

# Introduction to the Arkansas Wildlife Action Plan, Species of Greatest Conservation Need, and Conservation Opportunity Areas

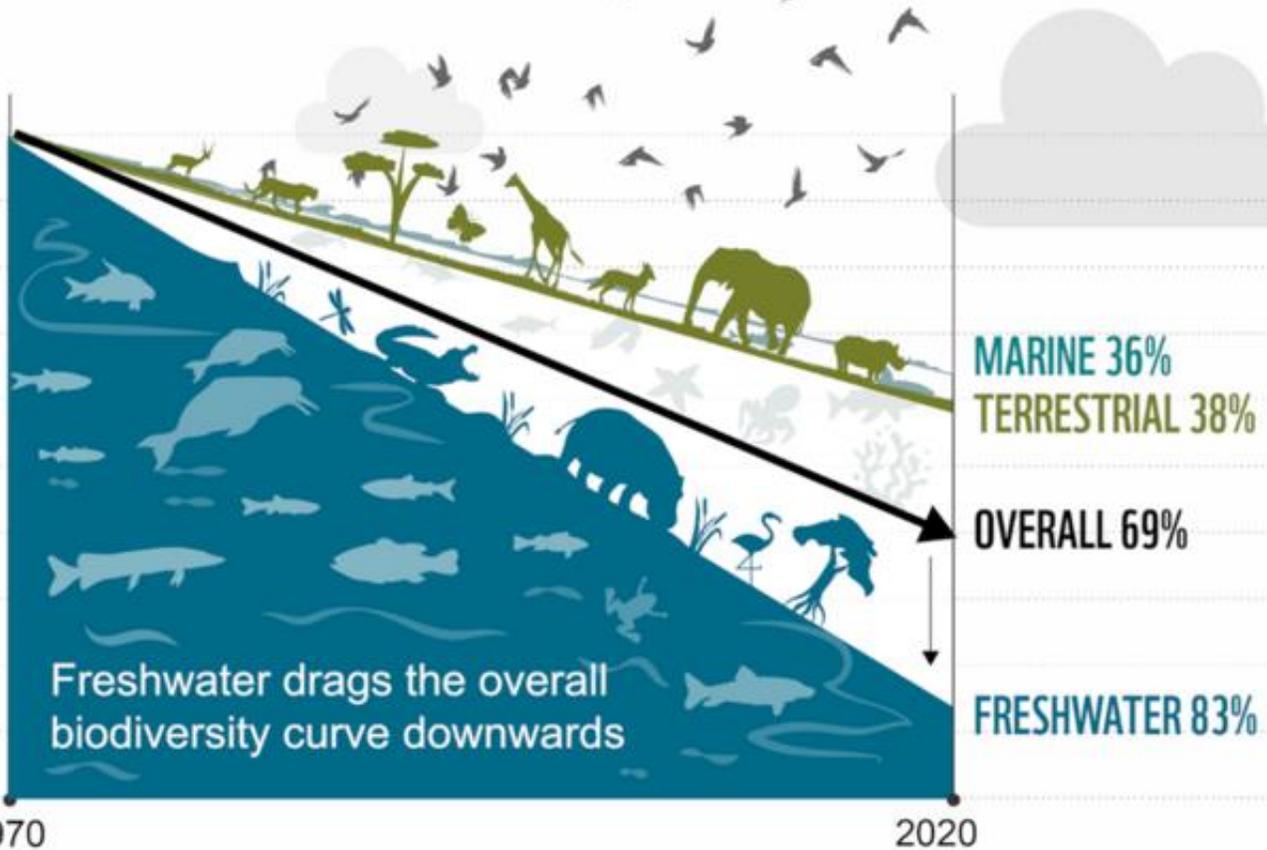
Nick Goforth - *Wildlife Diversity Program Coordinator*



# Arkansas's Biodiversity and Native Habitats



# Global decline in biodiversity since 1970



Statistics from Living Planet Index: Freshwater & Overall (2020), Marine & Terrestrial (2020)

# Grassland Birds - Going Going Gone?



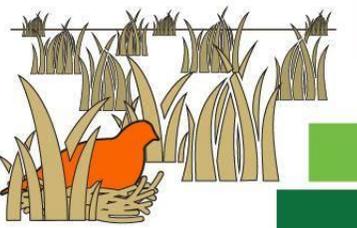
**NORTH AMERICAN Bird Population Declines Since 1970**

Net loss of **2.9 Billion Birds**  
**303 Species** in decline

## Bird Breeding Biomes



Birds select specific biomes during breeding



Percent of Individual Birds Lost/Added in Each Bird Breeding Biome	Percent of Bird Species Declining
<b>13%</b> Wetland	47%
<b>-15%</b> Coastal	50%
<b>-17%</b> Aridland	56%
<b>-17%</b> Eastern Forest	64%
<b>-18%</b> Forest Generalist	40%
<b>-23%</b> Habitat Generalist	61%
<b>-23%</b> Arctic Tundra	57%
<b>-30%</b> Western Forest	64%
<b>-33%</b> Boreal Forest	50%
<b>-53%</b> Grassland	74%

## Bird Group Population Changes Since 1970

### GRASSLAND Bird Losses Since 1970

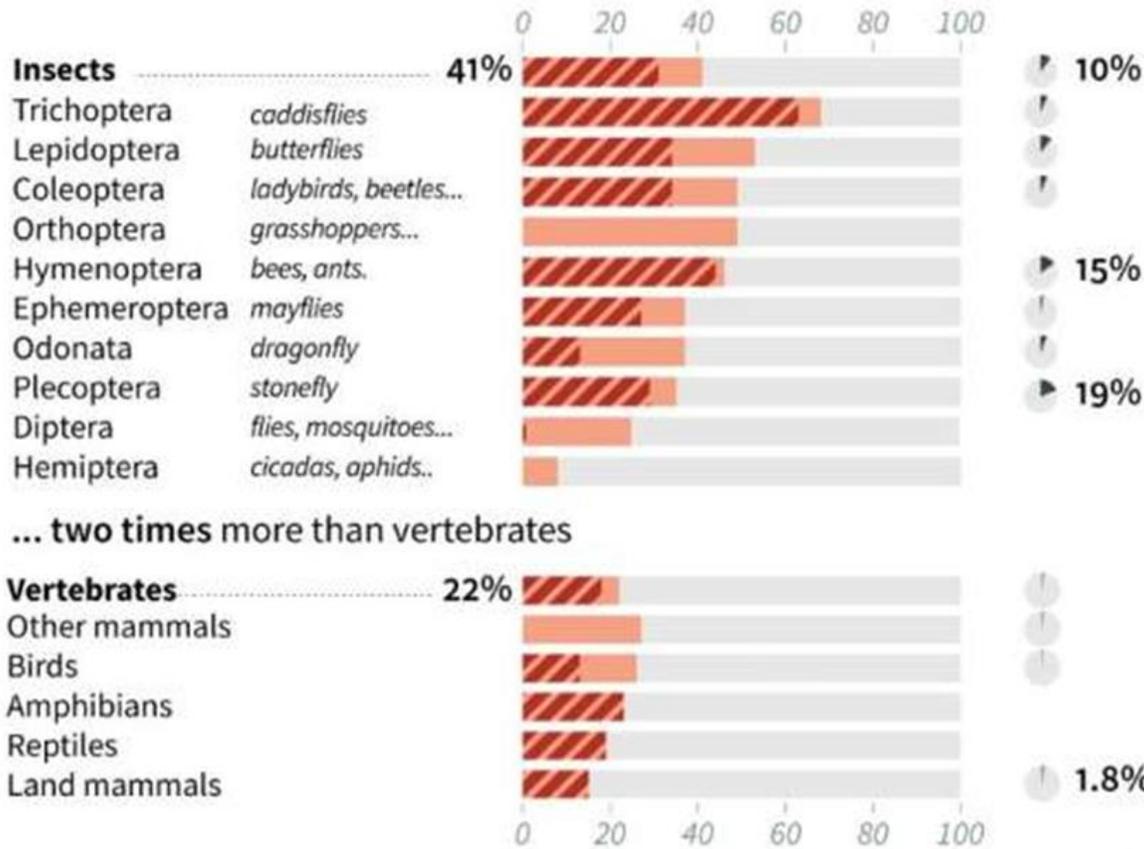
**717 Million** breeding individuals lost (**53%**)  
**23 Species** in decline (**74%**)



Data: Rosenberg et al 2019. Decline of the North American Avifauna, Science.

# Insects in global decline

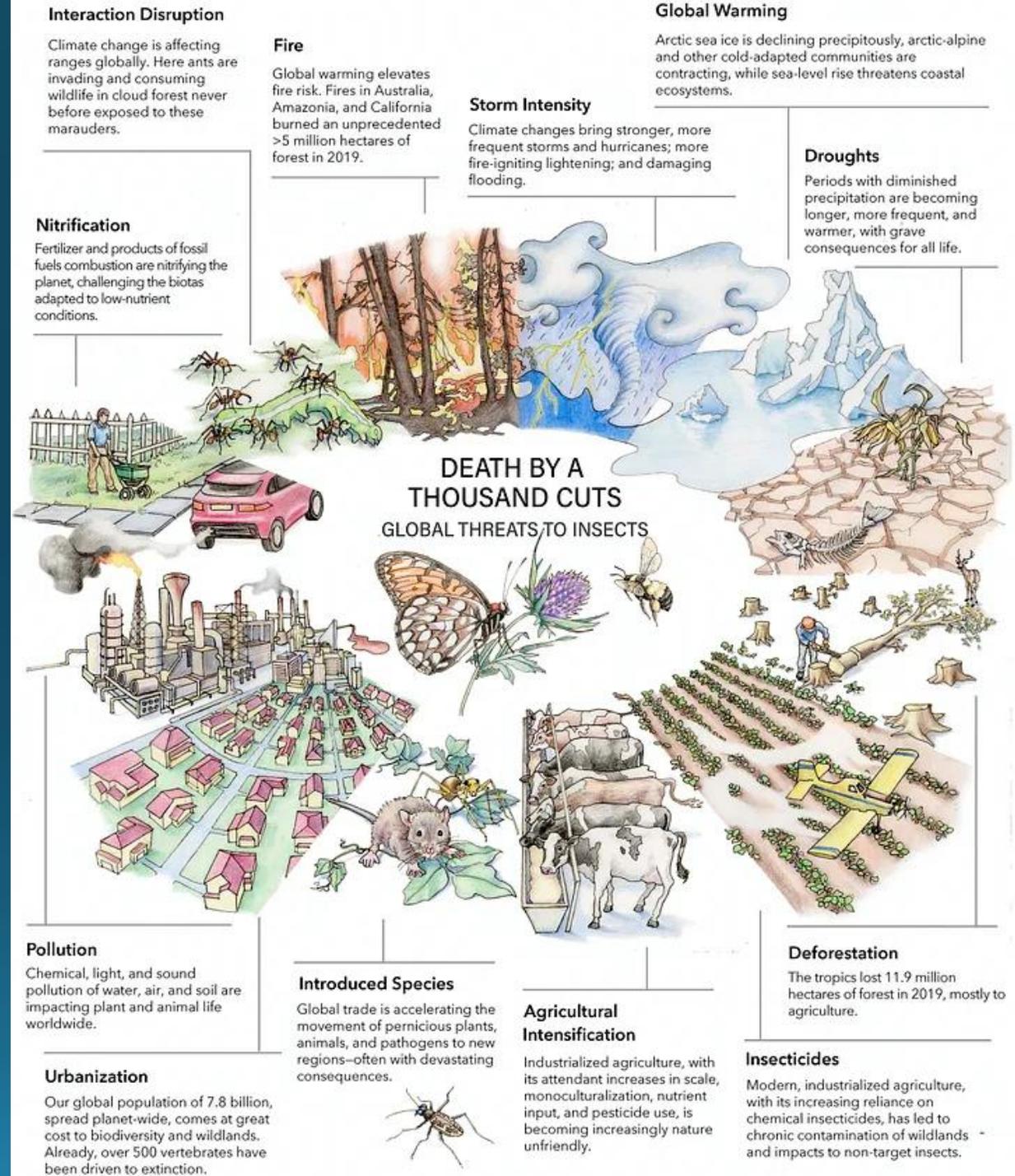
■ Nearly half the species in rapid decline
 ▨ Including a third threatened with extinction
 ■ Extinction rate\*



... two times more than vertebrates

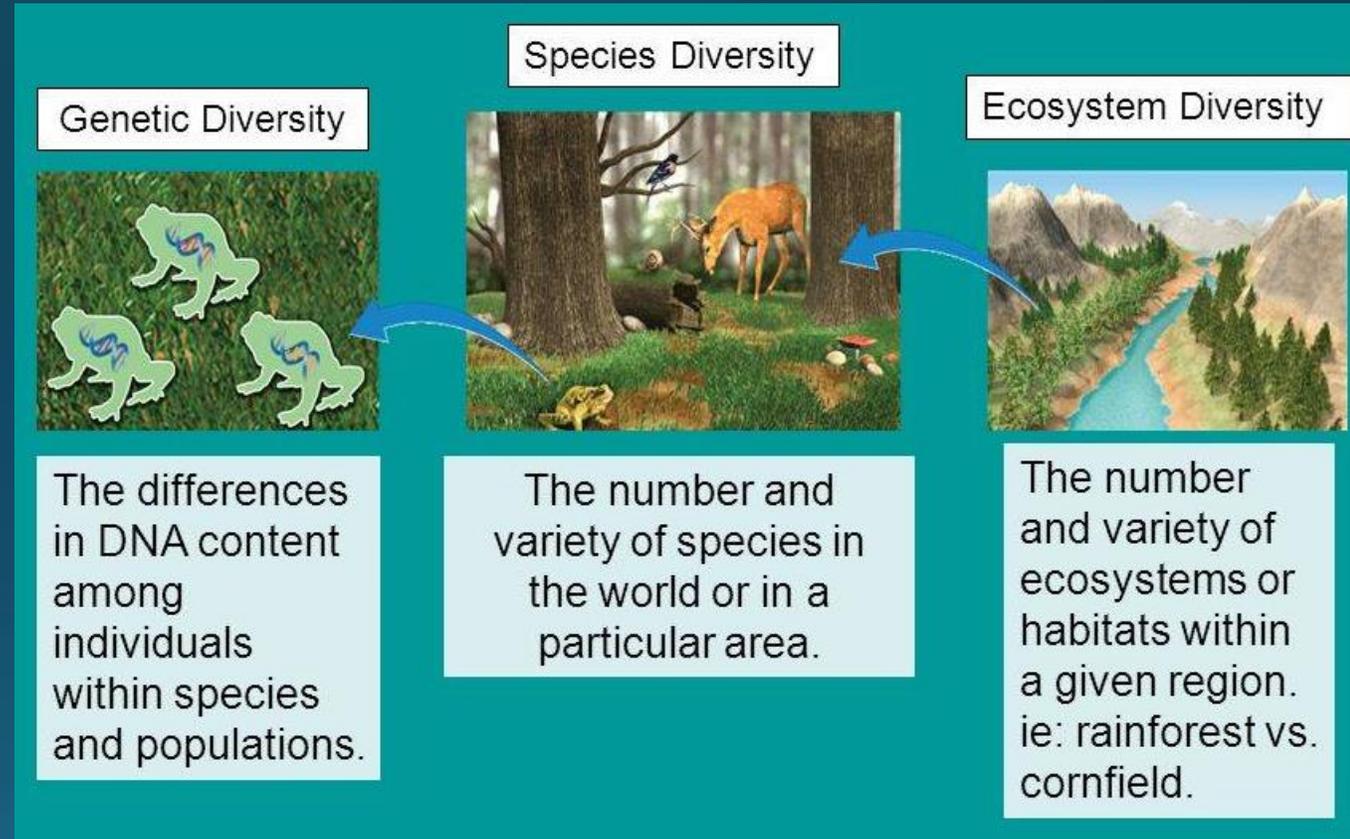
Source: Biological Conservation 232

\*% of species not observed for 50 years



# Biodiversity and Why it's Important

- Variety of Plants, Animals, and Natural Communities
- Key to Ecosystem Function and Resilience
  - Flexibility, Adaptation, and Stability
- Ecological Processes and Ecosystem Services



[https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.facebook.com%2Fphoto.php%3Ffbid%3D342499379565261%26id%3D339147793233753%26set%3Da.341294123019120&psig=AOvVawowr7DLIplVDPso\\_N8eFssr&ust=1740436991324000&source=images&cd=vfe&opi=89978449&ved=0CBgQ3YkBahcKEwj4\\_qCY79qLAXUAAAAHQAAAAOBA](https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.facebook.com%2Fphoto.php%3Ffbid%3D342499379565261%26id%3D339147793233753%26set%3Da.341294123019120&psig=AOvVawowr7DLIplVDPso_N8eFssr&ust=1740436991324000&source=images&cd=vfe&opi=89978449&ved=0CBgQ3YkBahcKEwj4_qCY79qLAXUAAAAHQAAAAOBA)

# ECOSYSTEM SERVICES

## PROVISIONING

Food  
Fresh Water  
Wood and Fiber

## SUPPORTING

Nutrient Cycling  
Soil Formation  
Primary Production

## CULTURAL

Aesthetic  
Spiritual  
Educational  
Recreational

## REGULATING

Climate, Flood, and-  
Disease Regulation  
Water Purification

## GOOD SOCIAL RELATIONS

Social Cohesion  
Mutual Respect  
Ability to Help Others

## BASIC MATERIALS FOR LIFE

Shelter  
Access to Goods  
Adequate Livelihoods  
Sufficient Nutritious Food

## SECURITY

Personal Safety  
Security from Disasters  
Secure Resource Access

## HEALTH

Strength  
Feeling Well  
Access to Clean Air & Water

# CONSTITUENTS OF WELL-BEING

Freedom of Choice & Action

### Linkage Intensity

Weak →

Medium →

Strong →

### Potential for Mediation by Socioeconomic Factors

→ Low

→ Medium

→ High

# Biodiversity Crisis

- Suffered Substantial Losses Already
- Continuous, Emerging, and Compounding Threats
- Limited Environmental Protections
- Lots of Needs, Unknowns, Data Gaps
- Limited Staff, Resources, and Funding



# The Solution

## Collaborations and Partnerships

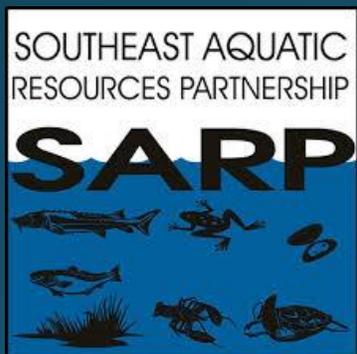
- Strategic Approach
- Focus Limited Resources and Funding
- Utilize shared Knowledge, Experience, and Expertise
- Science-Based Decision Making
- Identify and Prioritize Greatest Needs
- Living Planning Tool
- Accessible and Usable to All



# State Wildlife Action Plans

- Blueprint for Conserving Species and Preventing Further Declines or Federal Listing
- Collaborative, Strategic Approach
- 8 Required Elements
- Eligible to receive **State Wildlife Grant** funding





# Species of Greatest Conservation Need (SGCN)

- Identified by each State or U.S. Territory
- High NatureServe G- & S-ranks
- Most Imperiled Species
  - Rare
  - Highly Threatened
  - Declining Population
  - Limited Habitat Availability
  - Narrow-range Endemic
  - Limited Information/Knowledge
- R-SGCN
  - 200 Species occur in Arkansas



# NatureServe S-Ranks

RANK	DEFINITION
<b>SX</b>	<b>Presumed Extirpated</b> —Species or ecosystem is believed to be extirpated from the jurisdiction (i.e., nation, or state/province). Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
<b>SH</b>	<b>Possibly Extirpated</b> – Known from only historical records but still some hope of rediscovery. There is evidence that the species or ecosystem may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.
<b>S1</b>	<b>Critically Imperiled</b> At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.
<b>S2</b>	<b>Imperiled</b> – At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
<b>S3</b>	<b>Vulnerable</b> – At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
<b>S4</b>	<b>Apparently Secure</b> – At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
<b>S5</b>	<b>Secure</b> – At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

## 8 EIGHT REQUIRED ELEMENTS

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1. **SPECIES:** The distribution and abundance of species of wildlife, including low and declining populations as each State fish and wildlife agency deems appropriate, that are indicative of the diversity and health of the State's Species of Greatest Conservation Need (SGCN);
2. **HABITATS:** The location and relative condition of key habitats and community types essential to the conservation of each State's SGCN;
3. **THREATS/STRESSORS:** The problems that may adversely affect SGCN or their habitats, and priority research and surveys needed to identify factors that may assist in restoration and improved conservation of SGCN and their habitats;
4. **ACTIONS:** The actions necessary to conserve SGCN and their habitats and the priorities for implementing such conservation actions;
5. **MONITORING:** The provisions for periodic monitoring of SGCN and their habitats, for monitoring the effectiveness of conservation actions, and for adapting conservation actions as appropriate to respond to new information or changing conditions;
6. **REVIEW AND REVISION:** Each State's provisions to review its Plan at intervals not to exceed 10 years;
7. **PARTNER INVOLVEMENT:** Each State's provisions for coordination during the development, implementation, review, and revision of its Plan with Federal, State, and local agencies and Indian tribes that manage significant areas of land or water within the State, or administer programs that significantly affect the conservation of species or their habitats; and
8. **PUBLIC INVOLVEMENT:** Each State's provisions to provide the necessary public participation in the development, revision, and implementation of the Plan.

# Arkansas Wildlife Action Plan

- 2005 Original
  - 369 SGCN
  - 63 Habitats
- 2015 Version
  - 377 SGCN
  - 56 Habitats
- 2019 Minor Revision
  - 380 SGCN
- 2025 Revision
  - >500 SGCN
  - Due October 1, 2025



## Arkansas Wildlife Action Plan



# AWAP Revision

- Revisioning, Refining, & Enhancing to Improve Usefulness
- Standardizing
  - Better Promote Landscape and Regional Conservation
  - New SGCN Criteria & Prioritization Method
  - Updated Threats, Needs, and Habitat Associations
- Adding Plants
- Adding Habitat Guilds
- Updating Habitat Types
  - Revamping Habitat Section and DFCs
- Adding Conservation Opportunity Areas (COAs)
- Developing New Database
- Upcoming Online Dashboard



# Standardized Threats (High/1<sup>st</sup>-level)

- Residential & Commercial Development
- Agriculture & Aquaculture
- Energy Production & Mining
- Transportation & Service Corridors
- Biological Resource Use
- Human Intrusions & Disturbance
- Natural System Modifications
- Invasive & Problematic Species, Pathogens & Genes
- Pollution
- Geological Events
- Climate Change

Citation: Conservation Measures Partnership (2016)  
CMP Direct Threats Classification v 2.0

# Standardized Conservation Actions (High/1<sup>st</sup>-level)

- Land / Water Management
- Species Management
- Awareness Raising
- Law Enforcement & Prosecution
- Livelihood, Economic & Moral Incentives
- Conservation Designation & Planning
- Legal & Policy Frameworks
- Research & Monitoring
- Education & Training

# Standardized Data Gaps (High/1<sup>st</sup>-level)

- Taxonomic Clarity
- Distribution Knowledge
- Species Needs
- Population Needs
- Condition of Populations
- Threats Assessment

# Standardized Threats, Conservation Actions, & Data Gaps

Identified for each SGCN as:

- Priority
- Additional
- Not Needed
- Not Applicable
- Unknown

# Hierarchical Habitat Redesign

## ➤ Guilds

### ➤ AWAP Habitat Types

#### ➤ Sub-Aquatic

#### ➤ Micro-Aquatic

### Guilds

- Forests and Woodlands
- Prairies and Savannas
- Glades and Barrens
- Cliff and Talus
- Caves and Karst
- Rivers and Streams
- Riparian and Floodplains
- Marshes and Swamps
- Reservoirs
- Plantation
- Cropland
- Pastureland
- Developed Areas

# 2025 AWAP Habitat Types

- Crowley's Ridge Mesic Loess Slope Forest
- Crowley's Ridge Sand Forest
- Lower Mississippi Alluvial Plain Grand Prairie and Savanna
- Lower Mississippi River Bottomland Depression
- Lower Mississippi River Dune Pond, Forest and Woodland
- Lower Mississippi River Flatwoods, Forest and Woodland
- Lower Mississippi River High Bottomland Forest
- Lower Mississippi River Low Bottomland Forest
- Lower Mississippi River Riparian Forest
- Ouachita Montane Oak Forest
- Ozark-Ouachita Calcareous Glade and Barrens
- Ozark-Ouachita Cliff and Talus
- Ozark-Ouachita Dry Acidic Glade and Barrens
- Ozark-Ouachita Dry Oak and Pine Woodland
- Ozark-Ouachita Dry-Mesic Oak Forest and Woodland
- Ozark-Ouachita Forested Seep
- Ozark-Ouachita Large Floodplain
- Ozark-Ouachita Mesic Hardwood Forest
- Ozark-Ouachita Pine-Bluestem Woodland
- Ozark-Ouachita Pine-Oak Forest and Woodland
- Ozark-Ouachita Prairie and Savanna
- Ozark-Ouachita Riparian
- West Gulf Coastal Plain Calcareous Prairie and Savanna
- West Gulf Coastal Plain Large River Floodplain Forest
- West Gulf Coastal Plain Nonriverine Wet Hardwood-Pine Flatwoods
- West Gulf Coastal Plain Pine-Hardwood Flatwoods
- West Gulf Coastal Plain Pine-Hardwood Forest and Woodland
- West Gulf Coastal Plain Red River Floodplain Forest
- West Gulf Coastal Plain Saline Barrens
- West Gulf Coastal Plain Sandhill Oak and Shortleaf Pine Forest and Woodland
- West Gulf Coastal Plain Seepage Swamp and Baygall
- West Gulf Coastal Plain Small Stream and River Forest
- Herbaceous Wetland
- Gravel and Sand Bars
- Caves, Mines, Sinkholes and other Karst Features
- Lakes and Ponds
- Large Rivers
- Small Rivers and Streams
- Cultivated Forest
- Pasture Land
- Crop Land
- Urban/Suburban

# Aquatic Habitat Types

## Sub-Aquatic

- Wet Weather Conveyance
- Headwaters - Intermittent through 2nd order
- Small River - 3rd through 5th order
- Large River - 6th through 12th order
- Groundwater
- Lakes - greater than 10 acres
- Ponds less than 10 acres
- Wetlands

## Micro-Aquatic

- Roadside Ditch
- Row Crop Ditch
- Riffle
- Run
- Pool
- Glide
- Backwater
- Side channel
- Oxbow
- Spring
- Cave Stream
- Hot Spring
- Permanent Wetland
- Temporary Wetland

# Habitat Associations

Each SGCN determined to be:

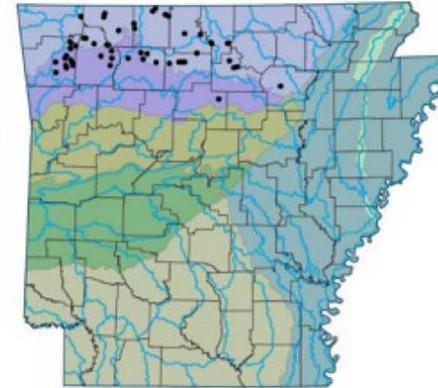
- Obligate
- Optimal
- Suitable
- Associated
- Unsuitable
- Unknown

# Revised Species Accounts

Longpincered Crayfish

*Faxonius longidigitus*

ICMAL11490



Conservation Concern: **Moderate**



**Global Rank:** G3G4

**State Rank:** S3S4

**Population Trend:** Unknown

**R-SGCN Concern Level:** Moderate

**Federal Status:** Not Listed

## Habitat Associations:

- **Guild(s): Rivers and Streams**
  - **Small Rivers and Streams - Obligate**
    - **Headwaters – Optimal**
      - Pools, Shoals, Riffles, Runs, Glides
    - **Small Rivers and Streams – Optimal**
      - Pools, Shoals, Riffles, Runs, Glides

## Priority Threats:

- Sedimentation
- Habitat Disturbance

## Additional Threats:

- Riparian Habitat Destruction
- Nutrient Loading

## Conservation Actions:

- Maintain Healthy, Upland Streams
- Prevent Introduction of Non-native Crayfishes
- Mitigate Pollution and Sedimentation Impacts

## Data Gaps/Research Needs:

- Identify Point Source Pollution and Sedimentation

**Endemic:** Yes

**Karst:** No

**Residence Status:** Year-round

**Host Species:** Not Applicable

# Updating Habitat Accounts & DFCs

- Serve as a Guide for Habitat Managers
- Help Identify Habitat Types
- Describe Restoration and Management Goals
- Provide Recommendations and Advice
- List Desired Habitat Parameters and Fire & Flood Regimes

## Landscape-level

- Habitat Name
- Habitat Description
- NatureServe Crosswalk
- AWAP Land Class
- Guild
- SGCN Associations
- Demonstration Areas
- Spatial Ecology
  - Narrative
  - Goal
- Habitat Condition
  - Narrative
  - Goal

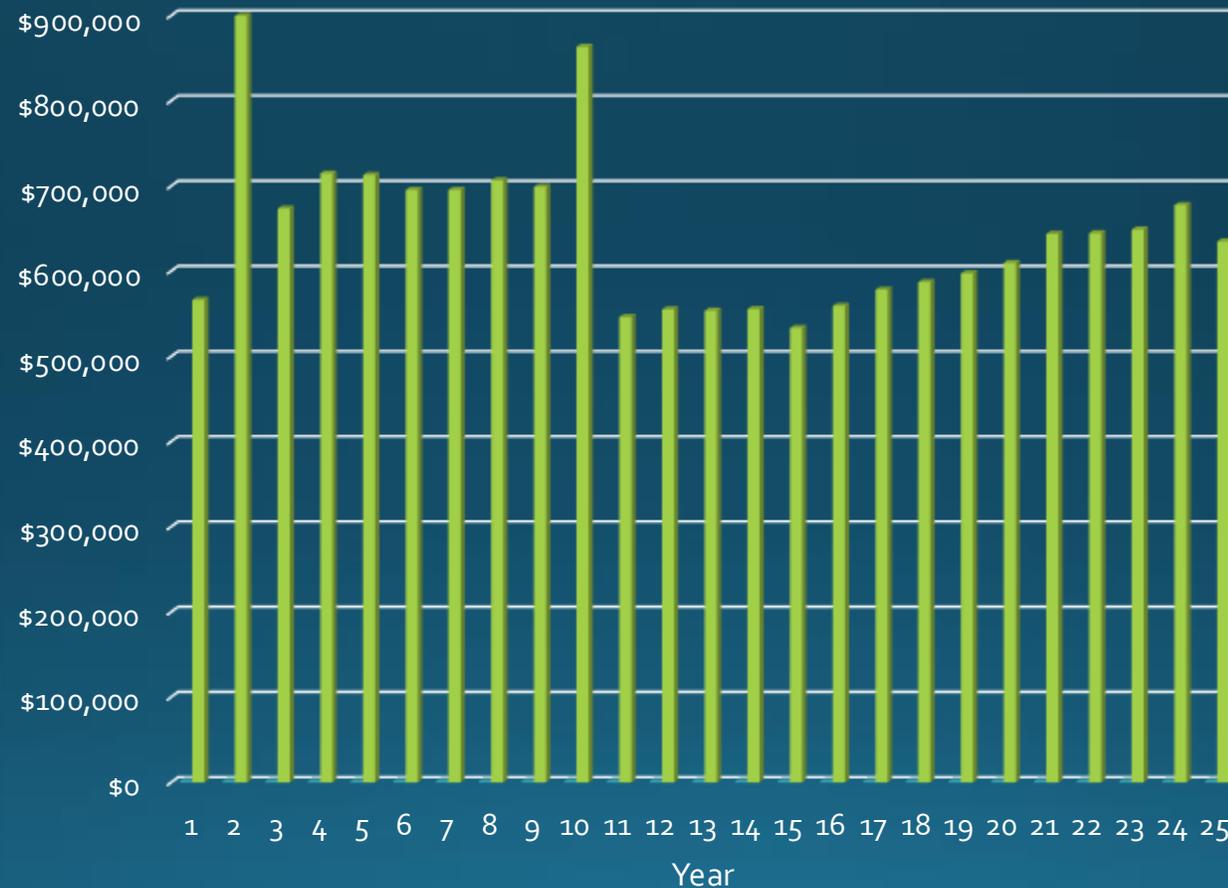
# Habitat Accounts - DFCs

Desired Conditions	
<b>Narrative (restoration and maintenance)</b>	Most of these examples have been converted to pastures or urban development. Those that remain intact are threatened by loblolly pine plantation conversion, woody encroachment and invasive species. There are examples under agricultural use with intact seed banks that are restorable. Reconstruction of functional examples is also possible for retired pastures.
<b>Conservation action (Restoration)</b>	Carefully remove invasive and woody species and reintroduce fire.
<b>Conservation action (Maintenance)</b>	Maintain fire regime, avoiding early growing season.
<b>Data Gap/Research Needs</b>	Identify areas and update map
<b>Overstory</b>	
Dominant Species	Post Oak, Blackjack Oak
Indicator Species	Post Oak, Blackjack Oak
Basal Area	0-20
Canopy Closure	0-20%
Snag Density >8 dbh	1/acre
<b>Mid-story</b>	
Dominant Species	Winged Sumac, Sassafras, Wild Plum, Persimmon
Indicator Species	Wild Plum, Winged Sumac
Mid-story Closure	0-20%
<b>Understory</b>	
Dominant Species	Big Bluestem, Indiangrass, Switchgrass, Little Bluestem
Indicator Species	Indian-Paintbrush, Pale Purple Coneflower, Prairie Gayfeather, Rattlesnake-Master, False Aloe, Beebalm
Average C-Value	7
<b>Groundcover</b>	
Grasses	40-60%
Forbs	40-60%
Woody Vines	0-5%
Woody	0-15%
Downed Woody Debris	<1%
Litter	<60%
Bareground	<5%
<b>% Total Cover Invasive Species</b>	<5%
<b>Fire Regime at Desired Conditions</b>	
Frequency	1-3 years
Seasonality	August - October
Severity	High
<b>Flood Regime at Desired Conditions</b>	
Frequency	N/A
Depth	N/A
Duration	N/A

Desired Conditions	
<b>Narrative (restoration and maintenance)</b>	These habitats are often the only remaining natural forest in a landscape converted to pine plantation, protected by their wet soils. Often high-graded after oak harvest.
<b>Conservation action (Restoration)</b>	Restore overstory composition.
<b>Conservation action (Maintenance)</b>	Maintain natural fire regime to encourage oak and pine regeneration.
<b>Data Gap/Research Needs</b>	Natural composition. Few in natural state.
<b>Overstory</b>	
Dominant Species	Willow Oak, Laurel Oak, Water Oak
Indicator Species	Laurel Oak, "Mature" Pines
Basal Area	90-110
Canopy Closure	90-100%
Snag Density >8 dbh	3/acre
<b>Mid-story</b>	
Dominant Species	Muscadine, rattan vine, Virginia Creeper
Indicator Species	N/A
Mid-story Closure	20-40%
<b>Understory</b>	
Dominant Species	blue sedge, poison-ivy, lance-leaf greenbriar
Indicator Species	N/A
Average C-Value	3
<b>Groundcover</b>	
Grasses	<10
Forbs	<10
Woody Vines	0-20%
Woody	0-30%
Downed Woody Debris	<20%
Litter	10-50%
Bareground	50-70%
<b>% Total Cover Invasive Species</b>	<5%
<b>Fire Regime at Desired Conditions</b>	
Frequency	50-100 years
Seasonality	August-December
Severity	low
<b>Flood Regime at Desired Conditions</b>	
Frequency	Annually
Depth	1-3 inches
Duration	1-3 months

# State Wildlife Grants (SWG)

- Funds to States for Implementing SWAPs
  - SGCN and their habitats
- Annual Appropriation by Congress
- Apportioned to States based on Land Area and Population
- 28 Active Projects



Office of  
**CONSERVATION  
INVESTMENT**  
*Partnering to fund conservation  
and connect people with nature*

# Federal Funding for Wildlife

- Pittman-Robertson
  - Wildlife Restoration
    - Birds & Mammals
  - ~\$14.8M



- Dingell-Johnson
  - Sportfish
  - ~\$5.8M



- What about the other 90% of wildlife species that we are responsible for?



# Dedicated & Adequate Funding Needed

- Permanent, Dedicated and Adequate funding source required to support the recovery and management of at-risk and threatened species
- Over 12,000 SGCN in the US
- Estimated >\$1.3B required annually to fully implement SWAPs

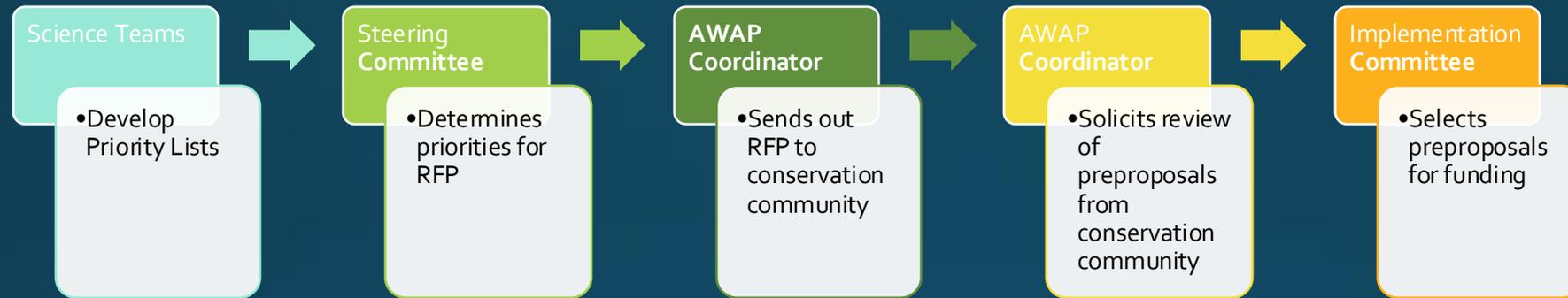


# State Wildlife Grants

- Require 35% non-Federal match
- Projects typically run 3 years
- Administered by USWFS – OCI, formally WSFR
- AR's SWG funds are typically subawarded to universities and conservation organizations
  - Research Studies, Surveys, Inventories, Habitat Restoration, Barrier Removal and Streambank Stabilizations



# AR's SWG Funding Process



## Taxa Teams

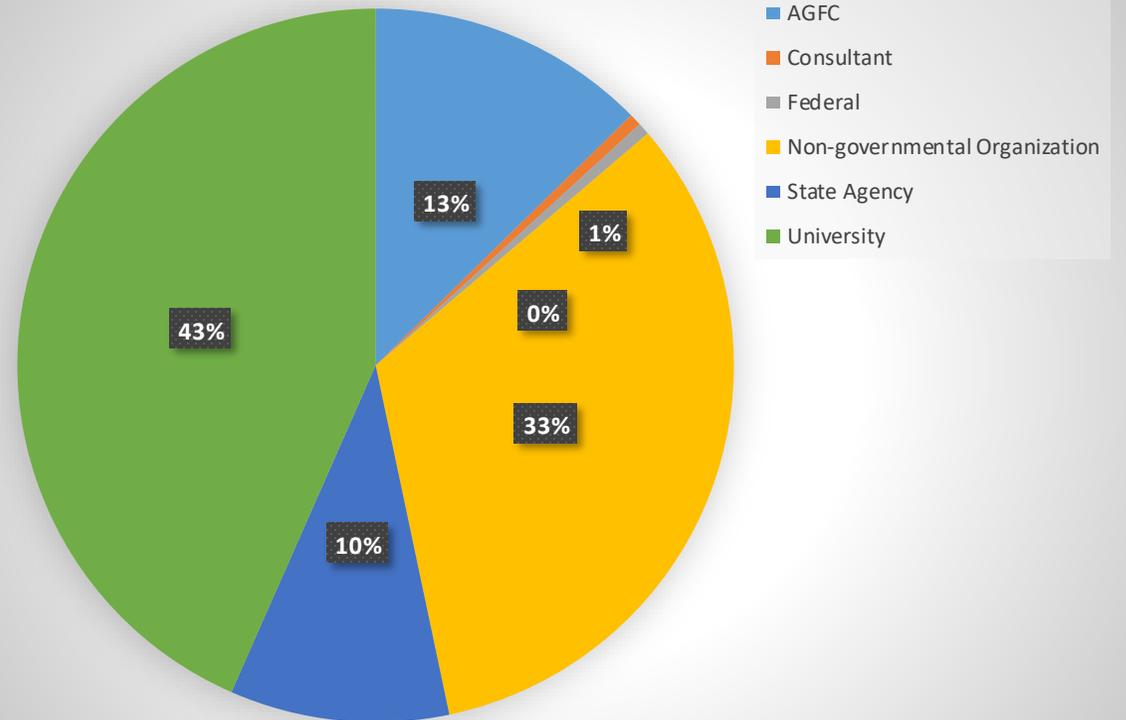
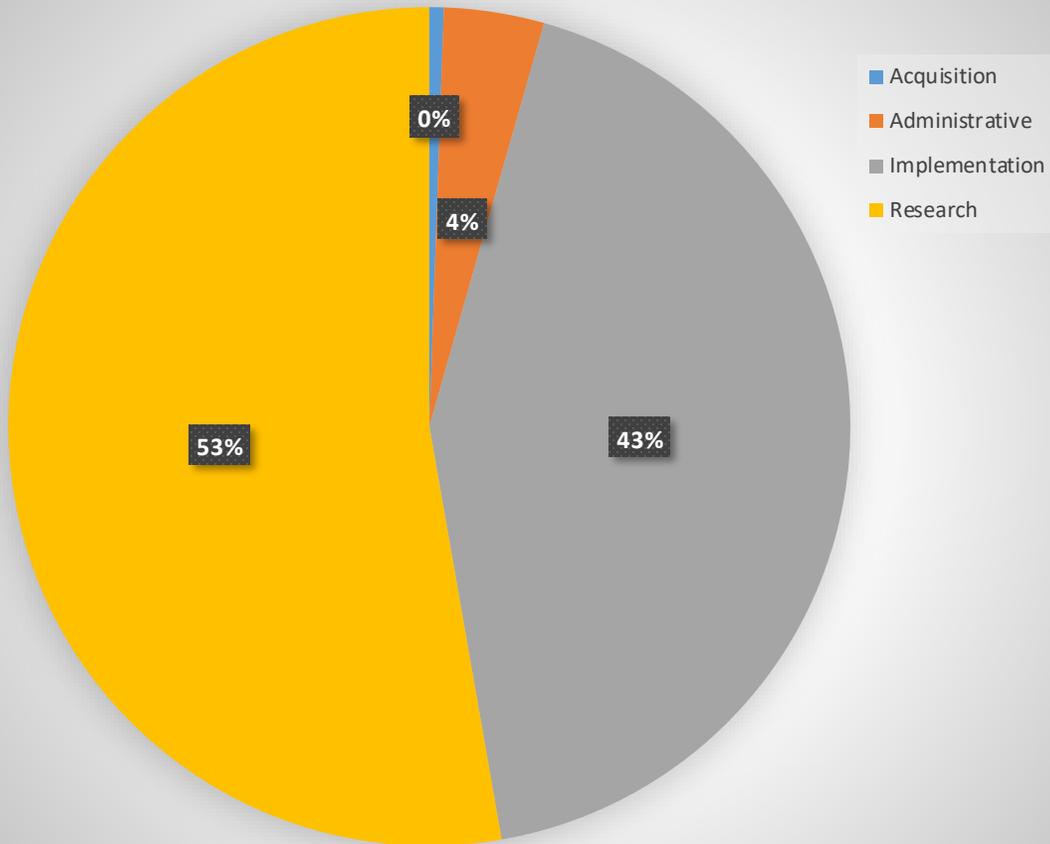
Mammals  
Birds  
Herps  
Fish  
Crayfish  
Mussel  
Karst  
Insect/Other Invertebrates  
Plants

## Habitat Teams

Terrestrial  
Aquatic

Funded 266 Projects  
>\$25,867,525 - Total

\$15,530,090 – SWG  
~\$10,337,435 – Match



# Arkansas Habitat Mapping Project

- Map NatureServe Ecological Mappings Systems at 10m Resolution
- Two-Phase Project - *Complete*
  - 2021-2024
- Funded by:
  - State Wildlife Grant (AGFC)
  - ANHC
  - ARDOT
  - USFWS Science Applications
  - USFWS ES office
  - US Forest Service (via AGFC)
  - National Park Service
  - Competitive State Wildlife Grant (AGFC)



# Ecological Mapping Systems (EMS)

- - mid- to local- scale ecological units, useful for standardized mapping and conservation assessments of habitat diversity and landscape conditions.
- Each EMS type describes complexes of plant communities influenced by similar physical environments and dynamic ecological processes (like fire or flooding).

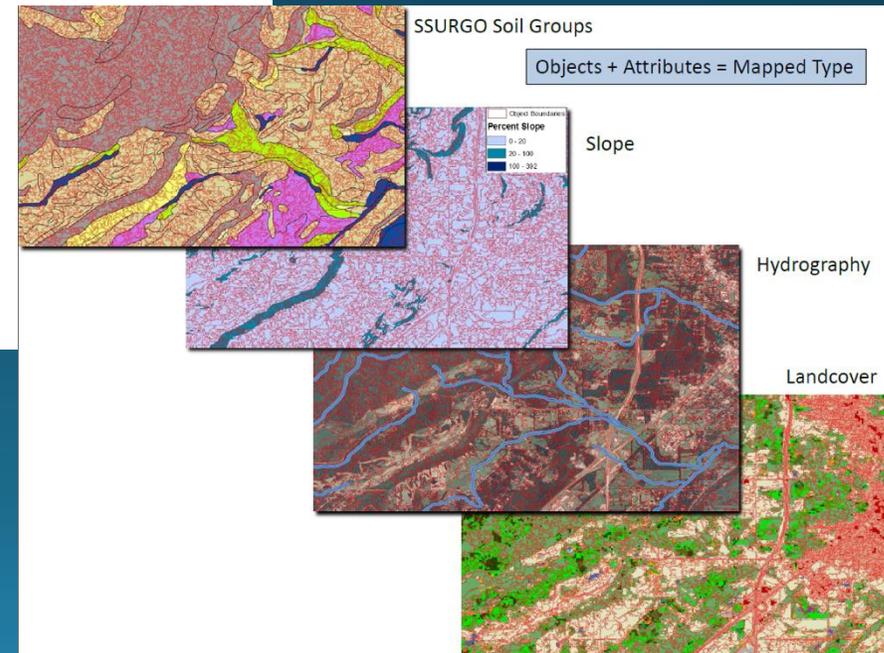
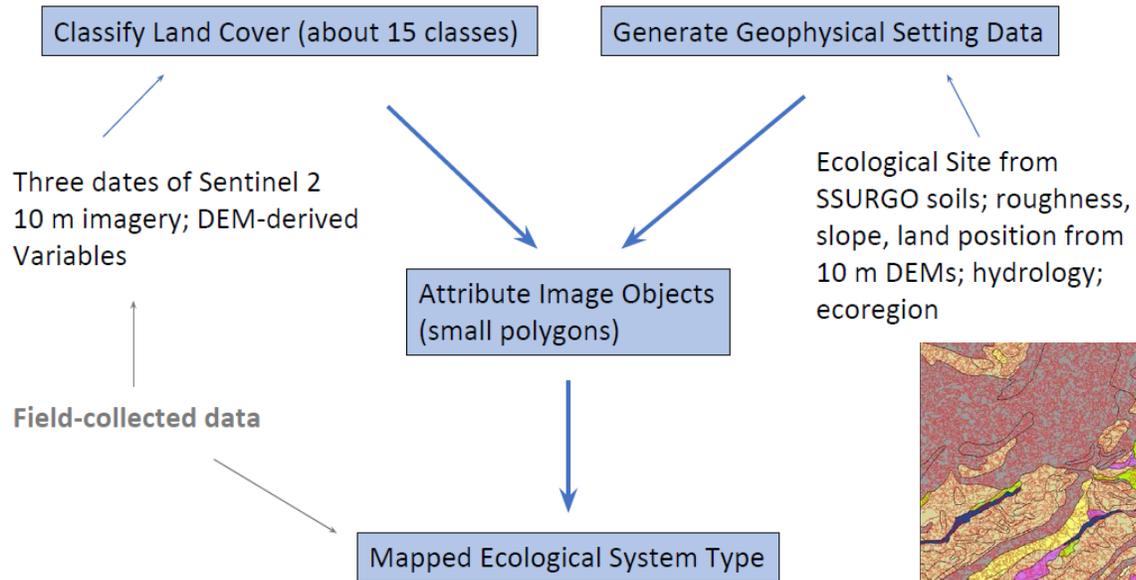


# Ecological Mapping Systems

Ecological Mapping System Code	Area (hectares)	Percent	Common Name	Short Description
53	2,448,994.59	17.5156%	Ozark-Ouachita Dry-Mesic Oak Forest	This type is mapped over typic soils throughout the Ozark and Ouachita mountain regions. Many areas are closed-canopy forests or nearly so in the modern landscape. Important species include white oak ( <i>Quercus alba</i> ), hickory species ( <i>Carya tomentosa</i> , <i>C. texana</i> ), black oak ( <i>Q. velutina</i> ), post oak ( <i>Q. stellata</i> ) and chinkapin oak ( <i>Q. muehlenbergii</i> , higher pH soils) are characteristic of this type. The most mesic areas may contain sugar maple ( <i>Acer saccharum</i> ) and northern red oak ( <i>Q. rubra</i> ) as an important components. Flowering dogwood ( <i>Cornus florida</i> ), eastern redbud ( <i>Cercis canadensis</i> ), hophornbeam ( <i>Ostrya virginiana</i> ), winged elm ( <i>Ulmus alata</i> ), and sassafras ( <i>Sassafras albidum</i> ) are common woody understory species. Shortleaf pine ( <i>Pinus echinata</i> ) may be a component.
135	327,478.30	2.3422%	Ozark-Ouachita Mature Pine Plantation	This type consists mainly of mature pine plantations ( <i>Pinus echinacea</i> or <i>P. taeda</i> ) or dense pine stands that were harvested between 1985 and 2011.
60	534,073.03	3.8198%	Ozark-Ouachita Pine Woodland and Forest	This type is mapped on all soil types where shortleaf pine ( <i>Pinus echinata</i> ) is dominant in stands that have not been harvested since 1985. White oak ( <i>Quercus alba</i> ), post oak ( <i>Q. stellata</i> ), and mockernut hickory ( <i>Carya tomentosa</i> ) are common components.
133	148,379.72	1.0612%	Ozark-Ouachita Young Pine Plantation	This type consists of areas dominated by young pines in stands that are fewer than 11 years old as of 2021.

# Mapping EMSs

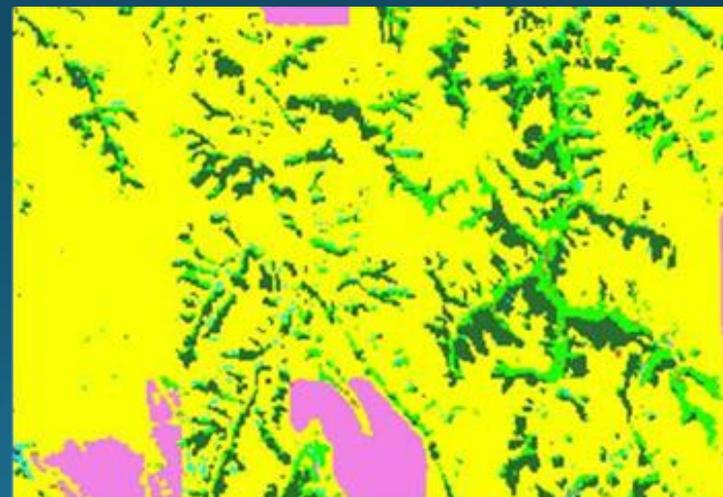
## Land Cover + Geophysical Setting = Mapped Ecological System

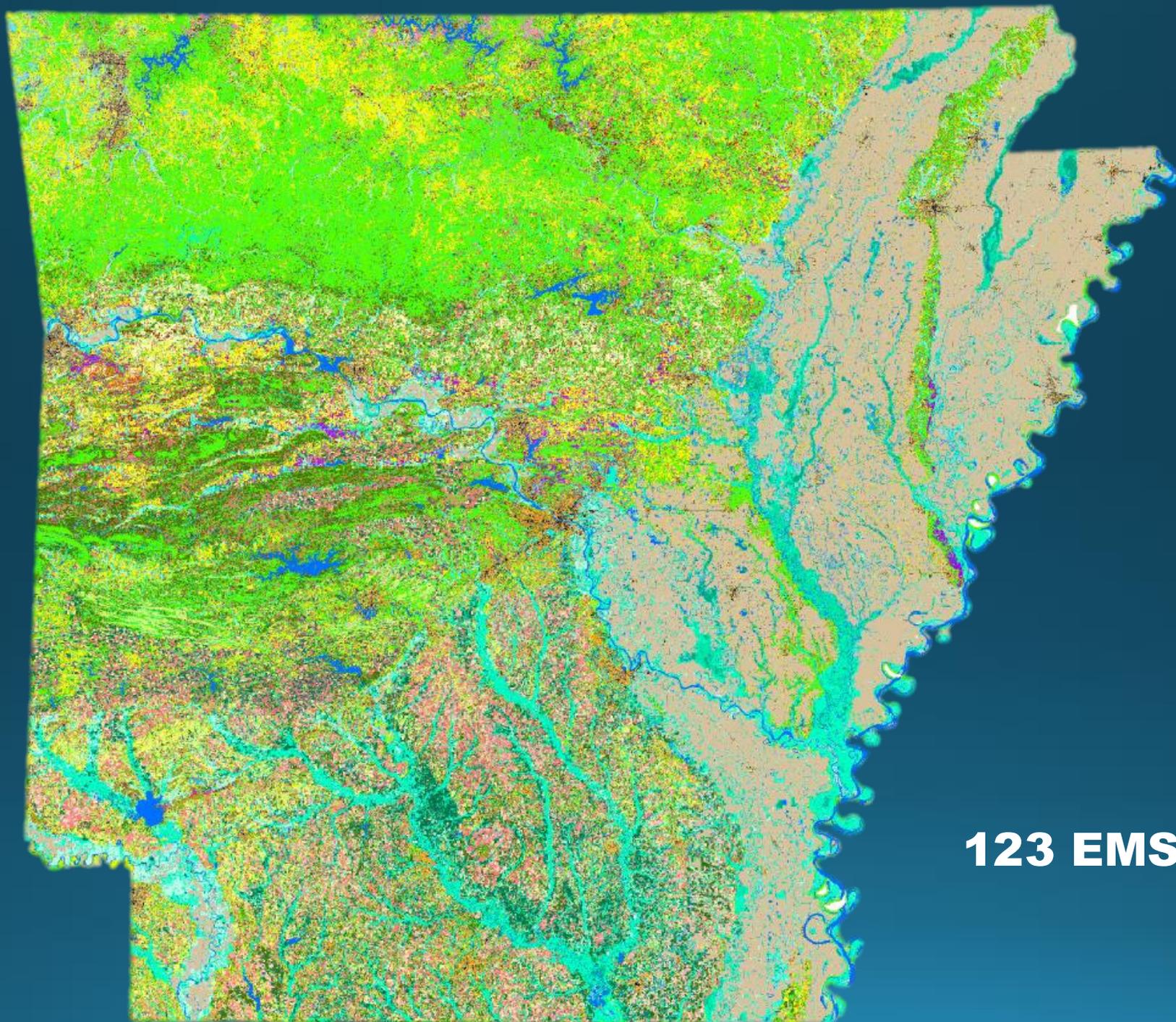


30m NLCD product



10m Sentinel imagery





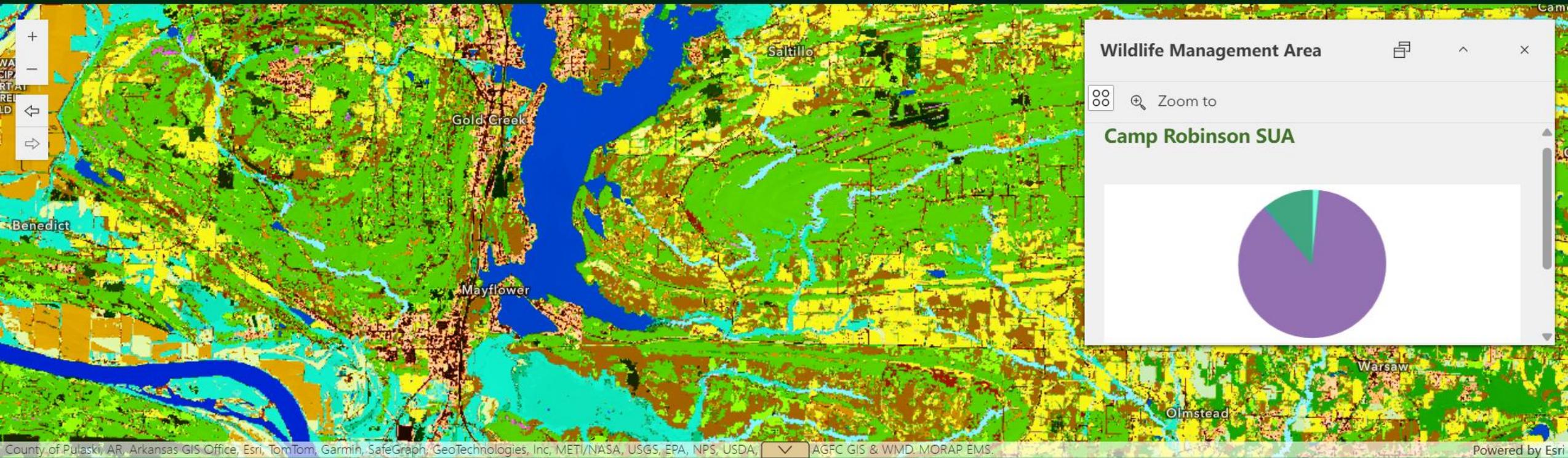
**123 EMS**

# Final Product & Availability

- EMS Accuracy Assessment - 80.97%
- Models for land cover X geophysical setting that can be updated (especially as land cover changes), making the datasets 'living products' rather one-time snapshots of the current situation
- Currently working on EMS/AWAP 2025 Habitat Types Web Map
- Plan to post on AGFC website for public download



# EMS to AWAP



## Wildlife Management Area

Zoom to

### Camp Robinson SUA



County of Pulaski, AR, Arkansas GIS Office, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, AGFC GIS & WMD, MORAP EMS. Powered by Esri

## Percent Area Tables

WMAs

flabel	Area ...	Floo...	Distu...
Camp Robins...	4,191.710068...	0.21929761	0
Alum Fork Na...	239.84625602	0.15453986	0
Camp Robins...	9,320.779235...	0.08271506	0

## Map Layers

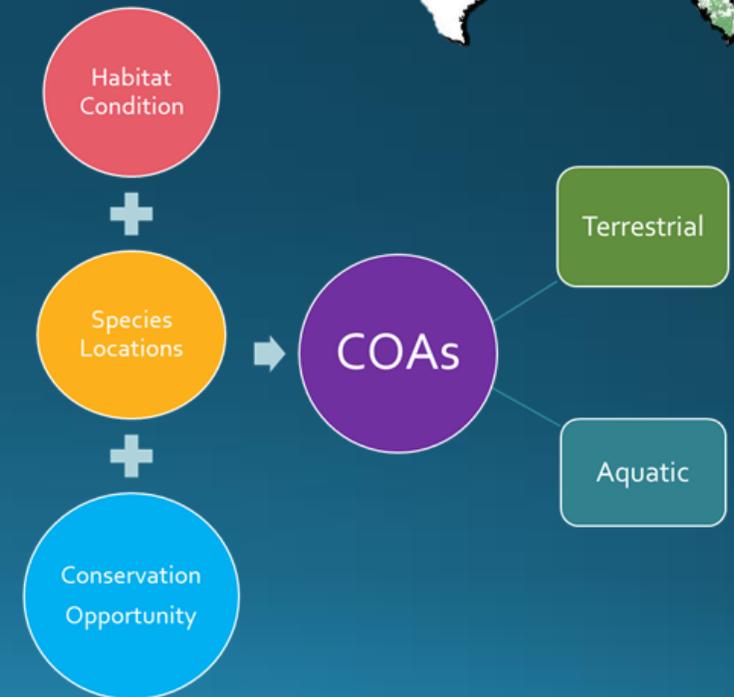
- REFERENCE LAYERS
- EMS Extracted Classes
- EMS Statewide

## EMS Class Distribution (Use Filter)



# Conservation Opportunity Areas (COA)

- “Identify and spatially depict priority areas on the landscape that offer the best opportunities and potential for SGCN conservation”
- Facilitate & catalyze successful implementation of the AWAP
  - Set shared goals & drive shared effort
  - Demonstrate success in targeted landscapes & attract funding
  - Guide allocation of State Wildlife Grant funds



# AR COA Delineation

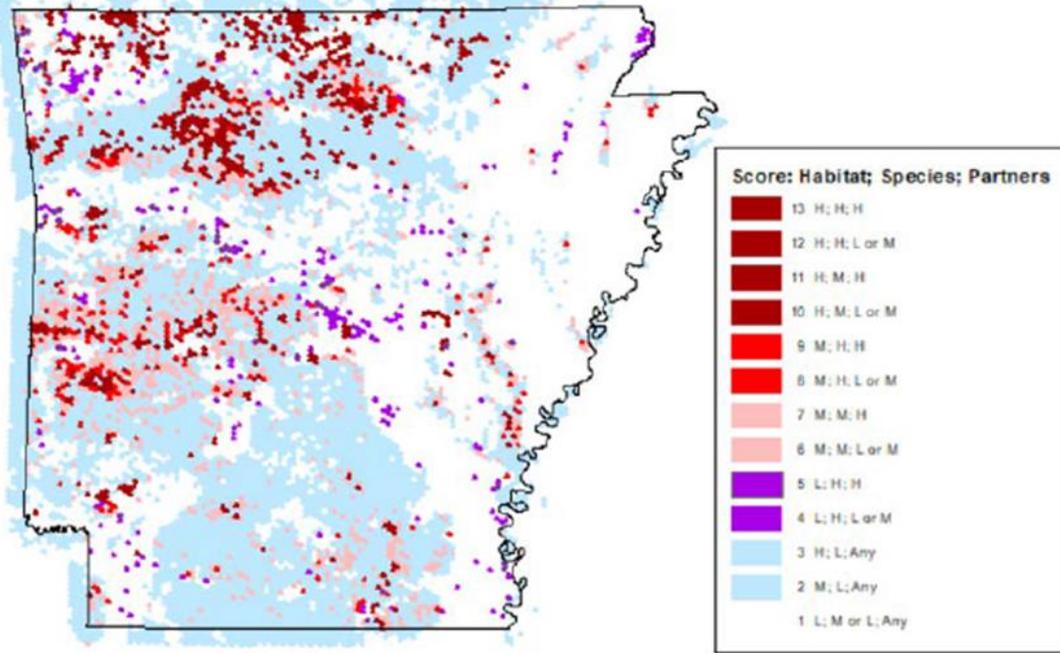


Figure 1. Spatial distribution of terrestrial landscapes ranked using the Bar Code approach. Ranks are grouped (color-coded) by relatively similar sets of actions the Bar Codes represent (see Appendix Table A1.4).

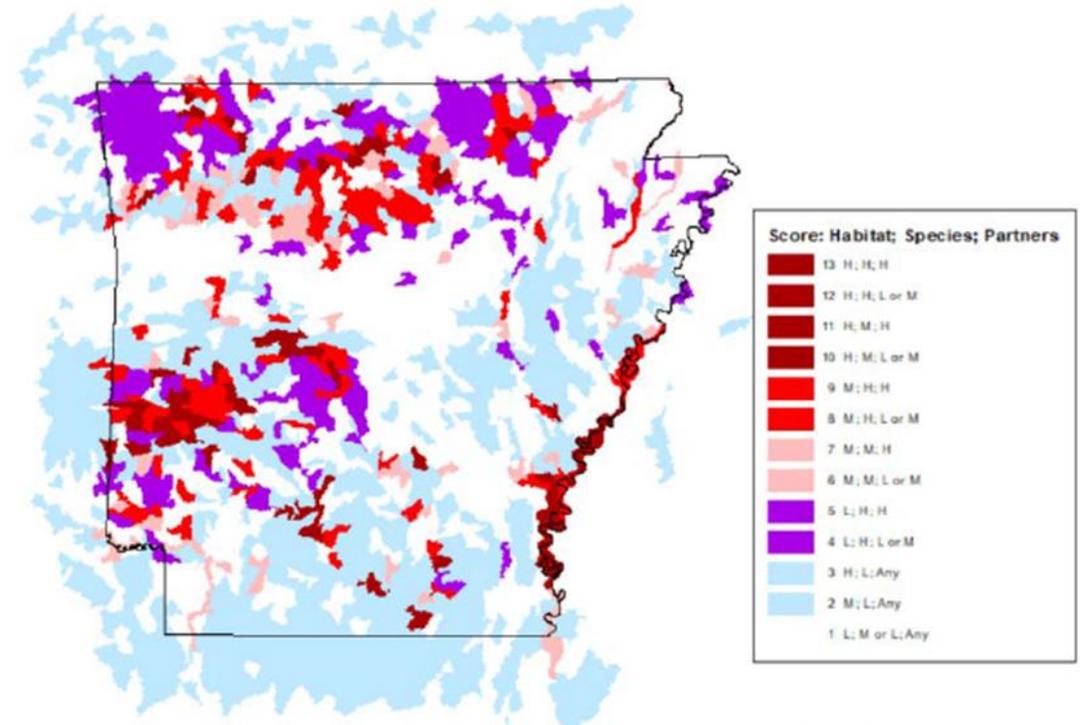
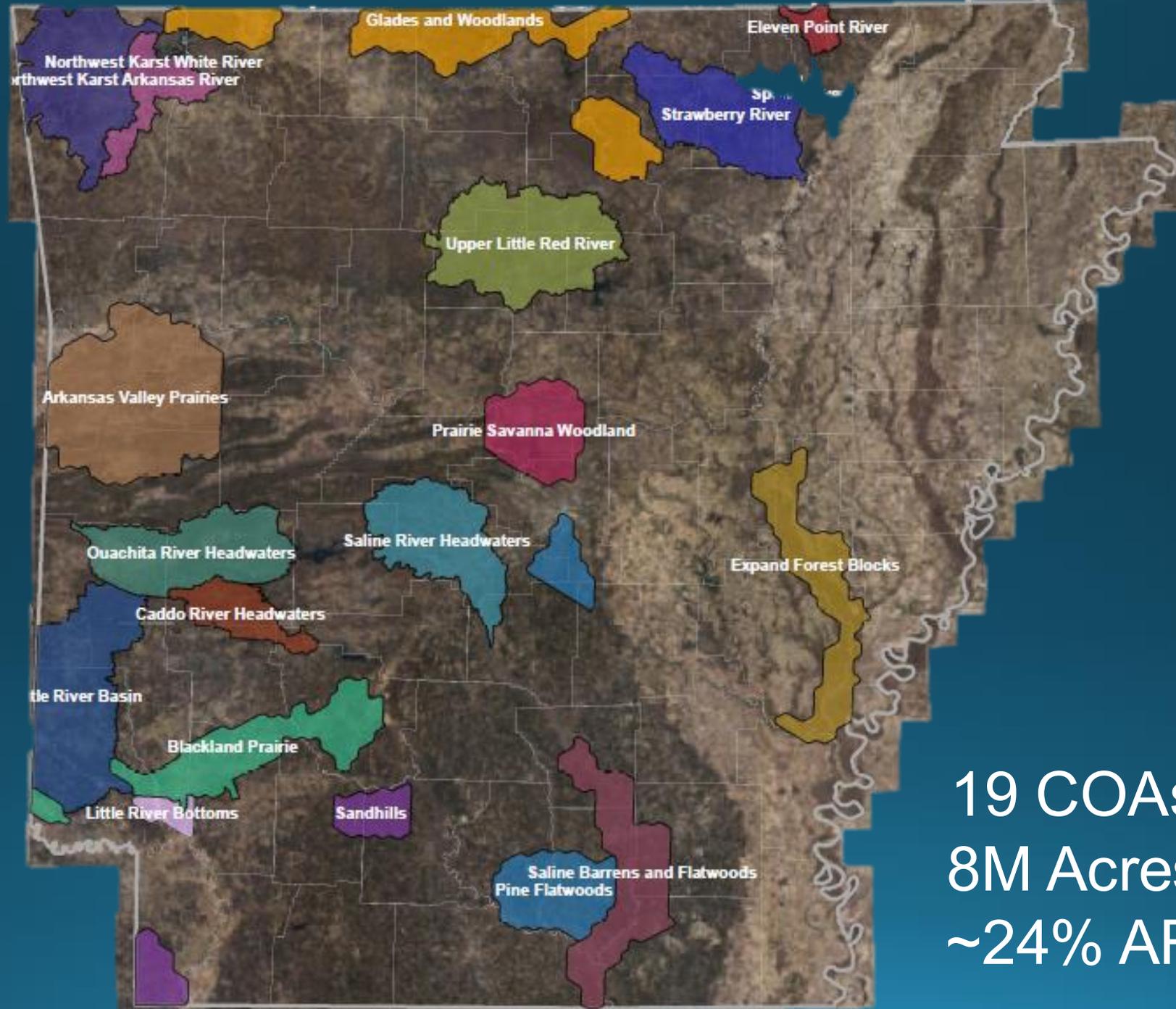
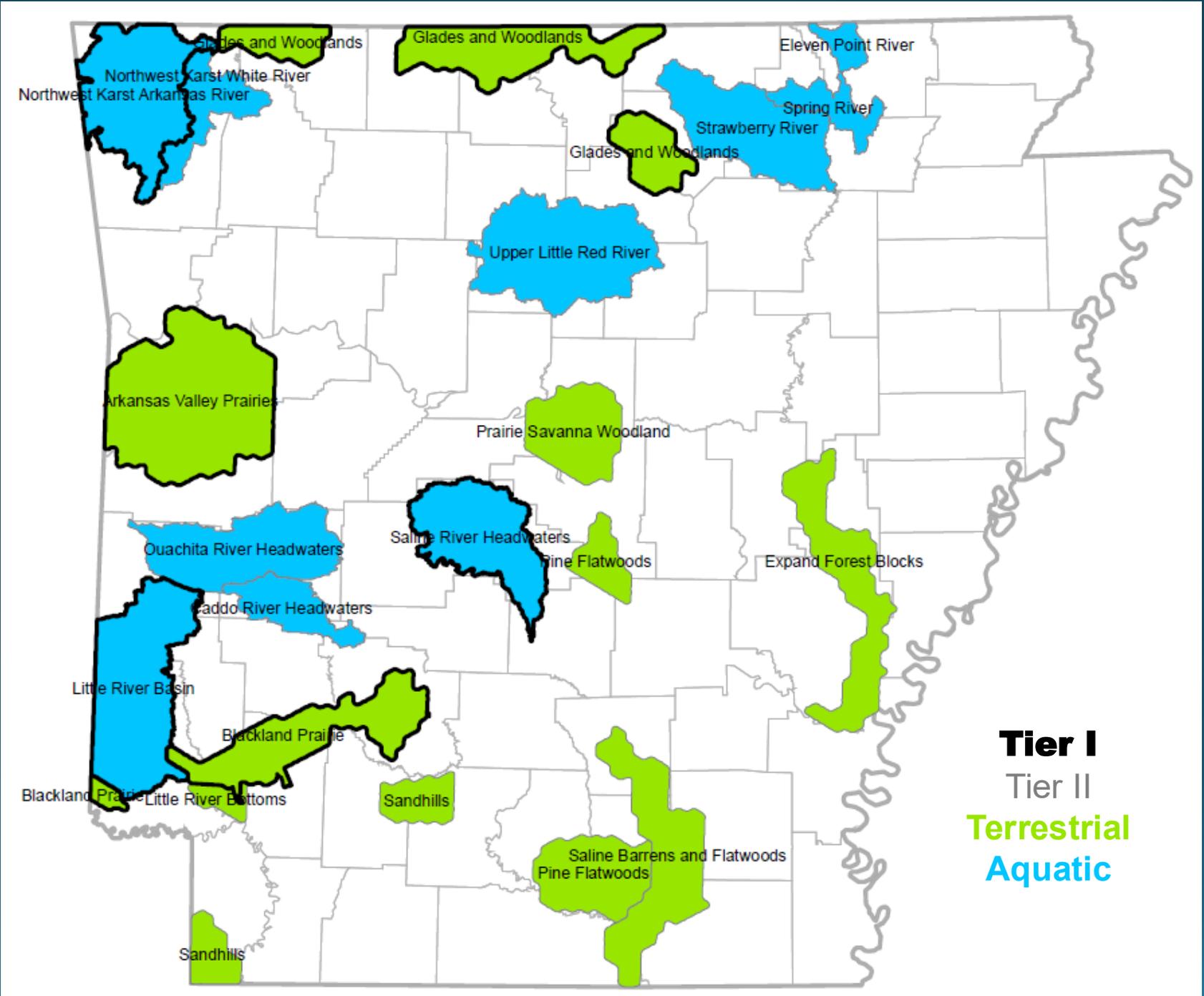


Figure 2. Spatial distribution of aquatic landscapes ranked using the Bar Code approach. Ranks are grouped (color-coded) by relatively similar sets of actions the Bar Codes represent (see Appendix Table A1.4).



19 COAs  
8M Acres  
~24% AR



**Tier I**  
Tier II  
**Terrestrial**  
**Aquatic**

# COA Planning & Implementation

- Work with Partners/Stakeholders to Develop Conservation Plans
  - Threats and their Severity
  - Establish Goals with Measurable Objectives
- Align with regional and landscape conservation work (SECAS/SARP)
- Incorporate Plan Objectives Into Other Initiatives
  - NRCS funding
  - Joint Venture CDN projects
  - RCPP
  - RLA
  - SWGs
  - and other grants



# COA Conservation Plan Statuses

- Contracted TNC to develop for 6 Tier I COAs
  - Saline River Headwaters, Blackland Prairie, Arkansas Valley Prairies, Northwest Karst Arkansas River, Glades and Woodlands, Little River Basin
- Currently developing plans for remaining 13 Tier II COAs



# AR COA Conservation Plans Overview

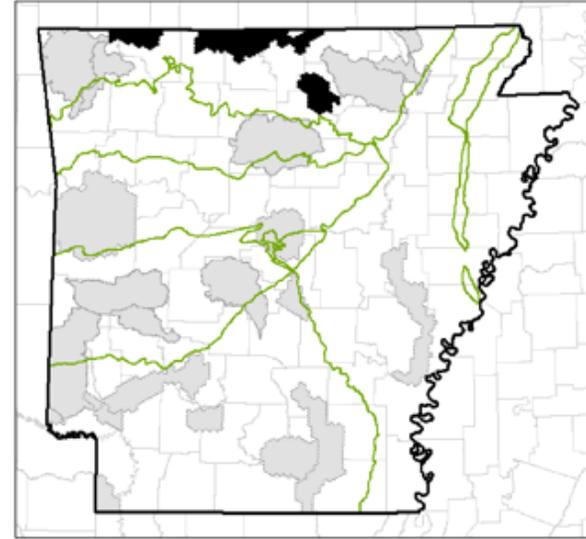
- Introduction
- Maps
- Conservation Vision
- Habitat Overview
- Species
- Conservation Challenges and Needs
- Threats (Ranked - High, Medium, Low)
- Conservation Objectives, Actions, and Metrics (for each threat)
- Implementation and Monitoring (Approach)
- COA Plan Revision Process (every 5 years)
- Team Members
- Habitat Descriptions

# Glades and Woodlands Conservation Opportunity Area

## Conservation Plan

### INTRODUCTION

The Glades and Woodlands Conservation Opportunity Area (GWCOA) totals 710,778 acres entirely within the Ozarks Highlands Ecoregion; it stretches across Northern Arkansas in three separate blocks. It includes portions of eight counties: Benton, Carroll, Boone, Fulton, Stone, Izard, Marion, and Baxter. The landcover is dominated by upland hardwood forest and woodland (60%) and general grassland, mostly fescue pasture (18%). Glades (3%) and prairies (1%) cover fewer acres but are significant to conservation. Urban and water (reservoirs) are 13% of the landcover.



The GWCOA is terrestrial focused. The glade and woodland ecosystem provides habitat for six federally listed species and forty-five Species of Greatest Conservation Need (SGCN). The conservation footprint in the GWCOA includes land owned and managed by the U.S. Forest Service, National Park Service, Arkansas Game and Fish Commission, Arkansas Natural Heritage Commission, Arkansas State Parks, Northwest Arkansas Land Trust, City of Eureka Springs, U.S. Army Corps of Engineers, Beaver Watershed Alliance, The Nature Conservancy, and others. GWCOA falls within or encompasses ANHC Focal Areas, AGFC Cave Recharge Areas, Northwest Arkansas Regional Land Trust, USFS Forest Legacy Areas, Partners in Amphibian and Reptile Conservation Areas (PARCAs), AGFC Quail Focal Areas, and TNC Portfolio Sites. The conservation partnerships in the GWCOA are strong, and opportunities to achieve desired conservation outcomes are many.

2 Table 1. Species of Greatest Conservation Need in the Glades and Woodlands COA.

Taxa	Common Name	Scientific Name	Rank	Federal
Invertebrate	A cave obligate millipede	<u><i>Trigenotyia parca</i></u>	G1G2S1	
	A land snail	<u><i>Gastrocopta rogersensis</i></u>	G3G4S2	
	A predaceous diving beetle	<u><i>Heterosternuta phoebeae</i></u>	G2S2	
	Sulphur springs diving beetle	<u><i>Heterosternuta sulphuria</i></u>	G3S1?	
	An isopod	<u><i>Caecidotea dimorpha</i></u>	G2G3S2	
	An isopod	<u><i>Caecidotea stiladactyla</i></u>	G3G4S3	
	Bat cave isopod	<u><i>Caecidotea macropropoda</i></u>	G3G2S2	
	Golden banded-skipper	<u><i>Autochton cellus</i></u>	G4S2S3	
	Ozark cave amphipod	<u><i>Stygobromus ozarkensis</i></u>	G4S2	
	Scrubland tiger beetle	<u><i>Cicindela obsoleta</i></u>	G5S1S2	
Crayfish	Hell creek cave crayfish	<u><i>Cambarus zophonastes</i></u>	G1S1 SE	LE
	William's crayfish	<u><i>Faxonius williamsi</i></u>	G3S3	
Mussel	Rainbow	<u><i>Villosa iris</i></u>	G5S3	
	Snuffbox	<u><i>Epioblasma triquetra</i></u>	G3S1 SE	LE
Fish	Ozark shiner	<u><i>Notropis ozarcanus</i></u>	G5S3	review
	Sabine shiner	<u><i>Notropis sabiniae</i></u>	G4S2	
Amphibian	Hurter's spadefoot	<u><i>Scaphiopus hurterii</i></u>	G5S2	
Reptile	Eastern collared lizard	<u><i>Crotaphytus collaris</i></u>	G5S2	
	Great plains skink	<u><i>Plestiodon obsoletus</i></u>	G5S1	
	Ornate box turtle	<u><i>Terrapene ornata</i></u>	G5S2	
	Western groundsnake	<u><i>Sonora semiannulata</i></u>	G5S1	
Bird	Bewick's Wren	<u><i>Thryomanes bewickii</i></u>	G5S1BS1S2 N	
	Common Nighthawk	<u><i>Chordeiles minor</i></u>		
	Rusty Blackbird	<u><i>Euphagus carolinus</i></u>		
	Tricolored Heron	<u><i>Egretta tricolor</i></u>	G5S2B	
	Trumpeter Swan	<u><i>Cygnus buccinator</i></u>		
	Willow Flycatcher	<u><i>Empidonax traillii</i></u>	G5S1B	
Mammal	American badger	<u><i>Taxidea taxus</i></u>	G5S1S2	
	Eastern small-footed bat	<u><i>Myotis leibii</i></u>	G4S1	
	Gray bat	<u><i>Myotis grisescens</i></u>	G3G4S2S3 SE	LE
	Indiana bat	<u><i>Myotis sodalis</i></u>	G2S1S2 SE	LE

**CONSERVATION VISION: A system of ecologically functioning glade and woodland habitat complexes at a scale that will sustain species of conservation concern.**

### **CONSERVATION CHALLENGES AND NEEDS**

A wide range of threats to the ecological integrity of glade habitats have been identified. These threats include woody densification (mostly eastern red cedar), fire suppression, non-native invasive species, disturbance from recreational use and management activities, development, and climate change.

The planning team has identified, summarized, and ranked specific threats to species and habitats in the following section. For each threat, a conservation objective, actions to accomplish those objectives, as well as metrics to track each action are identified.

Conservation actions should focus on protection, habitat management, and connectivity.

**THREAT: Altered fire regime (Fire Suppression) (HIGH)**

Fire suppression and the alteration of the historic fire regime (timing, frequency, intensity, seasonality, and extent-pattern) threaten all habitats within the GWCOA. Glade habitats depend on fire to maintain species diversity, composition, and structure. Most of the focal conservation target remnants have become degraded or diminished. Glades and gladey woodland habitats have declined in quality due to woody plant encroachment. The resulting shade cast by encroaching woody plants has suppressed the herbaceous vegetation, leading to declines in species diversity overall and driving shifts in species composition.

There has been a corresponding loss of ecotones, which are areas of transition between communities. When maintained by fire, these ecotones contain high biodiversity and provide habitat for many wildlife species. Under fire suppression, transitions between communities become hard edges, rather than blended assemblages of communities and become too dense with woody vines and brush. The result is lower herbaceous cover and a decline in species diversity.

Woody plant encroachment in grasslands and the densification of woodlands have the added effect of altering fire behavior. Areas of dense cedar lower ground wind speeds, which reduces fire intensity during prescribed burns. Shaded fuels hold more moisture and thus slow the rate of spread. Heavy shading reduces growth in the herbaceous plant layer, thus reducing the fuel load that would normally carry the fire and effectively reducing the rate of spread and fire extent.

**Conservation objective:** In conservation areas (private and public lands), restore fire regimes. Prioritize the restoration of glade-woodland complexes where fire can be maintained over time.

**Action:** Determine the fire regime across conserved lands.

**Metric:** Fire regimes articulated.

**Action:** Ensure that priority glade complexes are being managed with appropriate regimes.

**Metric:** Monitor how prescribed fire is being applied.

|

**Action:** Hold an annual GWCOA meeting to discuss needs and schedule appropriate joint assistance.

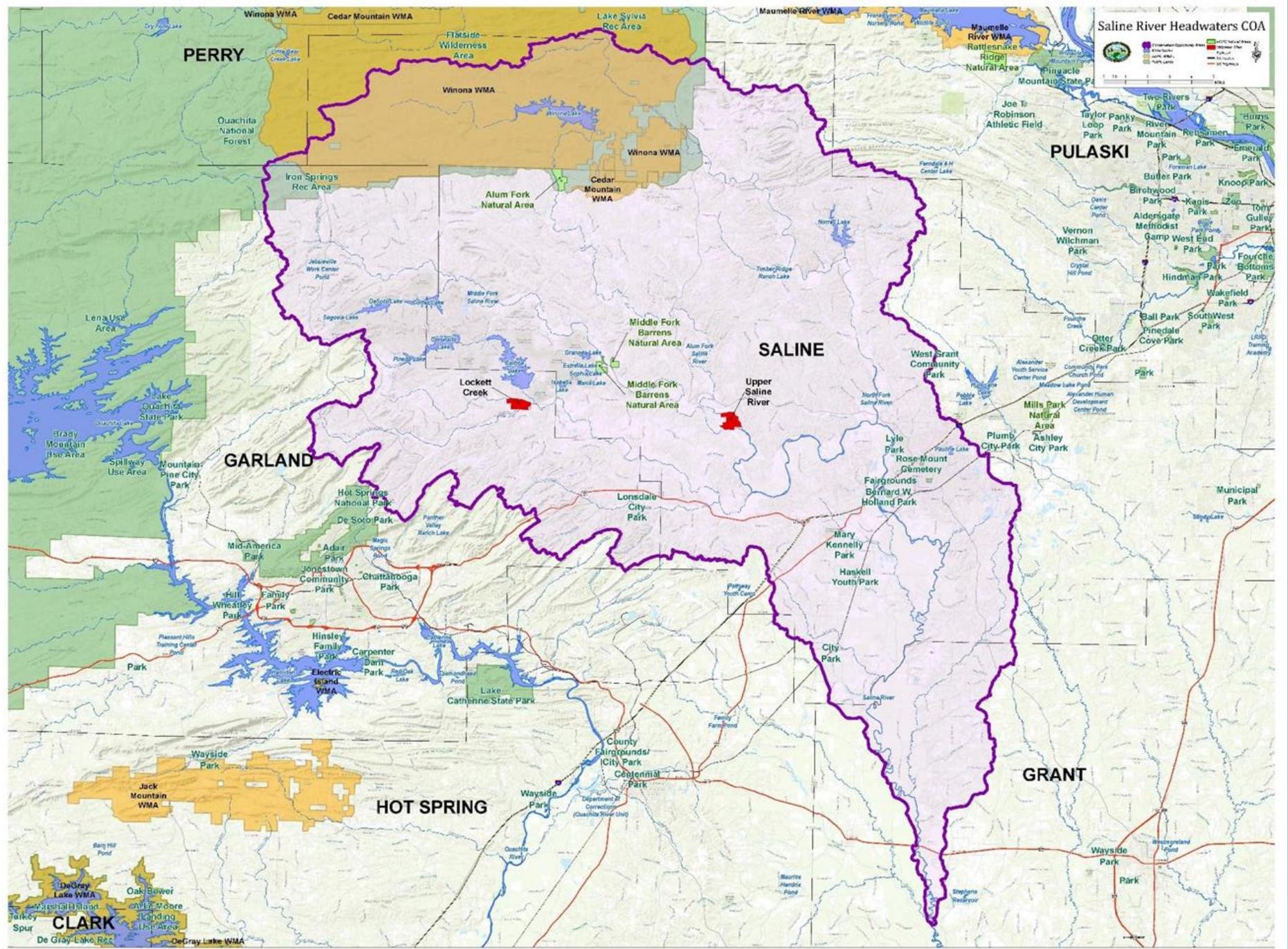
**Metric:** Five meetings/workshops held.

**Action:** Identify key audiences and inform the local public and government agencies of the importance of fire as a necessary tool not just to maintain quality habitats but to keep them/people safe since humans are a part of the ecosystem. The public and agency personnel should understand that without routine prescribed burns, the safety and security desired, decreases as the fuels build up. At which point, it is no longer under control when wildfires are triggered by lightning strikes or arson.

**Metric:** A glade-focused PR campaign is developed and initiated.

**Action:** For private and public glade complexes, promote prescribed burn associations (PBAs) and other programs that encourage the use of fire as a management tool on private lands. Provide training and other resources to PBAs and private landowners to promote the use of fire in the GWCOA.

**Metric:** Conduct one Qualified Prescribed Burner class by 2027. One prescribed burn association established by 2028.



Saline River Headwaters COA

Legend: COA Boundary (purple line), Parks (green), Water Bodies (blue), etc.

PERRY

PULASKI

SALINE

GARLAND

GRANT

HOT SPRING

CLARK

# Our Path Forward & Continued Needs

- Continue to Develop and Expand Partnerships
- Utilize Available Partnerships, Networks, and Resources
- Advocate for Additional Staffing, Resources, Funding, and Protections
- Educate about the Importance of Biodiversity Conservation
- Promote the Development and Implementation of BMPs to Reduce Impacts
- Need More Land Managers and Conservationists

*"The last word in ignorance is the man who says of an animal or plant, "What good is it?" If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering."* — Aldo Leopold

*"I will argue that every scrap of biological diversity is priceless, to be learned and cherished, and never to be surrendered without a struggle."* — E.O. Wilson

*"It's surely our responsibility to do everything within our power to create a planet that provides a home not just for us, but for all life on Earth."* — David Attenborough

*"Unless someone like you cares a whole awful lot, nothing is going to get better. It's not."*  
— Dr. Seuss, The Lorax

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