History and Composition of the Interior Highlands Shortleaf Pine Restoration Initiative

A presentation to the

3rd Biennial Shortleaf Pine Conference

22 September 2015

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Central Hardwoods Joint Venture Coordinator

The “Interior Highlands”

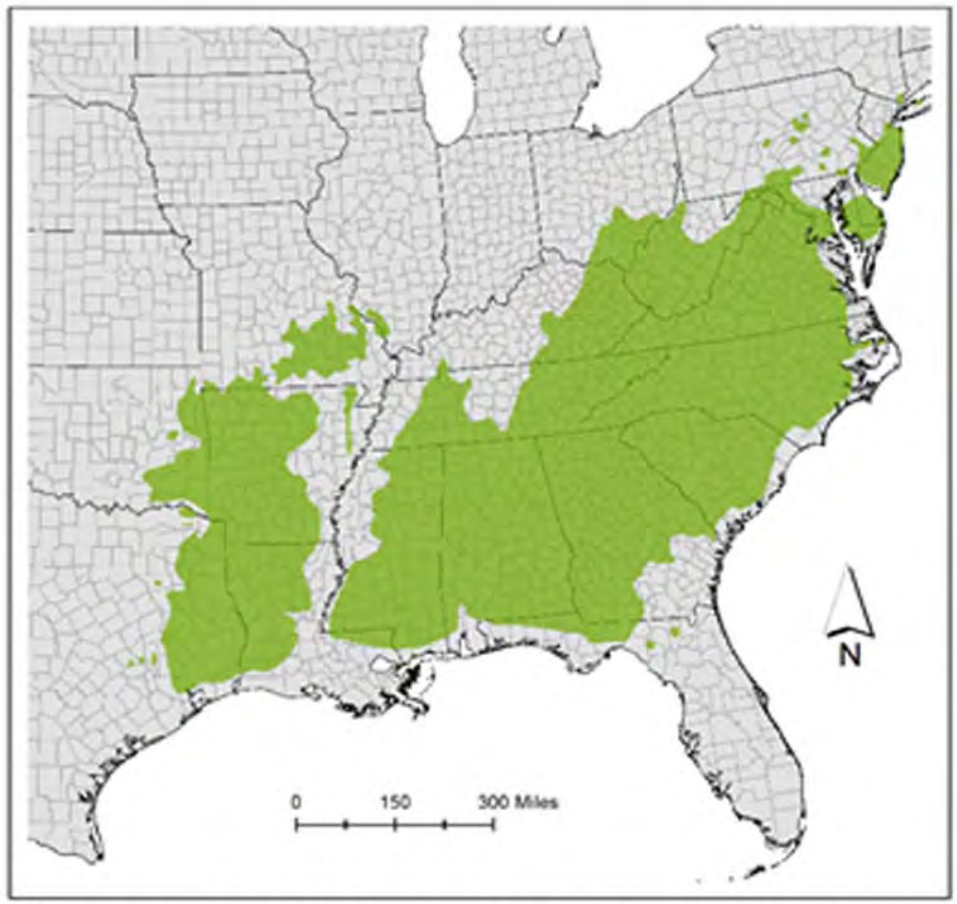
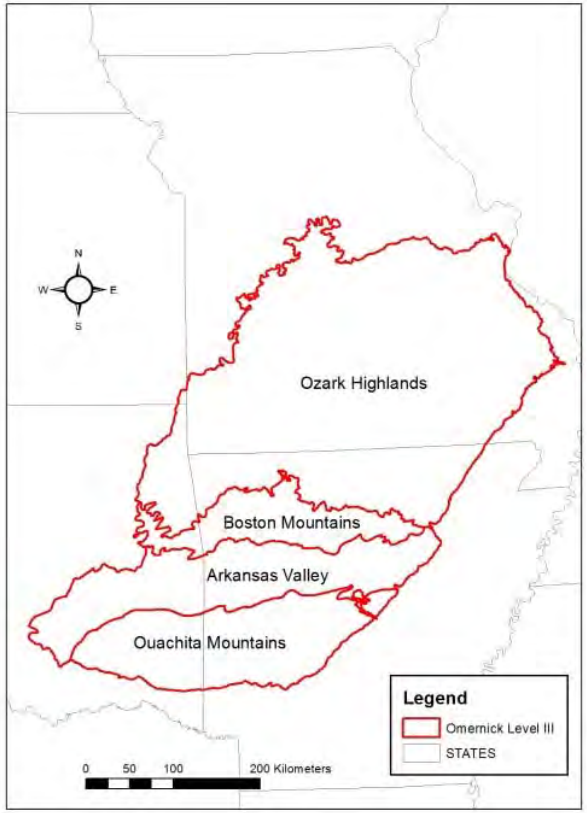
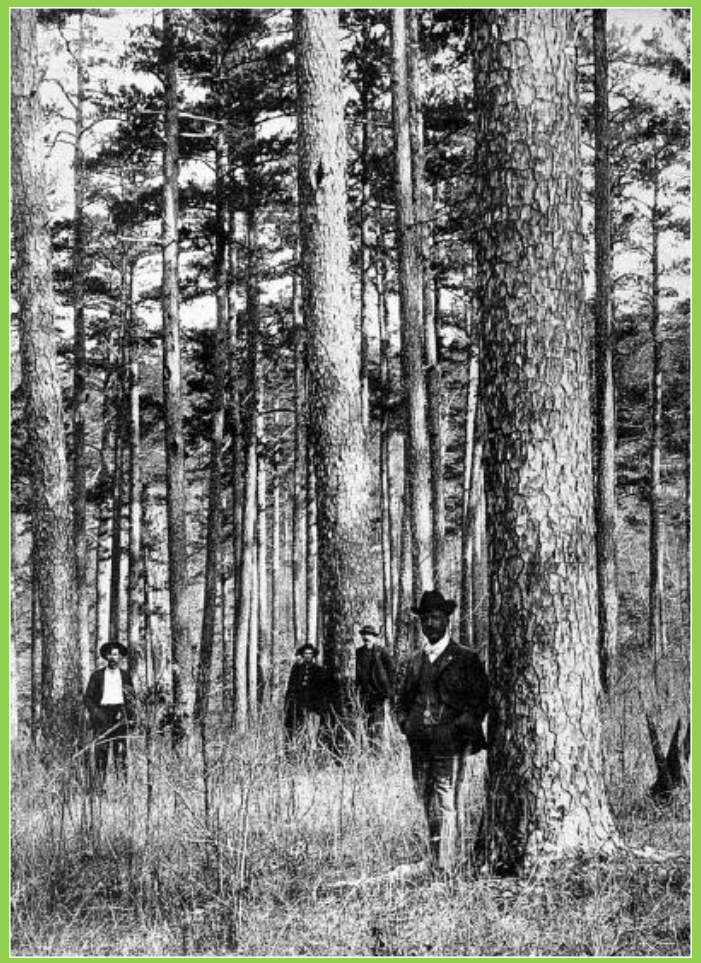
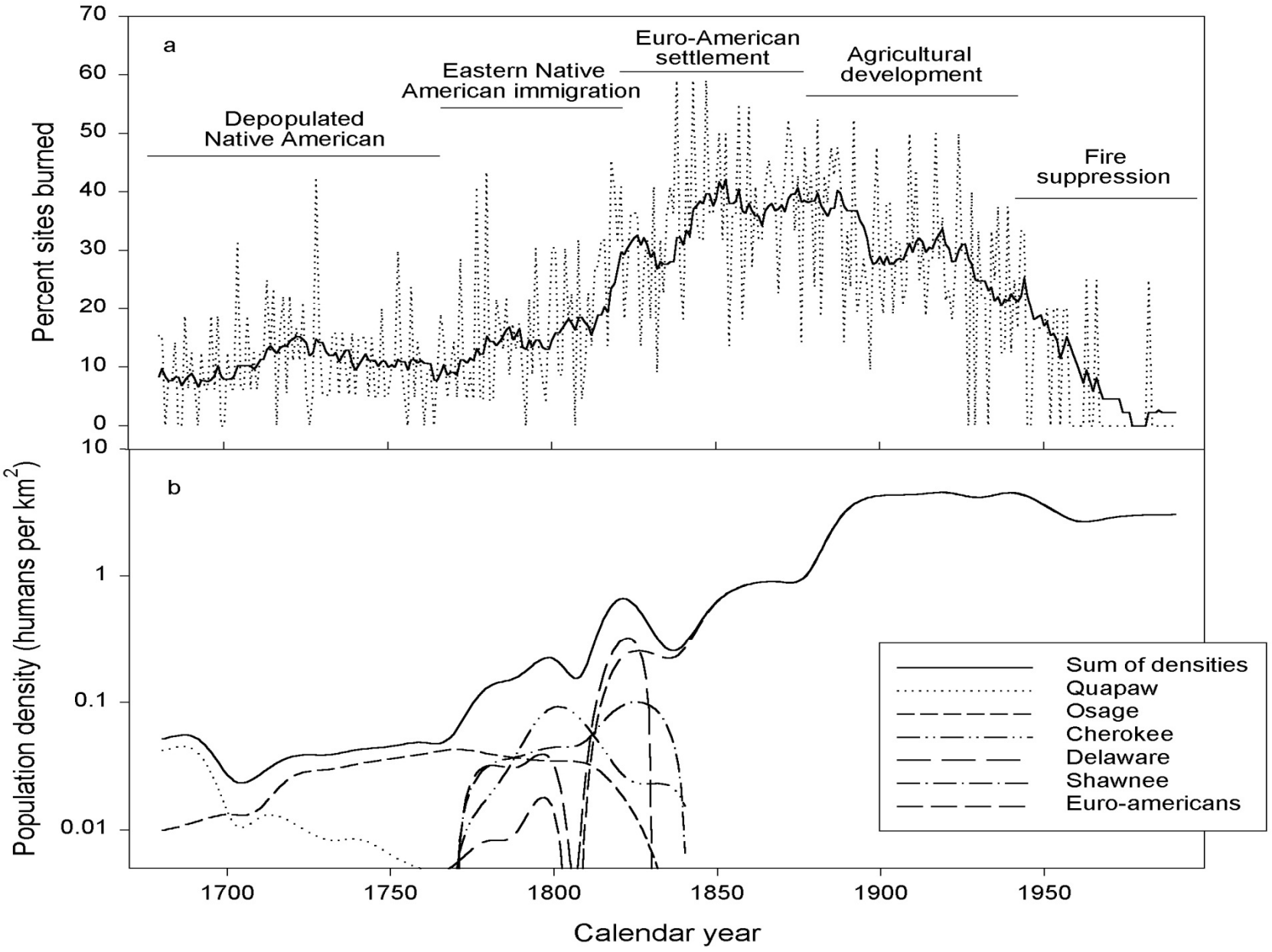


Figure 1. Shortleaf pine range map (Little 1971).

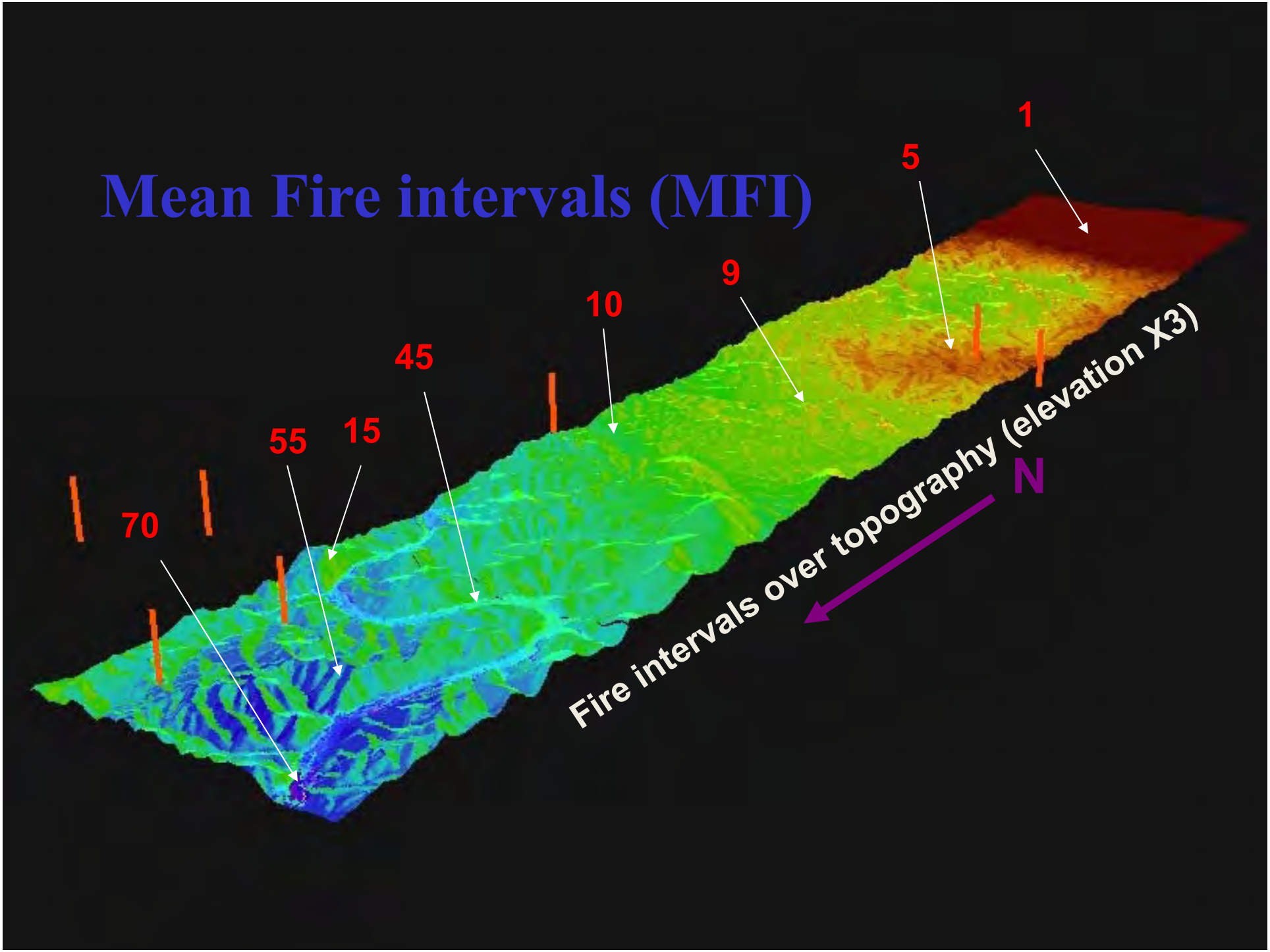




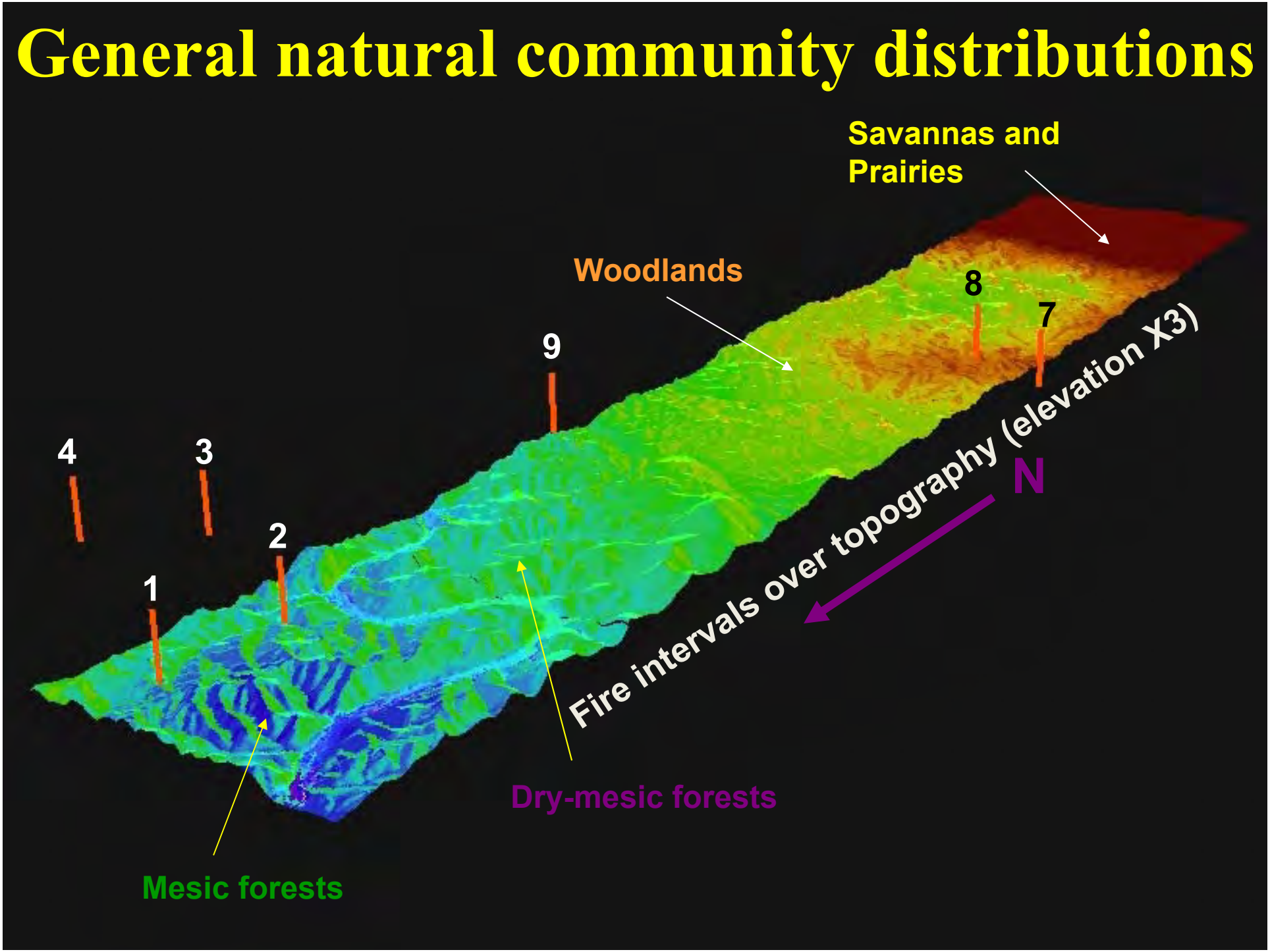


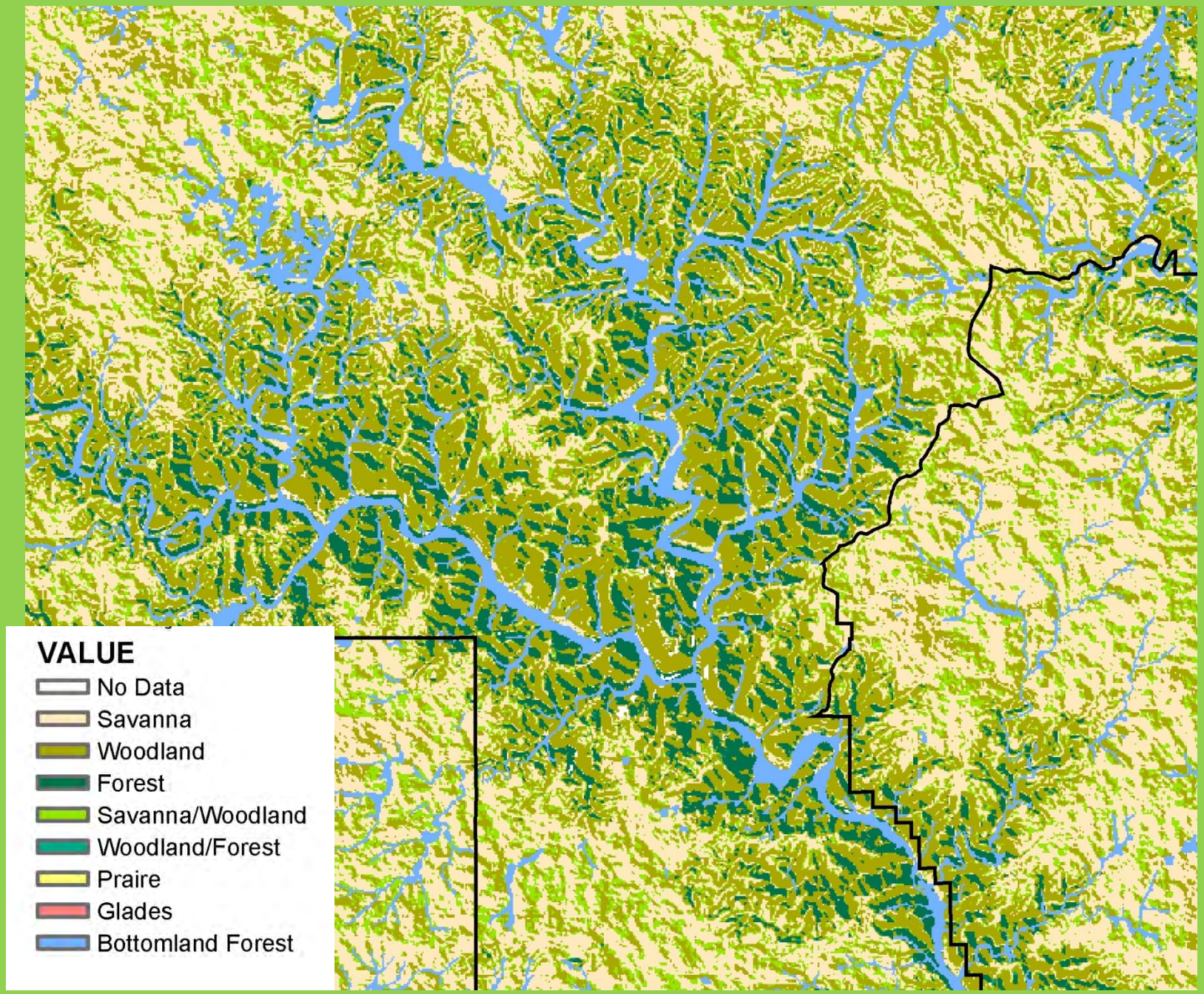
Guyette, R.P., Muzika, R.M., and D.C. Dey. 2002. Dynamics of an anthropogenic fire regime. Ecosystems, 5:472-486.

East/West trending ridges & valleys of the Ouachitas.
Shortleaf pine dominates southern & western exposures
Oaks/hickory dominates steep north slopes & streamsides.


Mean Fire intervals (MFI)
1
5
9
10
45
15
55
70
N
Fire intervals over topography (elevation X3)

General natural community distributions




VALUE
No Data
Savanna
Woodland
Forest
Savanna/Woodland
Woodland/Forest
Praire
Glades
Bottomland Forest


YOU CAN STOP THIS
SHAMEFUL WASTE!
Remember—Only you can
PREVENT FOREST FIRES!

As a result of the great harvest, and later fire were suppression, the species and age composition of the forests are now very different than they were historically.

From: Regime Shifts and Weakened Environmental Gradients in Open Oak and Pine Ecosystems. Brice B. Hanberry, Dan C. Dey, Hong S. He; PLoS ONE 7(7): e41337. doi:10.1371/journal.pone.0041337

"A 160% increase in the Current River Hills subsection was due to replacement of shortleaf pine by black oak and scarlet oak followed initial logging and burning of the pineries."

"Oaks were the dominant genus throughout the Ozark Highlands and although they still are today, there has been a major reduction in their dominance and distribution since the historical surveys, along with loss of open oak ecosystems."

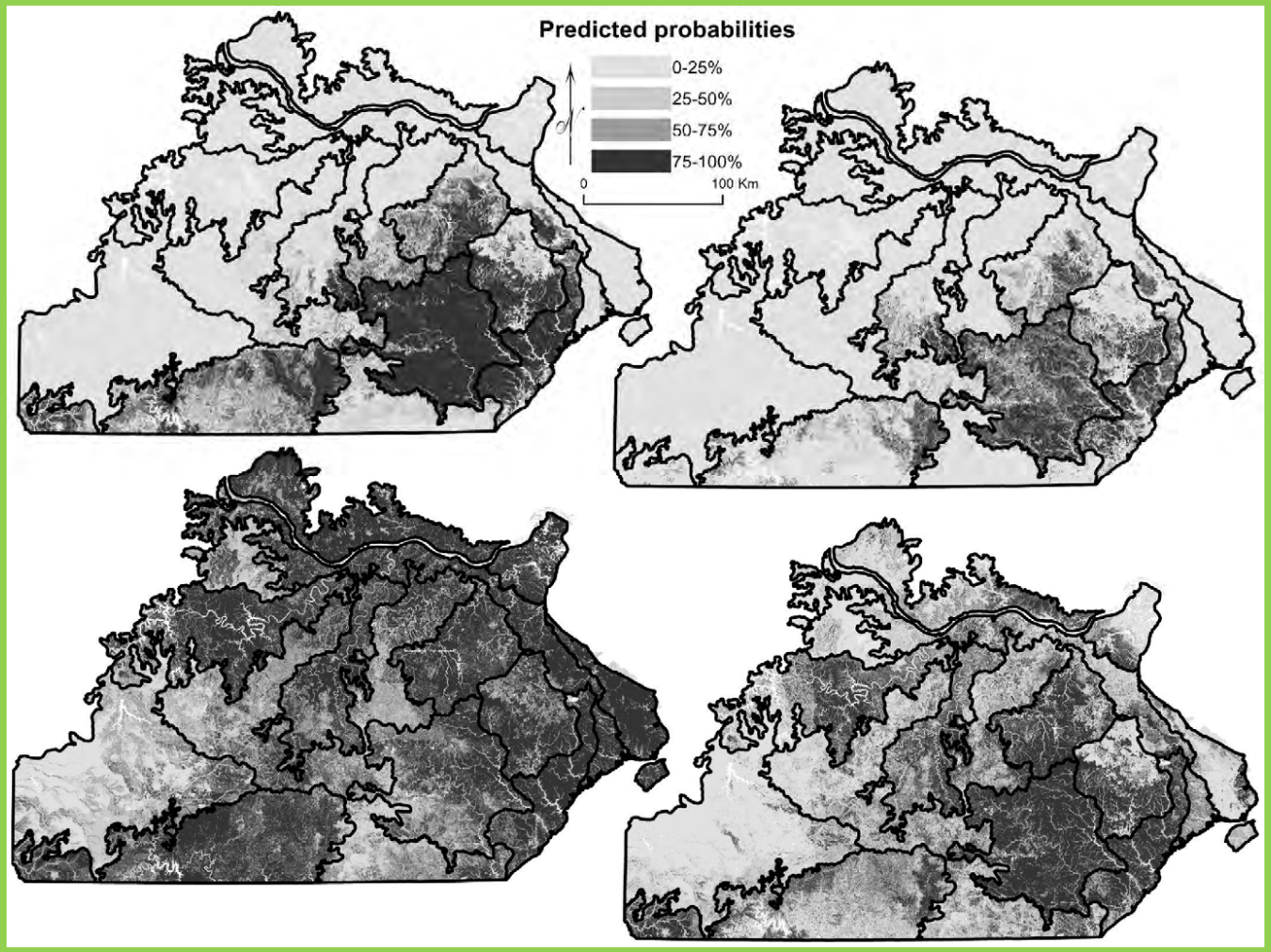
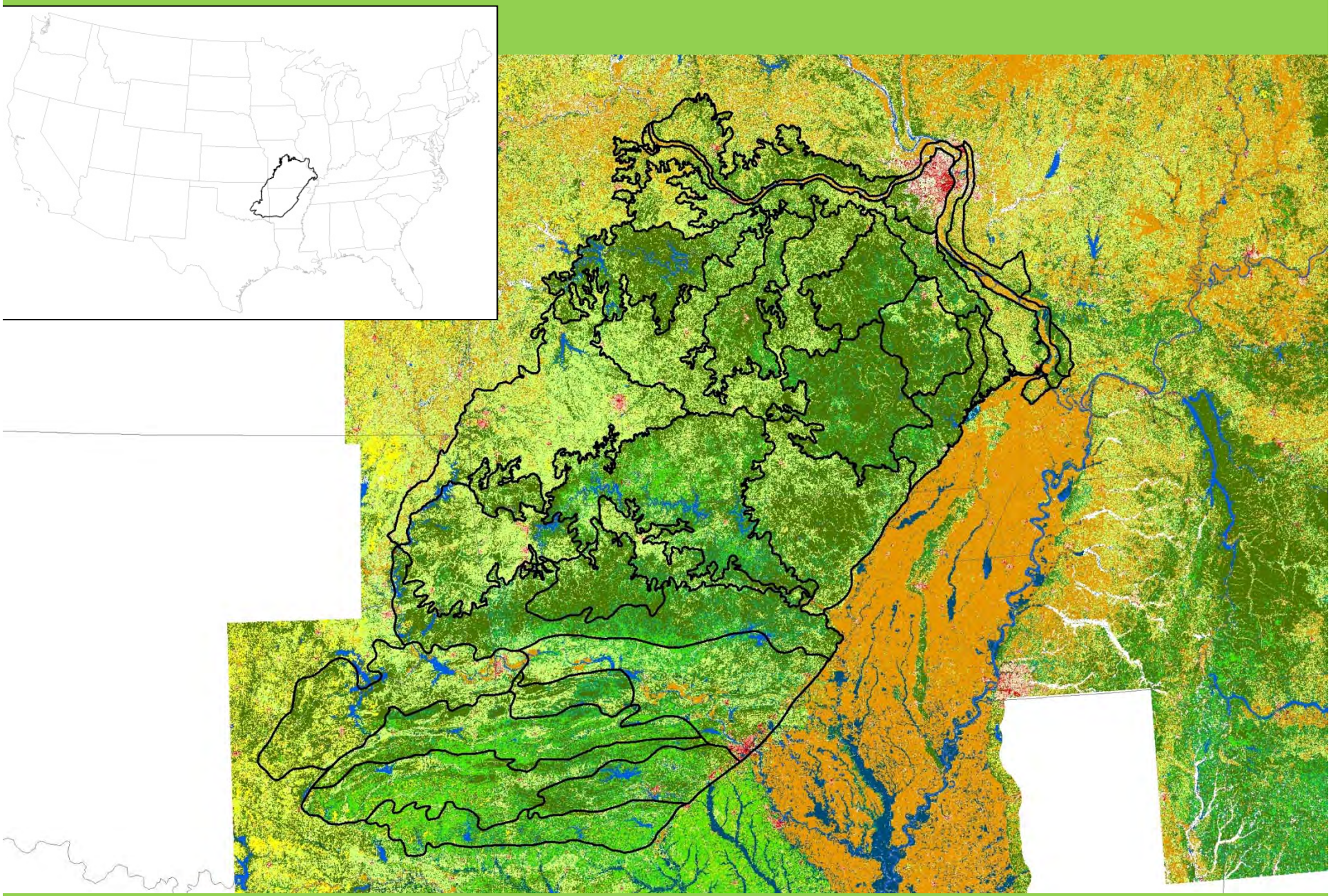
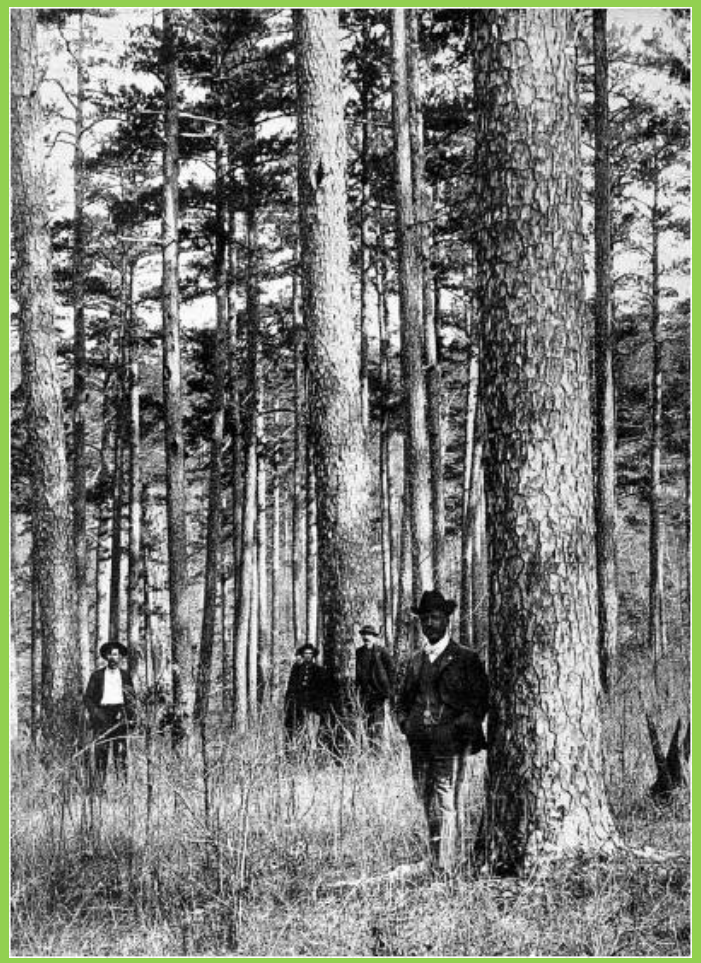


Figure 3. Predicted probabilities for species distributions of two fire-dependent species. Panels are (a) historical distribution of shortleaf pine, (b) current distribution of shortleaf pine, (c) historical distribution of white oak, and (d) current distribution of white oak. In, Regime Shifts and Weakened Environmental Gradients in Open Oak and Pine Ecosystems. Brice B. Hanberry, Dan C. Dey, Hong S. He; PLoS ONE 7(7): e41337. doi:10.1371/journal.pone.0041337



How do we get it back?



Central Hardwoods Joint Venture

partnerships for conservation

The Central Hardwoods Joint Venture Management Board

American Bird Conservancy

Arkansas Game and Fish Commission

Illinois Department of Natural Resources

Kentucky Department of Fish and Wildlife Resources

Missouri Department of Conservation

National Wild Turkey Federation

Northern Bobwhite Conservation Initiative

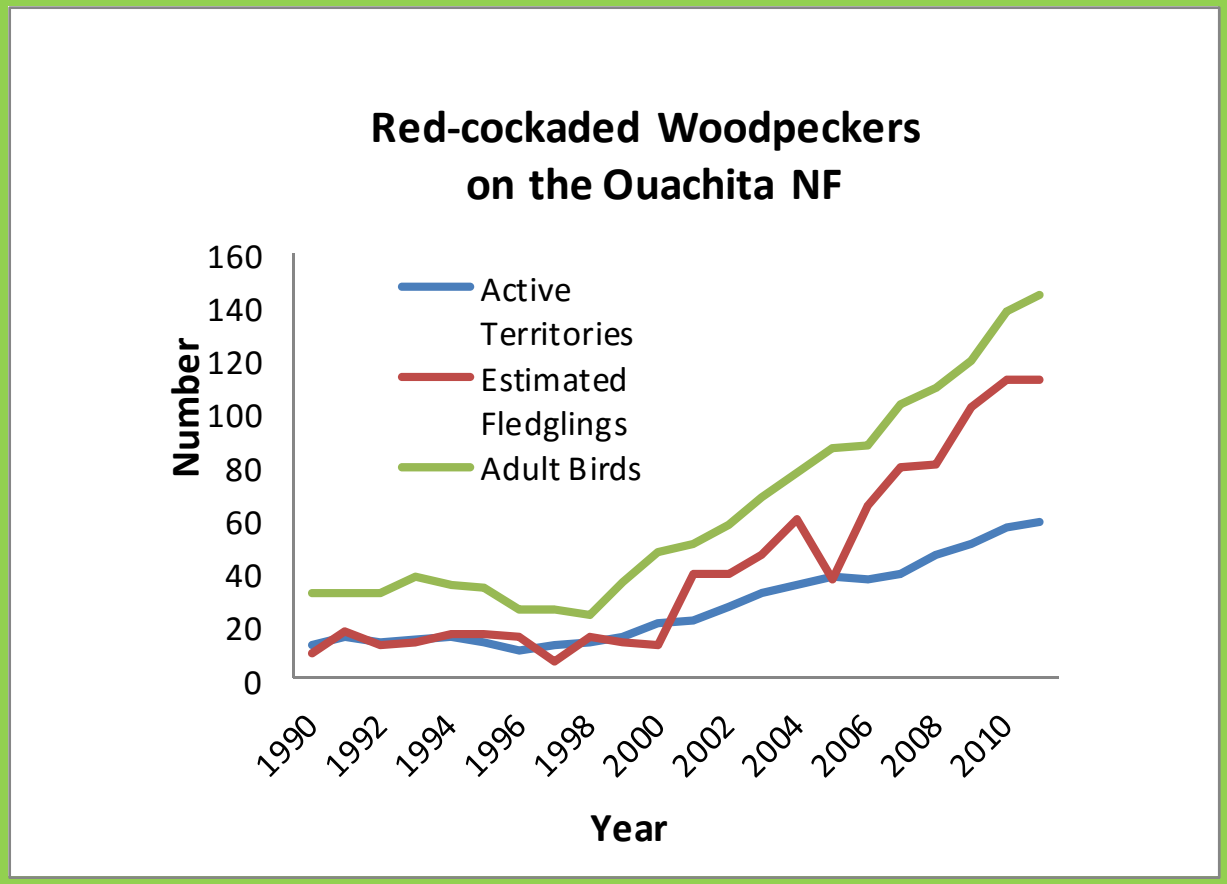
Oklahoma Department of Wildlife Conservation

Tennessee Wildlife Resources Agency

U.S.D.A. Forest Service

U.S. Fish and Wildlife Service

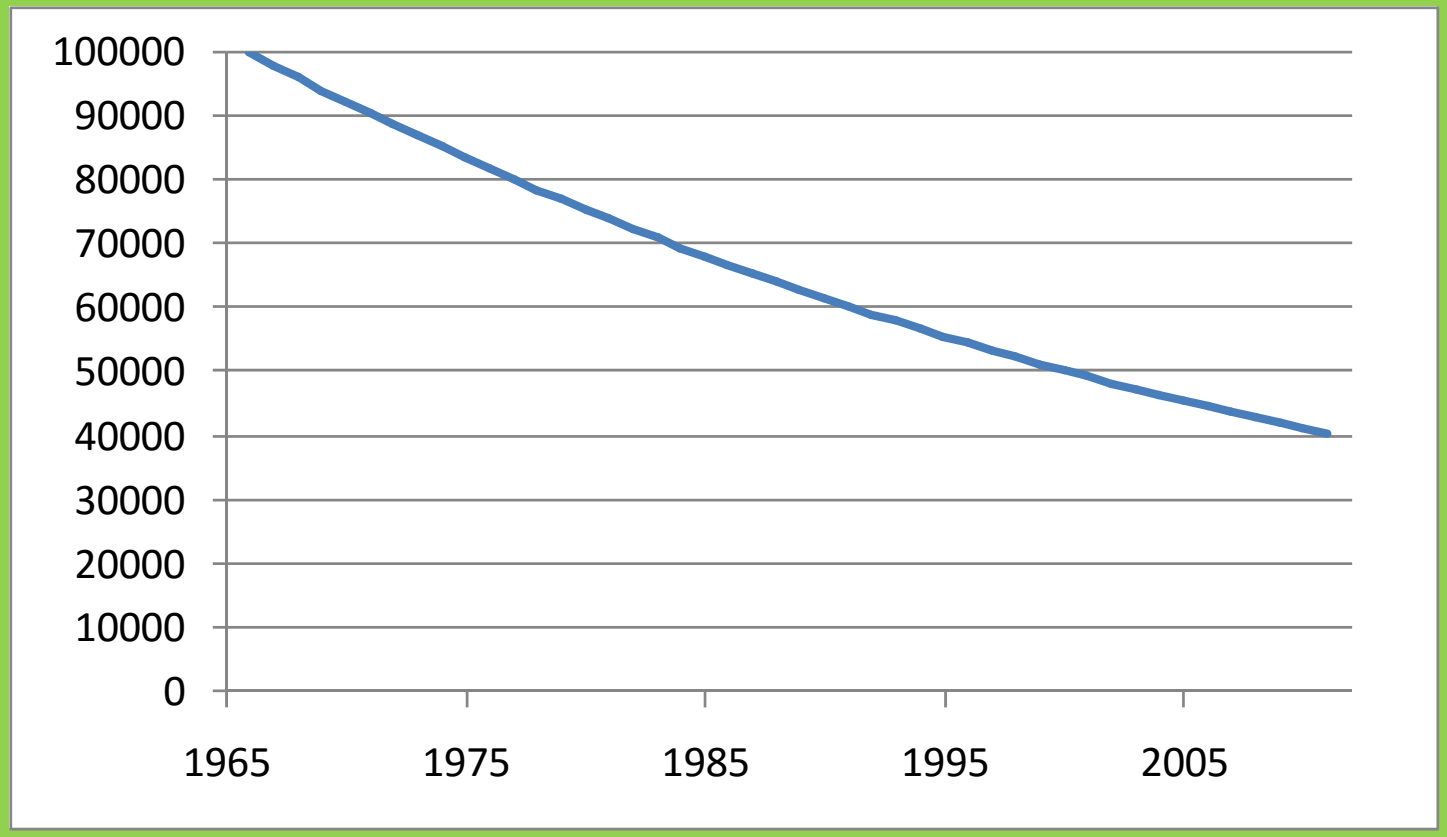
RCW Recovery Success on the ONF



Percent annual decline of grass-shrub and open woodland species in Central Hardwoods 1966-2013

Bachman's sp.	-19.5
Bewick's Wren	-4.9
Northern Bobwhite	-4.2
Red-headed Woodpecker	-2.3
Prairie Warbler	-2.2
Field Sparrow	-2.1
Yellow-breasted Chat	-1.6
Eastern Towhee	-1.4

Example: 2% annual decline



"Grass-shrubland" Breeding Bird Species Designated by Partners in Flight as in Need of Management Attention in the Central Hardwoods Bird Conservation Region

Increase 100%

Red-headed Woodpecker

Eastern Wood-Pewee

Eastern Kingbird

Blue-winged Warbler

Prairie Warbler

Field Sparrow

Bachman's Sparrow

Increase 50%

Brown Thrasher

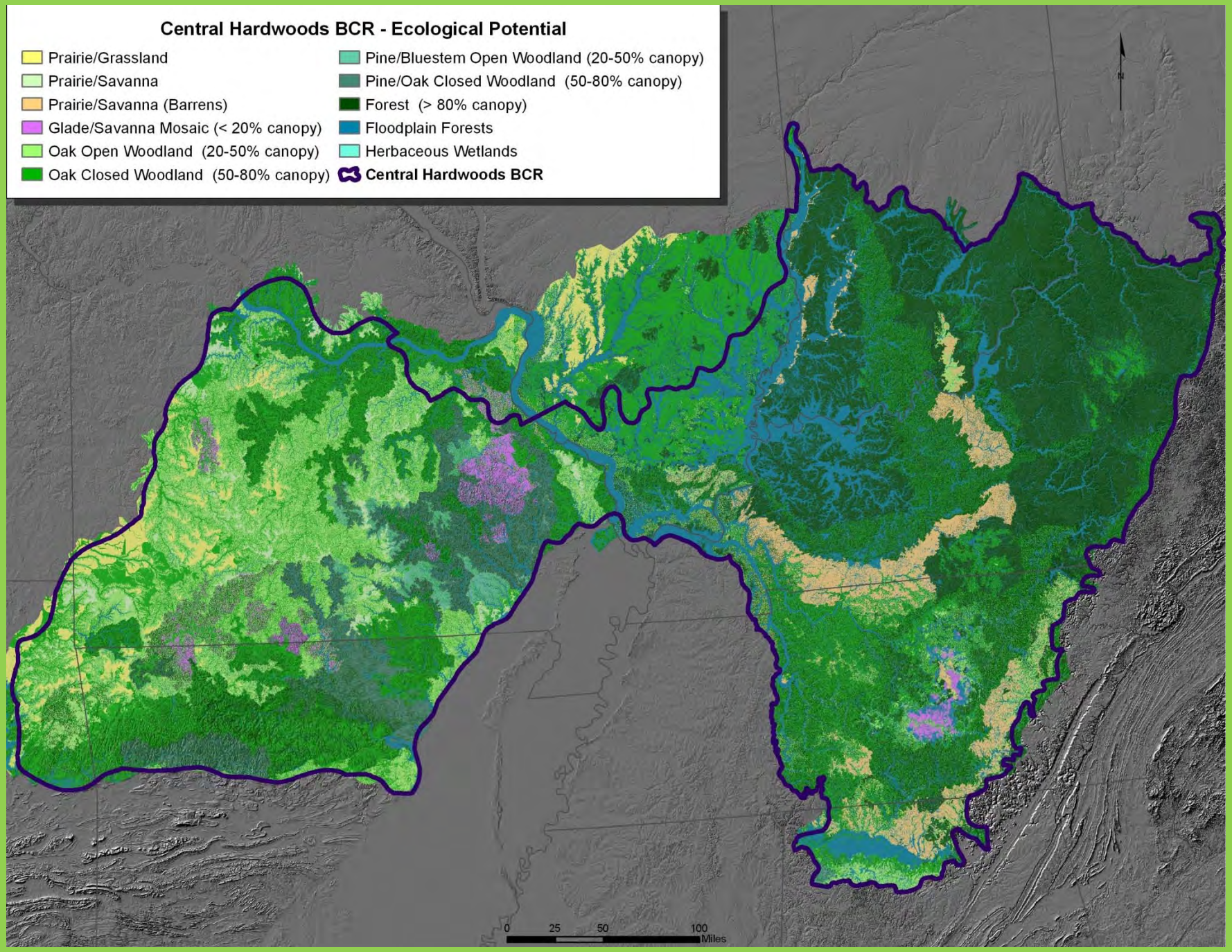
Maintain or Increase

Yellow-breasted Chat

White-eyed Vireo

Add 141,000 – 410,000 coveys

Northern Bobwhite


Central Hardwoods BCR - Ecological Potential
Prairie/Grassland
Prairie/Savanna
Prairie/Savanna (Barrens)
Glade/Savanna Mosaic (< 20% canopy)
Oak Open Woodland (20-50% canopy)
Oak Closed Woodland (50-80% canopy)
Pine/Bluestem Open Woodland (20-50% canopy)
Pine/Oak Closed Woodland (50-80% canopy)
Forest (> 80% canopy)
Floodplain Forests
Herbaceous Wetlands
Central Hardwoods BCR
N
0
25
50
100
Miles

Interior Highlands Shortleaf Pine Restoration Initiative Participants

- American Bird Conservancy
- Arkansas Game and Fish
- Arkansas Natural Heritage Commission
- Central Hardwoods Joint Venture
- L-A-D Foundation
- Longleaf Alliance
- Lower Mississippi Valley Joint Venture
- Mark Twain National Forest
- Missouri Department of Conservation
- Missouri Department of Natural Resources
- National Bobwhite Conservation Initiative
- National Park Service
- Natural Resources Conservation Service (MO and AR)
- Oak Woodlands and Fire Consortium
- Ouachita National Forest
- Ozark-St. Francis National Forest
- Shortleaf Pine Initiative
- The Nature Conservancy
- University of Missouri, Columbia
- U.S.D.A. Forest Service Research
- U.S. Fish and Wildlife Service

Strength in Numbers

Different agency/groups and people have different reasons/motivation for participating…foresters, wildlifers, natural community ecologists all have different interests but have a better chance of getting what they want from working together.

Science and management experience both matter and it's important to have practitioners of both working together…build confidence, reduce uncertainty.

Money?!?

Money might not be necessary to initiate a partnership, but it does help motivate.

1st "formal" partnership came together in 2005 around a Doris Duke grant opportunity (pine-oak was the focus).

Most recent iteration in response to the Collaborative Forest Landscape Restoration Program funding (2009 Omnibus Budget) fostered partnerships around each forest; this expanded regionally in 2011 with Interior Highlands Shortleaf Pine Initiative.

Dedicated Coordinator

Takes responsibility for calling meetings, developing agendas, keeping notes, and generally keep things moving along…

Full Meetings:
Jan 2011; July 2013; May 2015

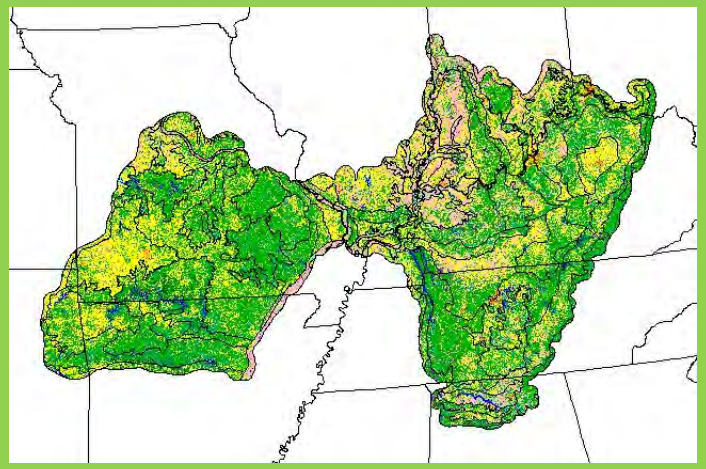
DFC meetings:
May 2011; December 2011; January 2012; February 2013

Patience!

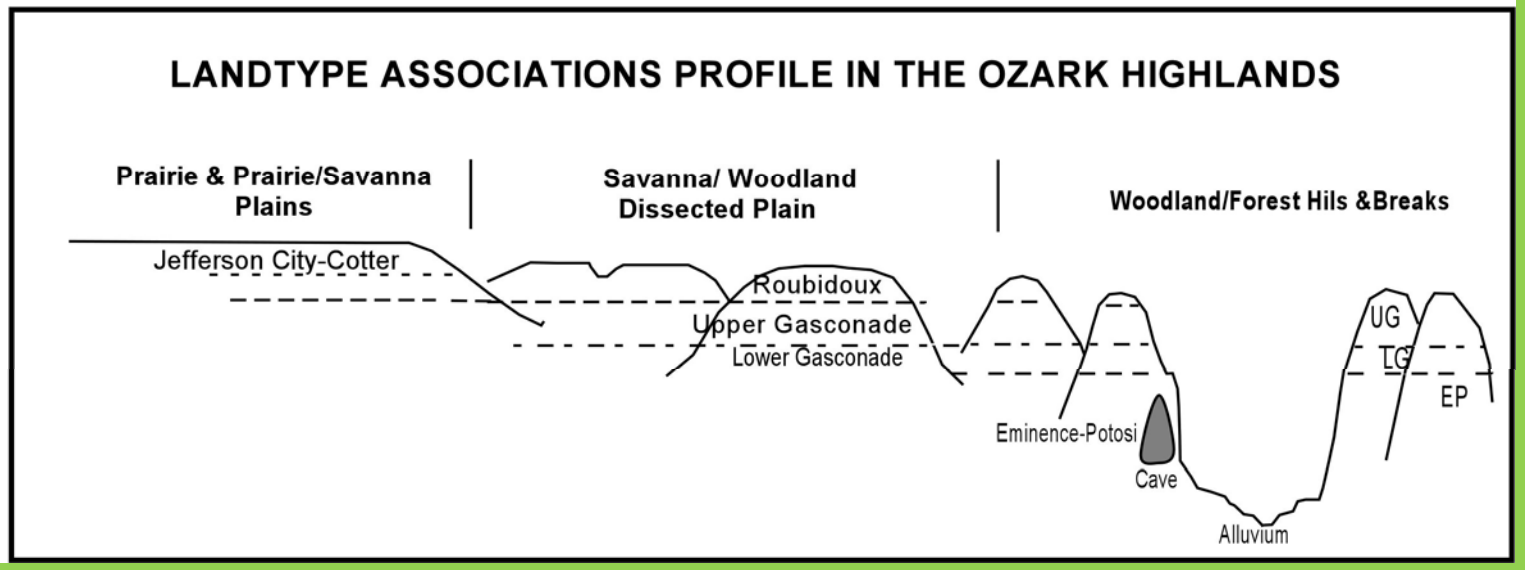
- Our current partnership is really built on a longer series of interactions among people in both states over the last 20 years or more;

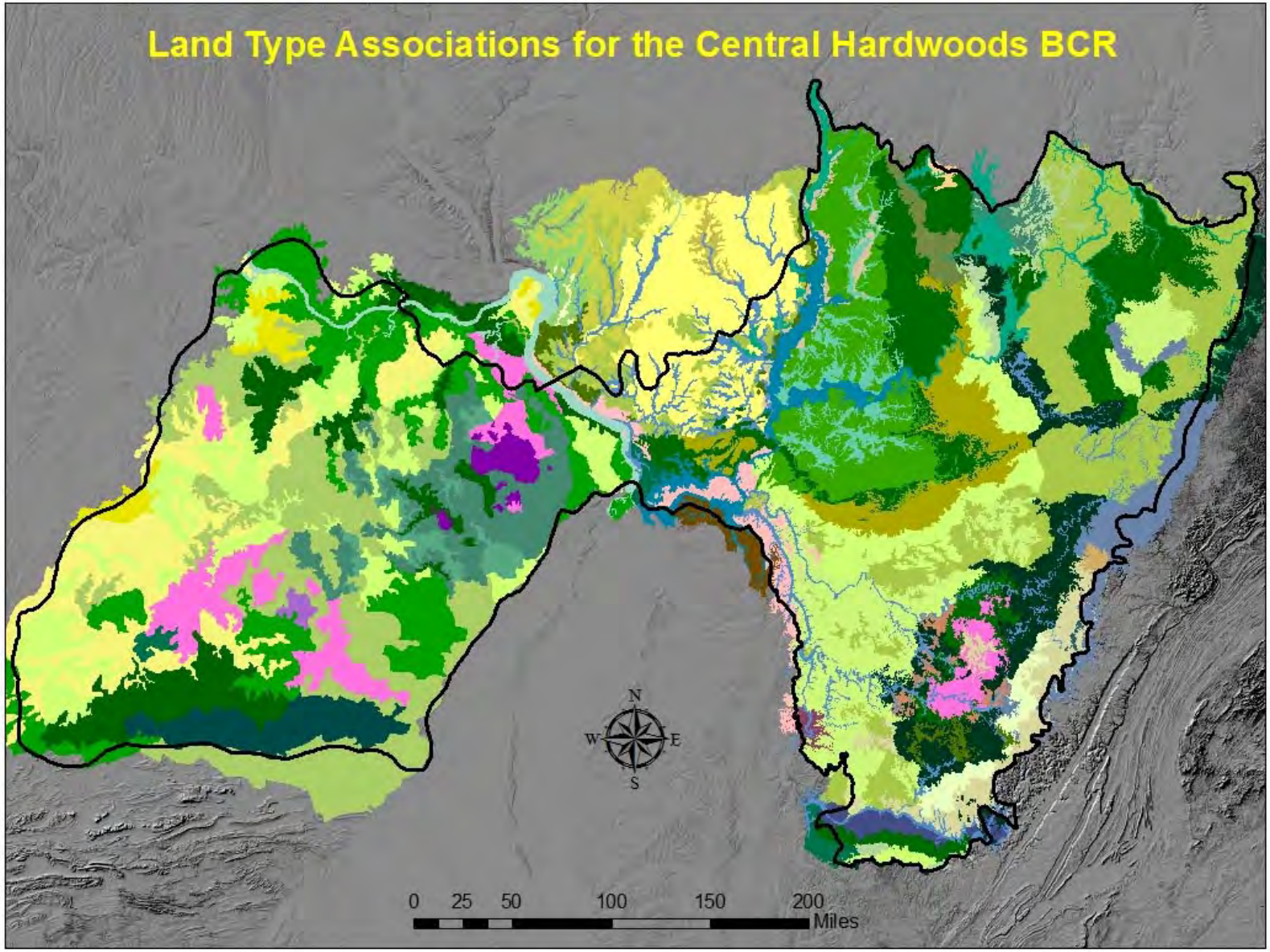
- Make time for people to express their viewpoints and opinions. Everyone has a right to have their voice heard and open communication provides a broader perspective that can lead to better ways of thinking about things.

Questions???



Landscapes and associated habitat types are largely a function of sun exposure, water accumulation and fire breaks and shadowing….




Land Type Associations for the Central Hardwoods BCR
N
W
E
S
0 25 50 100 150 200
Miles

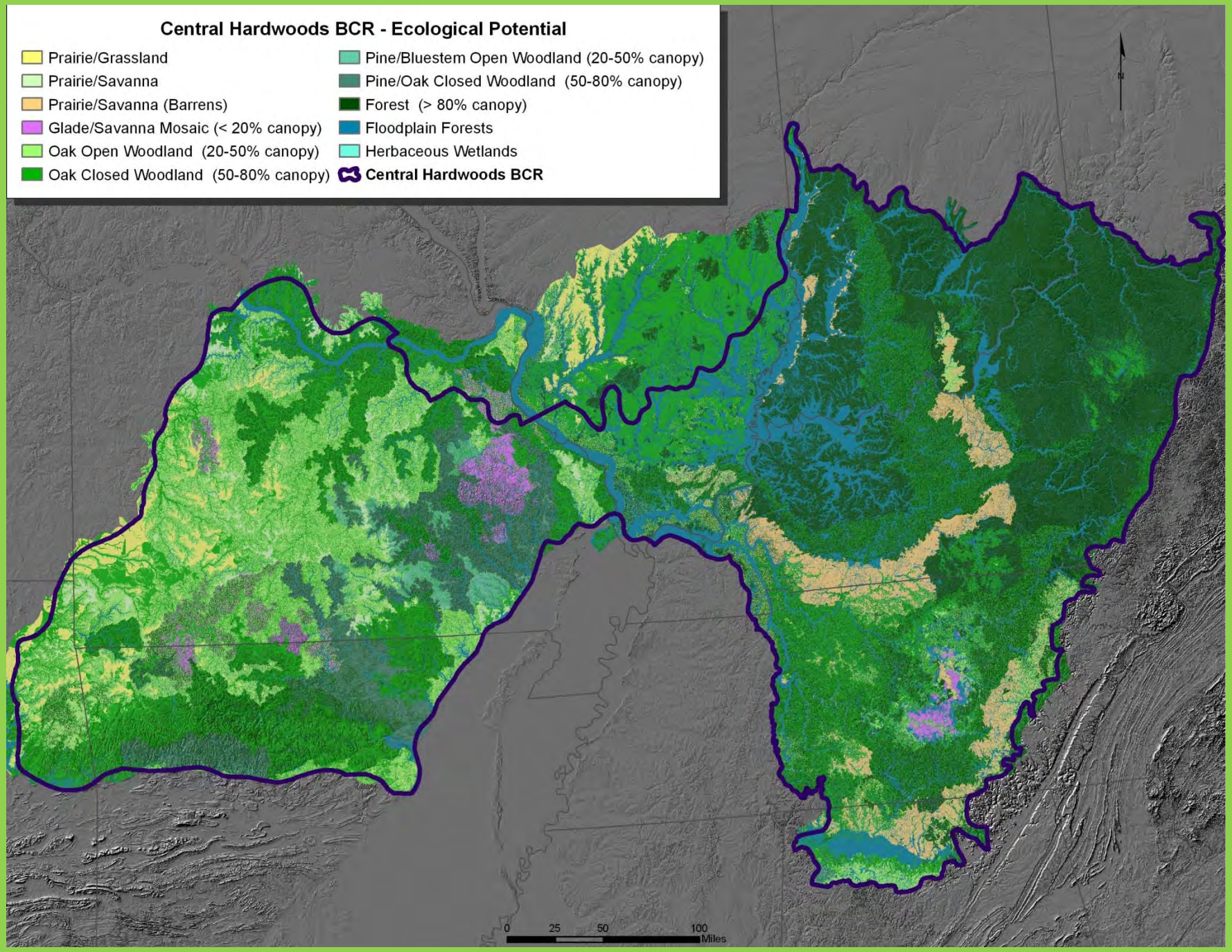
Potential Vegetation Types

1) Prairie/Grassland
2) Glade/Savanna (< 20% canopy)
3) Oak Open Woodland (20-50% canopy)
4) Oak Closed Woodland (50-80% canopy)
5) Pine/Oak Closed Woodland (50-80% canopy)
6) Forest (> 80% canopy)
7) Pine/Bluestem Open Woodland (20-50% canopy)
8) Prairie/Savanna (Barrens)

LTA Types

OZ Alluvial Plains
OZ Prairie Plains
OZ Prairie/Savanna Plains
TP Loess Prairie Hills and Blufflands
OZ Oak Savanna/Woodland Dissected Plains
OZ Pine-Oak Woodland Dissected Plains
OZ Oak Woodland Dissected Plains and Hills
OZ Glades/Woodlands
OZ Igneous Knobs
OZ Oak Woodland/Forest Hills
OZ Forest Breaks
OZ [illegible]

Land Type Associations	Landscape Positions								
	Floodplains	Valleys	Low wet slopes	High wet slopes	Low dry slopes	High dry slopes	Gentle uplands	Flat uplands	Ridges
Tipton Upland Prairie Plain	6	4	4	4	3	3	8	1	3
Southeastern Oak Savanna/Woodland Plain	6	6	6	4	4	4	4	4	4
[illegible]	6	6	6	5	5	7	7	8	5
[illegible]	6	6	6	5	5	7	7	8	5
Grandin Pine-Oak Woodland Dissected Plain	6	5	5	5	5	7	7	8	5
Lake Ozark Oak Woodland/Forest Breaks	6	6	6	4	4	4	4	6	4
Niangua R. Oak Woodland/Forest Breaks	6	6	6	4	4	4	4	6	4
Lower Sac River Oak Woodland Hills	6	4	4	4	4	3	3	8	4
Middle Osage River Oak Woodland Hills	6	4	4	4	4	3	3	8	4
Truman Lake Oak Woodland Hills	6	4	4	4	4	3	3	8	4
Lower Osage R. Oak Woodland/Forest Hills	6	6	6	4	4	3	4	6	3
Middle Gasconade River Oak Woodland/Forest Breaks	6	6	6	6	4	4	4	6	4
Ft. Wood Oak Savanna/Woodland Plain	6	4	4	4	4	4	3	8	4
Middle Gasconade River Oak Woodland Benchland	6	4	4	4	4	4	3	8	4
Big Piney Hills Oak Woodland Dissected Plain	6	4	4	4	4	3	3	8	3
Upper Gasconade Hills Oak Woodland Dissected Plain	6	4	4	4	4	3	3	8	3
Upper Gasconade Oak Woodland Hills	6	6	6	4	4	3	4	6	3
Lower Gasconade River Oak Woodland/Forest Hills	6	6	6	4	4	3	4	6	3
Roubidoux Creek Oak Woodland/Forest Hills	6	6	6	4	4	3	4	6	3
[illegible]	6	6	6	5	5	7	7	8	5
[illegible]	6	6	6	5	5	7	7	8	5
Big Piney Pine-Oak Woodland Dissected Plains	6	5	4	5	5	7	7	8	7
Meramec River Oak Forest Breaks	6	6	6	6	4	4	6	6	4
Cherryville Oak Savanna/Woodland Plain	6	4	4	4	4	3	3	8	3
Indian Prairie Oak Savanna/Woodland Plain	6	4	4	4	4	3	3	8	3
Potosi Oak Savanna/Woodland Plain	6	4	4	4	4	3	3	8	3
Huzzah-Courtois Oak Woodland Dissected Plain	6	4	4	4	3	3	8	8	3
Big River Oak Woodland/Forest Hills	6	6	6	6	4	4	4	3	4
East Meramec Oak Woodland/Forest Hills	6	6	6	6	4	4	4	3	4
Huzzah Oak Woodland/Forest Hills	6	6	6	6	4	4	4	3	4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