanna **38%**
- Pine Woodland/Savanna **10%**

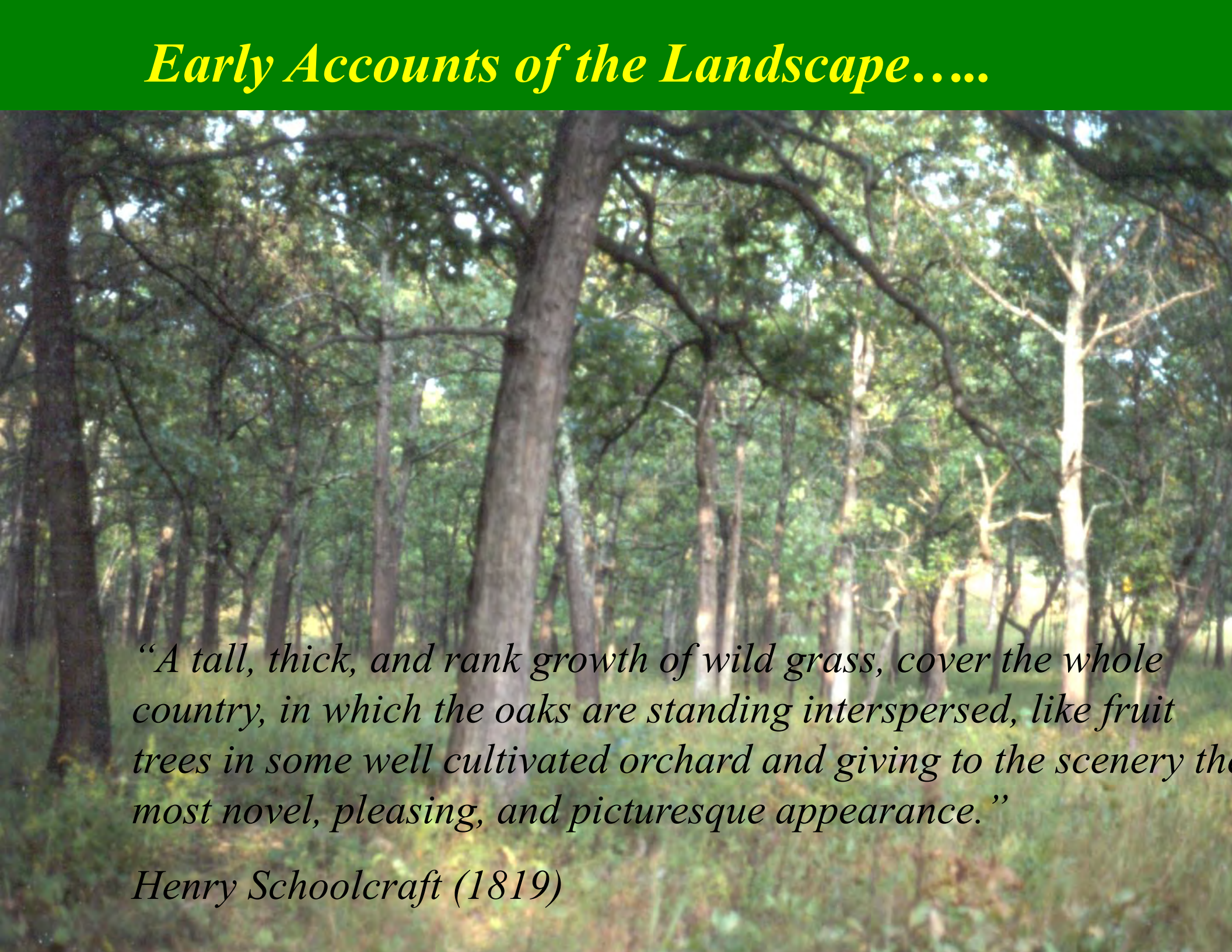


# Discussion Topics



- **A Quick Review of Landscape and Historical Significance of Fire**
- **Project Design and Fire Learning Network**
- **Holistic Monitoring Results and Implications for Management**

## *Early Accounts of the Landscape.....*



*“A tall, thick, and rank growth of wild grass, cover the whole country, in which the oaks are standing interspersed, like fruit trees in some well cultivated orchard and giving to the scenery the most novel, pleasing, and picturesque appearance.”*

*Henry Schoolcraft (1819)*



# *“Are We Losing the Battle??”*

## Shrub Development

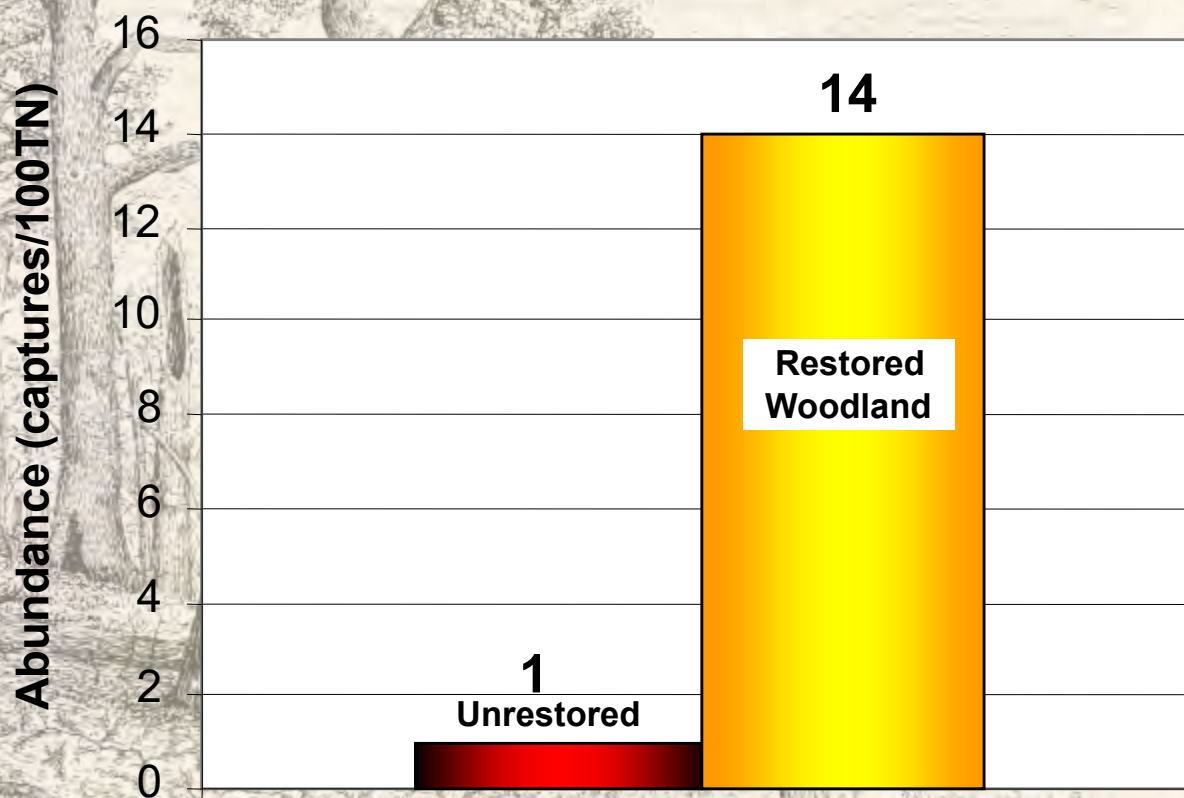


# Objectives-Based Monitoring Program

## *Woodland Ecosystem Restoration Project*



### *Relative Abundance of Small Mammals*

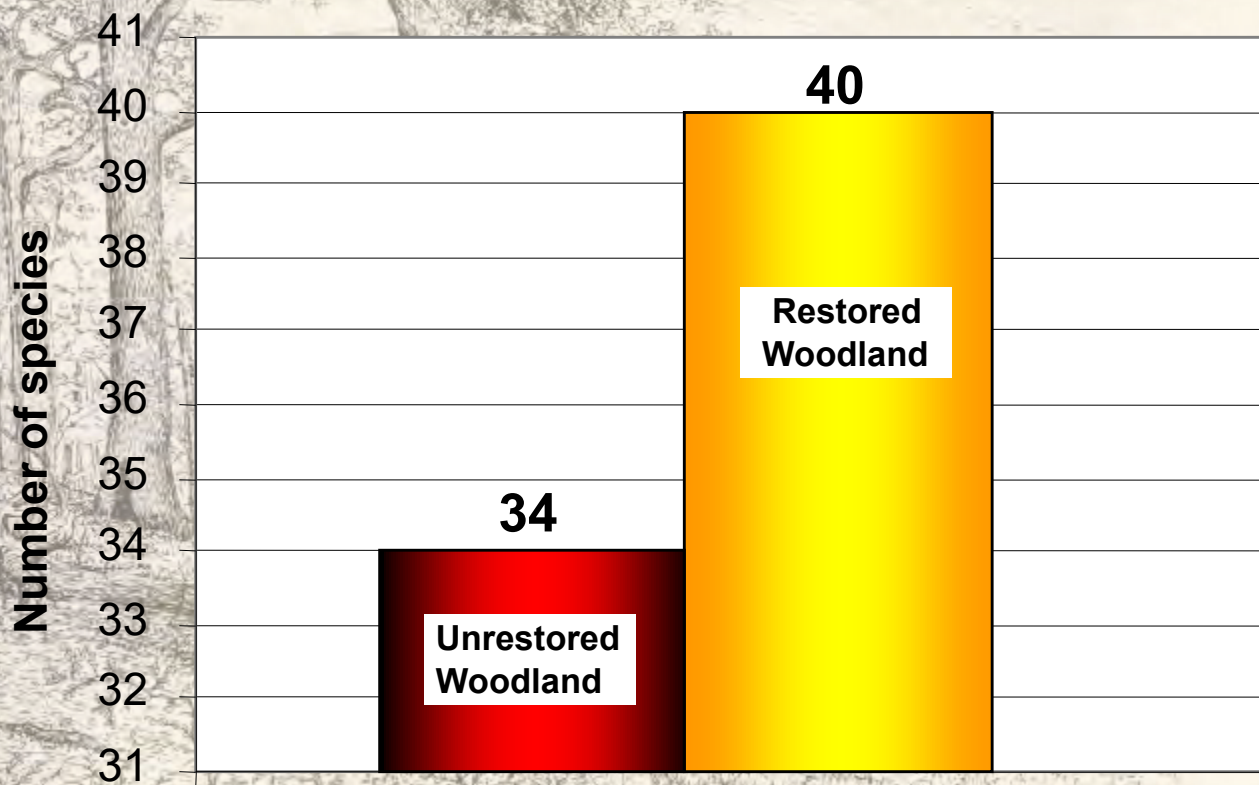


# Objectives-Based Monitoring Program

## *Woodland Ecosystem Restoration Project*

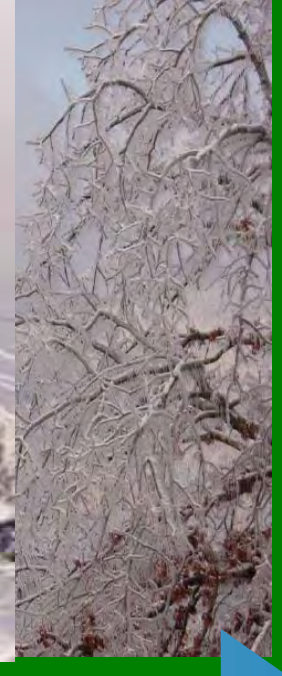
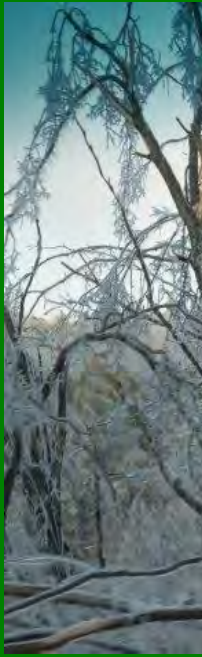


### *Avian Species Richness*

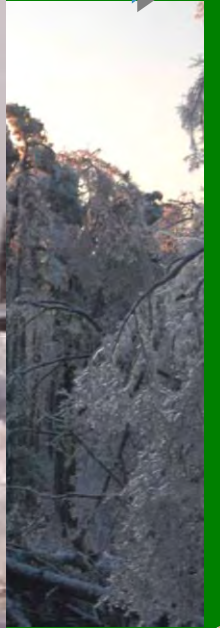


Storm Event

July 26 - 28

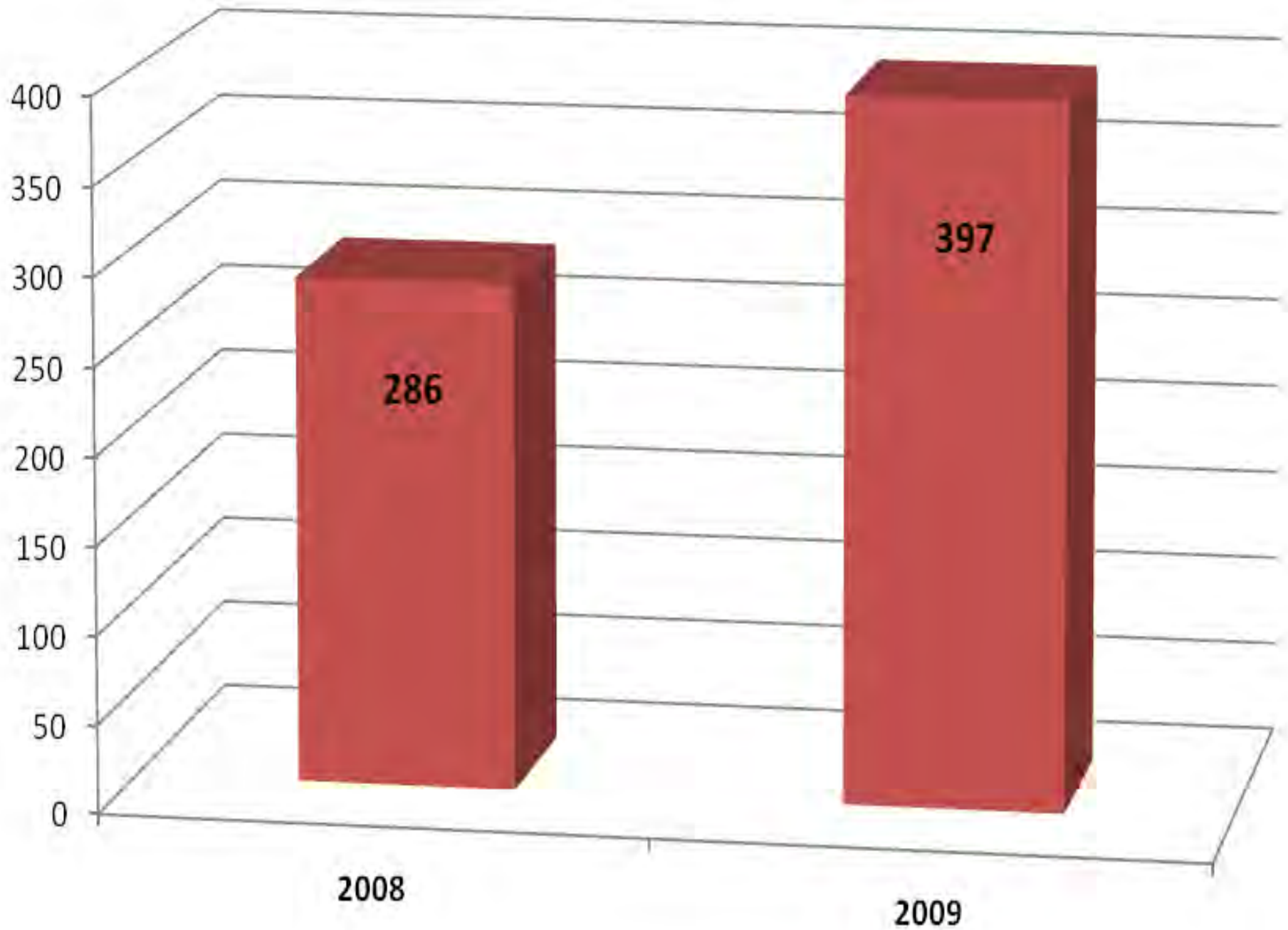


Today



# Tons of Fuel/Acre

## 40% Increase in Fuel Loading





Some days we just get stuck, and bogged down.  
Some days all you can do is smile and wait for someone to kindly  
remove your butt from the hole you find it wedged into.



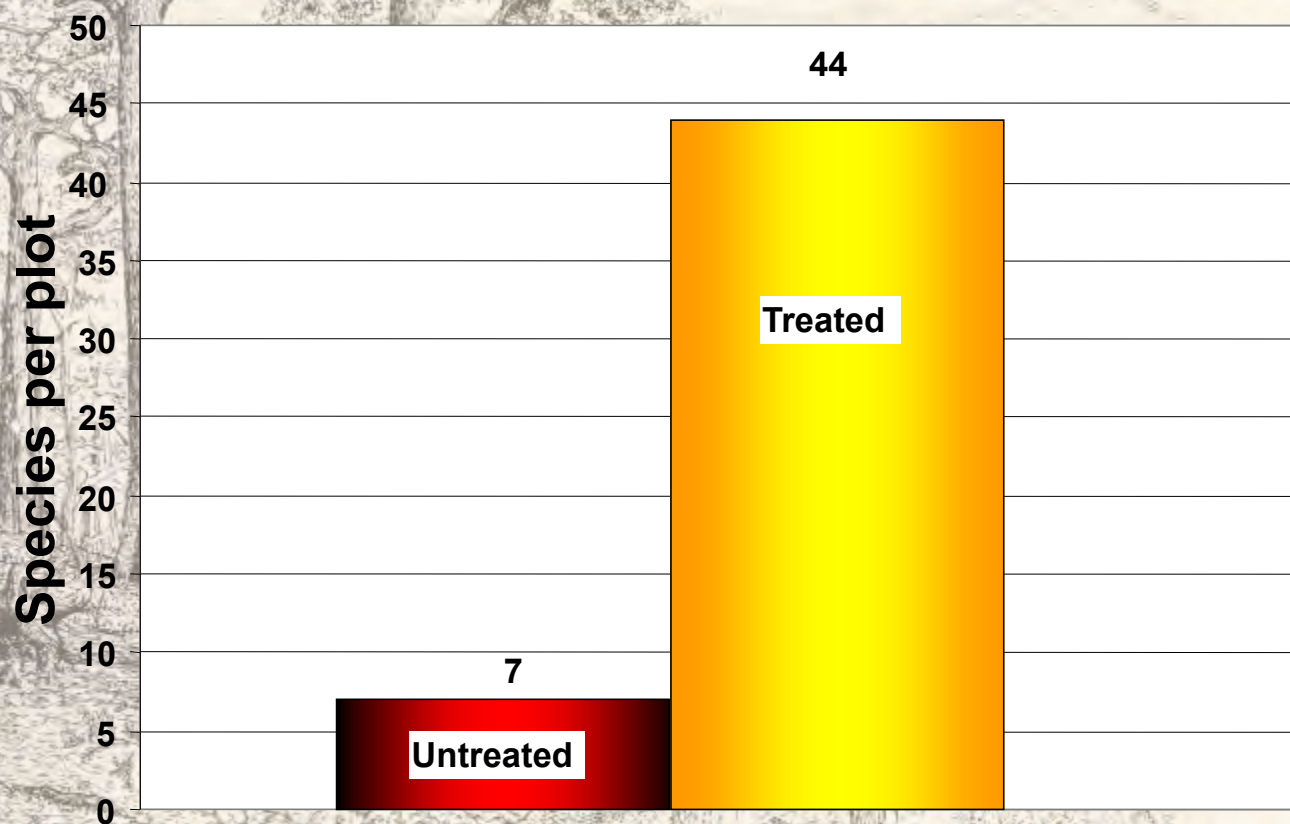
Fredrickson

# Objectives-Based Monitoring Program

## *Woodland Ecosystem Restoration Project*



### *Herbaceous Species Density*



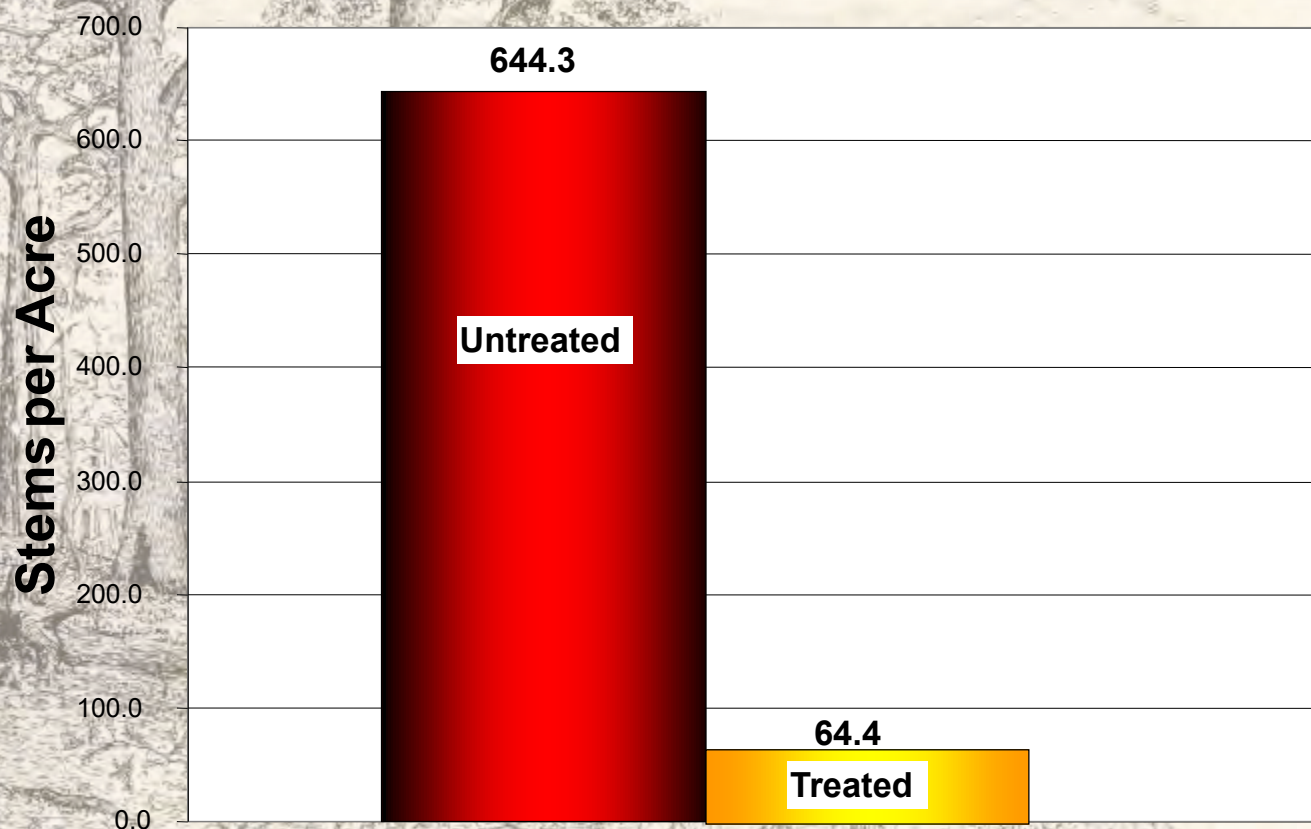


# Objectives-Based Monitoring Program

## *Woodland Ecosystem Restoration Project*



### *Shrub Density*



# *“Are We Using Tools Correctly??”*

## 1. Timber Treatments

- Not cut so heavy first entry
- Open canopy = Increase in sunlight = Shrub and forb growth
- Changes primary carrier of FIRE!

## 2. Mid-Story Treatments

- May Treat stumps with Herbicide
- **Monitor for Grass establishment takes a couple of years to get established!!**



# Background For Restoring The Interior Highlands

*“The Interior Highlands evolved under 12,000 years of natural and human induced fires”*

-Tom Foti, Arkansas Natural Heritage Commission



# *Ozark Mountain - Oak Pine Woodlands*



# *Ouachita Mountain - Shortleaf Pine Woodlands*



# Fire history of oak–pine forests in the Lower Boston Mountains, Arkansas, USA

*R.P. Guyette and M.A. Spetich, 2003*



# *Surface Fires*

*Mixed Severity /Low Intensity*



Photo: FM9 Head Fire by McRee Anderson



# Restored Oak and Pine Woodlands



Photo: Gene Rush WMA by McRee Anderson

# *European Occupation and Fire Suppression*

## **Unhealthy Forest**

**FRCC 3**

**Densification – Shade Tolerant species**

**Herbaceous Understory = 20-40 species/acre**

**Tree Density = 300+ tree/acre**



*FLN was the key catalyst !*

**Field Trips**

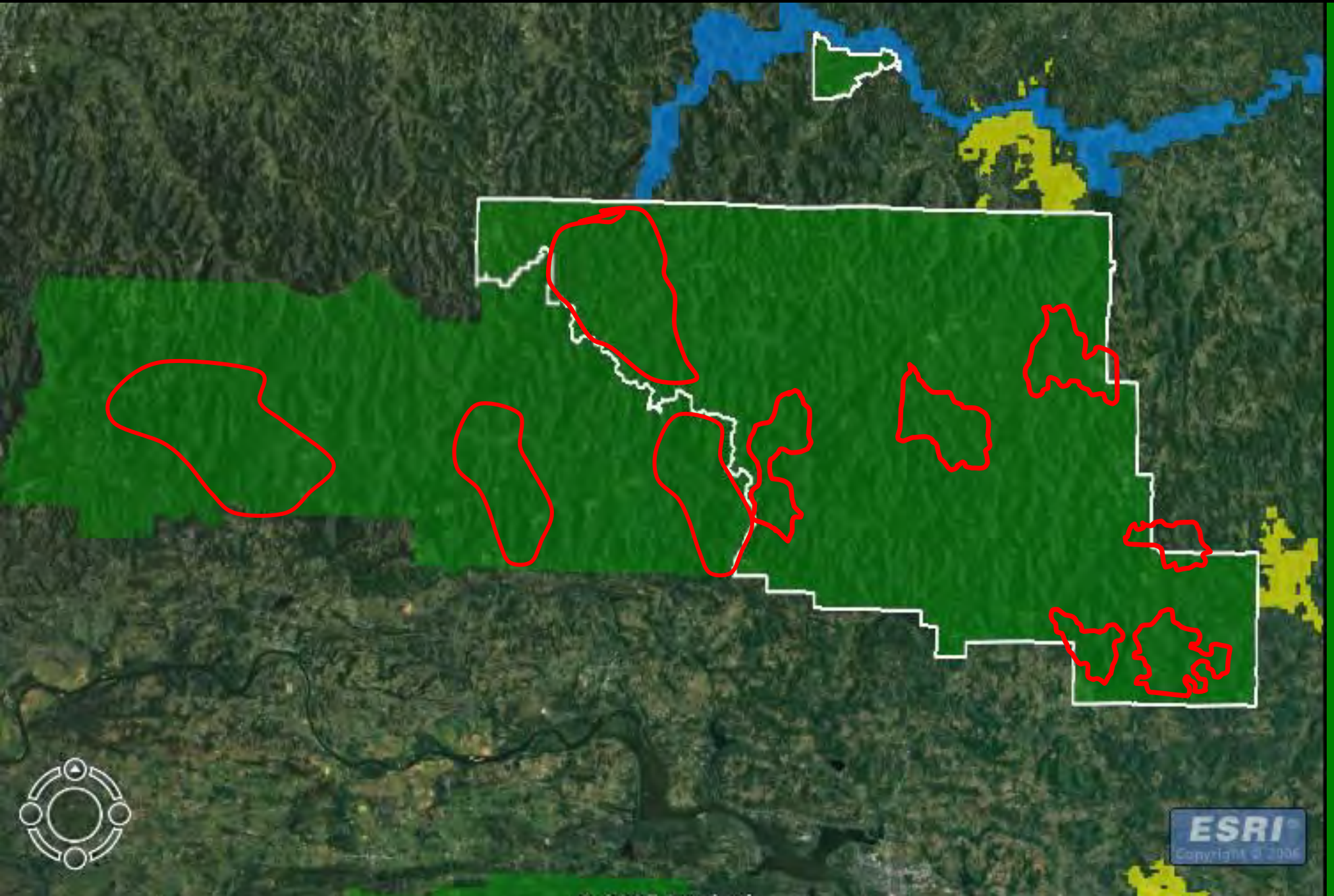
**Science**

**Common Project Vision**

**Coop- proposals**



*Restoration Areas = 280,000 acres*  
*10 YR Goal = 60,000 acres of woodlands*



# ***THIS YEAR***

## ***Annual Targets -- The Ecological Math?***

**3.6M acres = Short Interval Fire Regimes**

**FY 2000**

**FY 2011**

**Ozark 2,000**

**72,000 acres**

**Ouachita 7,000**

**120,000 acres**

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**9,000**

**192,000**

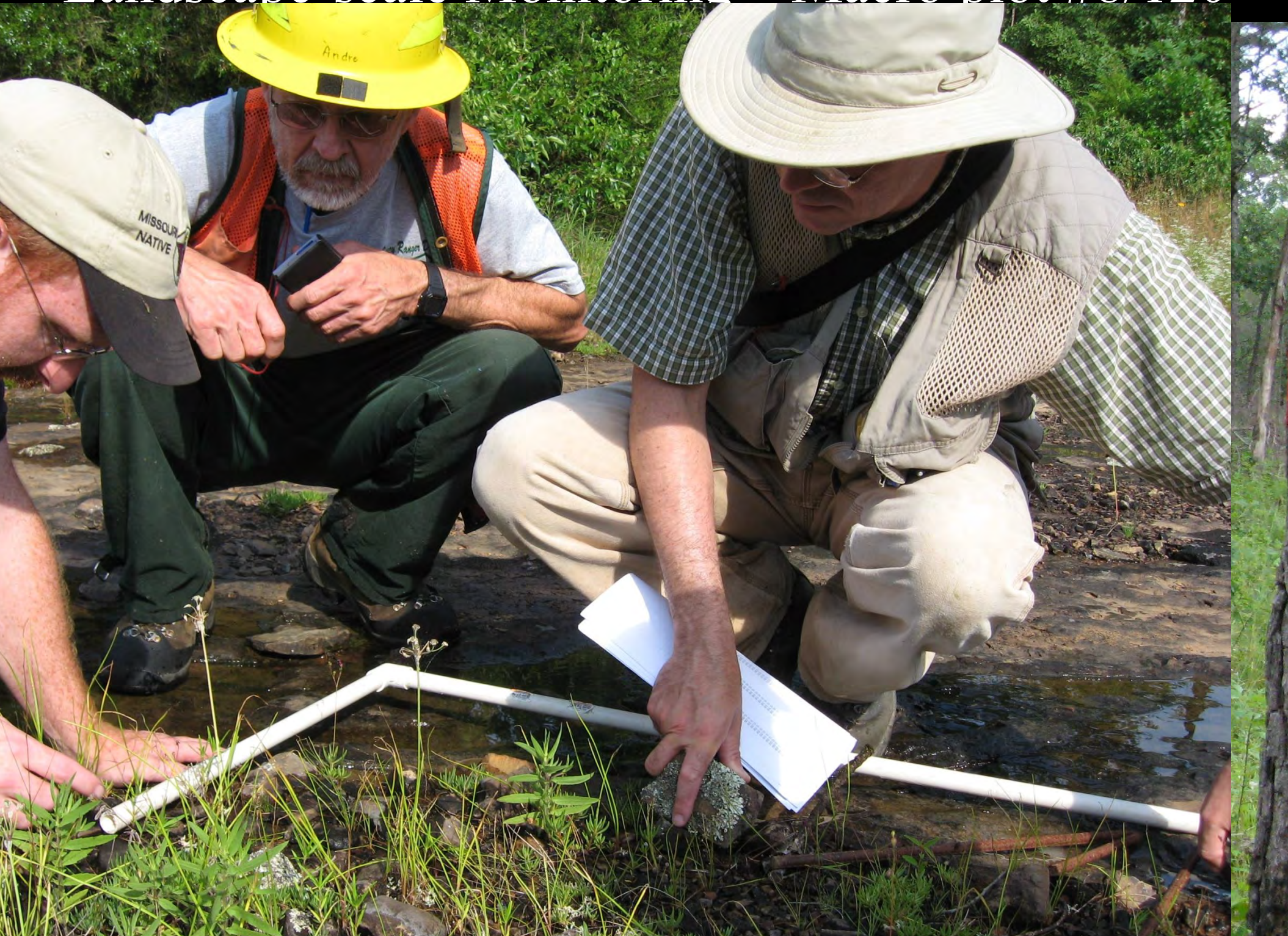
**Future???**

**The Ozark-St. Francis - 250,000 acres**

**The Ouachita NF - 400,000 acres**

**600,000+ acres a year need burning**

# Landscape-scale Monitoring Macro plot #8/120



# *Post Fire Effects – 3 burns*





# *“Monitoring Allows Project Teams To...”*

**Quantify Treatment Results**

**Adjust Fire Regime**

**Adjust Timber Harvest**

**Adjust Mid Story Treatments**





# Management

Remove eastern red cedar  
Burn – include, don't exclude  
Thin – woodlands

*restored sandstone glade  
woodland*





# Questions ?

Photo: Oak Woodlands, Bayou Ranger District, John Andre

# Shortleaf Pine Initiative

SLP Center Created @ UT  
Range-wide Conservation Plan Published



# Project overview

- Collaborative area – 451,058 acres
- Total area of the landscape – 344,393 acres
- Total area receiving treatment – 217,892 acres
- First year funding - \$959,000.
- Funding requested for the life of project - \$15,808,746

# *How Adaptive are our Partners?*



# Fire Management Issues!





# Fire Management Issues!



Seven Hollows Hiking Trail

- Length 4.6 miles, 4 hours
- Foot traffic only
- Please follow the trail and keep
- No Pets or Camping

Trailhead: 1/2 mile up road  
Leave your car at the trailhead

**CAUTION**  
WATCH FOR FALLING TREES  
DO NOT HIKE DURING HIGH WINDS

# Private Lands



# Regeneration Issues!

