

## **Nonnative Species Control at the Cherokee Prairies in the Arkansas River Valley**

### **PROJECT SUMMARY:**

Control of nonnative species at the Cherokee Prairies will improve habitat quality and help to restore degraded areas of native grasslands in Franklin County, AR in the Arkansas River Valley. The increase in habitat quality will benefit a suite of grassland species of concern (fourteen are known from the project sites). Native prairies will be restored through the use of chemical and mechanical treatments of nonnative species occurring at the Cherokee Prairies Complex.

### **PROJECT LEAD:**

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### **PROJECT PARTNERS:**

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Total Amount Requested: \$33,210 (50%)

Matching funds from TNC and ANHC: \$33,210 (50%).

Total Project Amount: \$66,420

**FUNDING PRIORITY ADDRESSED BY PREPROPOSAL**

This project addresses funding priorities #2, restoring prairies and native grasslands for grassland birds, and #7, increase the size and connectivity of Arkansas River Valley prairies and woodlands, as identified by the Taxa Association Teams/Habitat Teams and Steering Committee in the Arkansas Wildlife Action Plan. By improving native prairie, this project will benefit 14 species of greatest conservation need already observed on the 930-acre Cherokee Prairies Complex.

In addition, this project is an on-the-ground restoration and stewardship project that implements priorities outlined in the Arkansas Wildlife Action Plan (habitat restoration and improvement) and will serve as a demonstration site for other state, federal, and private lands.

**ECOREGION WHERE PROJECT WILL BE CONDUCTED**

The AGFC AWAP habitat type highlighted in this preproposal is Arkansas Valley Prairie and Woodland, which is located entirely within the Arkansas Valley ecoregion.

**BACKGROUND**

Arkansas, like many portions of eastern North America, has lost much of its grassland habitat. Despite large scale loss of grassland habitat, prairie and savanna remnants remain scattered across the state. This is particularly true in the Arkansas Valley, where relatively large tracts (100's of acres) of prairie are protected and other remnant prairie tracts of unknown status occur on privately owned land. Furthermore, prairie habitat within the Arkansas Valley is in general surrounded by a large landscape of grassland habitat managed for grazing and as hayfields.

The Cherokee Prairies Complex, Cherokee Prairie Natural Area (Arkansas Natural Heritage Commission, ANHC), H. E. Flanagan Prairie Natural Area (ANHC), and Presson-Oglesby Prairie (The Nature Conservancy), features one of the largest and highest quality prairie remnants remaining in the Arkansas River Valley (Figure 1). Located just north of Charleston, this area of high quality prairie is representative of the once much more extensive Cherokee Prairies.

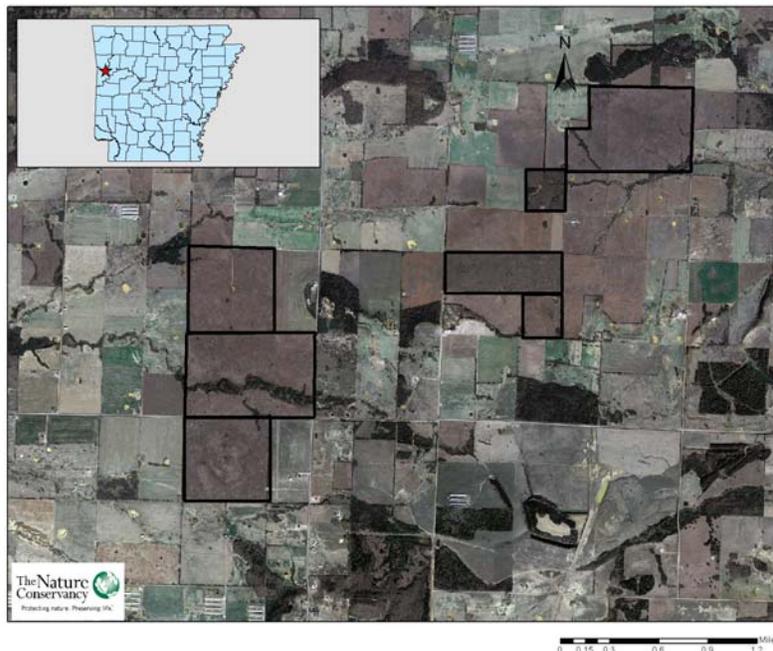


Figure 1. Cherokee Prairie Complex

Today, much of what was historically prairie is managed as hay fields or pastureland. Many of the pastures and hay fields have been planted in nonnative cool season grasses. The historical use of the Cherokee Prairies Complex and the current use of adjacent lands, for pasture, hay production, and energy extraction, have created disturbed areas within these prairies. Disturbance encourages the establishment of nonnative species. The presence of nonnative species can decrease the diversity of native species, which are more valuable to native fauna, particularly species of conservation concern in the Arkansas River Valley.

The following prairie plant communities are found in the Cherokee Prairie complex.

- Dry Tallgrass Prairie is found on hilltops and upper slopes of small hills and ridges. Dominant species include little bluestem (*Schizachyrium scoparium*), yellow Indian grass (*Sorghastrum nutans*) and pale purple cone flower (*Echinacea pallida*).
- Mesic Tallgrass Prairie is found on level to gently sloping terrain, with pimple mounds and is dominated by yellow Indian grass, velvet panic grass (*Dichanthelium scoparium*), prairie blazing star (*Liatris pycnostyachya*) and narrow-leaved sunflower (*Helianthus angustifolius*).
- Seasonally Flooded Tallgrass Prairie is found in depressions, low swales, along prairie drainages, and around beaver ponds. This type is dominated by sharp-fruit rush (*Juncus acuminatus*), short-fruit rush (*Juncus brachycarpus*), switchgrass (*Panicum virgatum*), bearded beggartick (*Bidens aristosa*) and interior rose-mallow (*Hibiscus moshheutes*).

Each community is impacted by nonnative species. Especially problematic in dry and mesic prairies are sericea lespedeza (*Lespedeza cuneata*) and sweet clovers (*Melilotus* spp.). Tall fescue (*Schedonorus arundinaceus*), Johnson grass (*Sorghum halepense*), and Japanese honeysuckle (*Lonicera japonica*) are common mesic and flooded prairie invaders.

#### **GOALS AND OBJECTIVES:**

The primary goal of this project is to restore tallgrass prairie habitat structure and species composition at the Cherokee Prairies Complex to benefit species of Greatest Conservation Need, identified by the 2008 State Wildlife Action Plan Steering Committee. This project will also develop a demonstration work plan for eradication and control of nonnative species invading tallgrass prairies. Completion of this project will take two years.

Objectives:

1. Identify the extent of nonnative species at Cherokee Prairies Complex.
2. Restore habitat structure and species composition, and increase connectedness by promoting native grasses and forbs through the reduction of nonnative species.
3. Demonstrate an effective nonnative species control plan to encourage control on a larger scale.

#### **METHODS:**

Restoring Arkansas River Valley prairie at the Cherokee Prairies Complex during the SWG funding period will focus on treating areas of the prairie degraded by the invasion of nonnative species. Restoration will include the following activities:

- Mapping of current nonnative species populations.
- Prioritization of infestation.
- Pretreatment monitoring of nonnative species occurrence.
- Mechanically and chemically treating areas to reduce nonnative species densities.
- Habitat restoration monitoring post-treatment to quantify treatment effectiveness.

**PRODUCTS AND OUTCOMES:**

- Reduction in cover and frequency of nonnative species occurrence at the Cherokee Prairies Complex.
- Repeatable methods for reduction of nonnative species on native prairies.
- Restoration protocol and monitoring report.
- Demonstration site to encourage large-scale landowners, such as Fort Chaffee Maneuver Training Center, to implement a nonnative species control plan.

Expected Benefits

The restoration activities will restore Arkansas River Valley prairie structure and composition and hence prairie quality. The protocol will be a valuable product for future restoration in this unique habitat type. The release of native species by removing nonnative species will improve prairie quality and add value to wildlife, which will provide beneficial habitat to a variety of species of conservation concern (Table 1).

Table 1. Arkansas Wildlife Action Plan Species of Greatest Conservation Need that are known from the project area (14) which will benefit from this project.			
Common Name	Scientific Name	S Rank	G Rank
Prairie mole cricket	<i>Gryllotalpa minor</i>	S?	G3
Ornate box turtle	<i>Terrepene ornata ornate</i>	S2	G5T5
Western Slender Glass Lizard	<i>Ophisaurus attenuatus attenuatus</i>	S3	G5T5
Northern Harrier	<i>Circus cyaneus</i>	S1B,S4N	G5
Northern Bobwhite	<i>Colinus virginianus</i>	S5	G5
American Woodcock	<i>Scolopax minor</i>	S2B,S4N	G5
Barn Owl	<i>Tyto alba</i>	S2B,S3N	G5
Short-eared Owl	<i>Asio flammeus</i>	S3N	G5
Loggerhead Shrike	<i>Lanius ludovicianus</i>	S3B,S5N	G5T3Q
Sedge Wren	<i>Cistothorus platensis</i>	S1B,S4N	G5
Prairie Warbler	<i>Dendroica discolor</i>	S4B	G5
Lark Sparrow	<i>Chondestes grammacus</i>	S3S4B,SZN	G5
Henslow’s Sparrow	<i>Ammodramus henslowii</i>	S1B,S2N	G4
LeConte’s Sparrow	<i>Ammodramus leconteii</i>	S3S4N	G4

**EXISTING RESOURCES AND LONGTERM PROJECT MAINTENANCE**

This project will build on the longstanding partnership between The Nature Conservancy and the Arkansas Natural Heritage Commission. The partners’ commitment to conservation and stewardship of natural areas is long-term. Future maintenance of the restoration will include continued monitoring for new invasions, spot treatments, and frequent prescribed fire.

**PRELIMINARY BUDGET**

	Total Costs	TNC/ANCH (Match)	SWG
Salary/Benefits	47,000	27,000	20,000
Operating Expenses	7,000	0	7,000
Capitol Expenses	0	0	0
<i>Subtotal</i>	<i>54,000</i>	<i>27,000</i>	<i>27,000</i>
Indirect Costs (23%)*	12,420	6,210	6,210
<b>Total</b>	<b>66,420</b>	<b>33,210</b>	<b>33,210</b>

\***Indirect Costs:** The Nature Conservancy has a current 23% Negotiated Indirect Cost Rate (NICRA) that is accepted by USFWS.

## **QUALIFICATIONS OF THE NATURE CONSERVANCY TO CARRY OUT THE PROJECT**

The Nature Conservancy (TNC) has worked in the Arkansas River Valley with our partners for approximately 10 years. TNC has developed a broad understanding of this at-risk ecosystem through years of scientific observation and use of adaptive management in implementation of restoration techniques. Through work with public and private landowners, we have become acutely aware of the socio-political attributes of the area. TNC maintains an excellent working relationship with the Arkansas Natural Heritage Commission. This relationship increases our capacity to organize teams made up of experts in the field of restoration of at-risk habitats. TNC also maintains science and conservation staffs that are trained in implementation of strategic actions and monitoring. Finally, through completion of other restoration activities, TNC has demonstrated the ability to successfully complete this project.

The Arkansas Natural Heritage Commission (ANHC) is charged with the responsibility of establishing and maintaining a System of Natural Areas. Natural areas are those lands specifically managed to preserve and sometimes restore natural communities that are now rare across the state. The Arkansas Natural Heritage Commission has natural areas in four natural divisions of the state that conserve prairie habitats. ANHC has demonstrated experience restoring and protecting prairie habitat with a recent success of transplanting prairie sod to Chesney Prairie Natural Area.

**Seth Pearson:** Seth Pearson has been an employee of The Nature Conservancy for over three years and serves as the Land Steward for the Arkansas Field Office. Seth is responsible for planning and implementing stewardship and restoration work on preserves through out the state. He is also active in prescribed fire implementation throughout the state. Seth graduated from Purdue University with a Bachelors of Science Degree in Biology with a specialization in Ecology, Evolution, and Population Biology.

**Bill Holimon:** Bill Holimon is an Ornithologist and is Chief of Research for the Arkansas Natural Heritage Commission. Bill received a Bachelor of Science in biology from the University of Arkansas at Little Rock and a Master of Science in biology from New Mexico State University. Bill previously worked for The Nature Conservancy in Texas on conservation of two federally listed endangered bird species, the Golden-cheeked Warbler (*Dendroica chrysoparia*) and Black-capped Vireo (*Vireo atricapilla*). In addition, he has conducted extensive work on various taxa of Red Crossbills (*Loxia curvirostra*) throughout North America. Bill is a native Arkansan who has published three scientific papers on rare birds of Arkansas; two on grassland birds and the third on the endangered Red-cockaded Woodpecker (*Picoides borealis*).