

REVITALIZING PRIORITY HABITAT IN THE ARKANSAS VALLEY PRAIRIE LANDSCAPE TO BENEFIT GRASSLAND-DEPENDENT SPECIES OF GREATEST CONSERVATION NEED

Project Summary

Tallgrass prairie, savanna, and woodlands at Cherokee Prairie Natural Area, H.E. Flanagan Prairie Natural Area, and the Presson-Oglesby Preserve will be restored through control of non-native invasive plants, the removal of woody encroachment, and prescribed fire implementation. This work will address three funding priorities, notably including native grassland management, the highest priority of the bird taxa team. These restoration actions will create additional high-quality habitat, provide connectivity to adjacent high-quality habitat, and restore a larger landscape of priority habitat to benefit at least 19 Arkansas Wildlife Action Plan species of greatest conservation need (SGCN) and other wildlife across the Arkansas Valley prairie complex.

Project Leader

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Tallgrass prairie pre- (above) and post-restoration (below) using mechanical and chemical methods and prescribed fire.



SWG Funding Requested: \$65,000 (65%)

Amount and Source of Matching Funds: \$35,000 (35%) will be provided from the Arkansas Natural Heritage Commission and The Nature Conservancy

Total Project Costs: \$100,000

NEED: Tallgrass prairie is one of Arkansas's rarest community types resulting from centuries of conversion to agricultural use and urban development. Likewise, grassland birds and other grassland-dependent species have dramatically declined due to this large-scale habitat loss, degradation, and fragmentation. Despite this loss, grassland remnants are scattered across the state with the largest tracts of remaining unplowed prairie found in the historical Cherokee Prairies Complex, which formerly occupied 135,000 acres of prairie, savanna, and associated woodlands that supported large populations of grassland-dependent species in the Arkansas Valley ecoregion. Remnants of this once-vast complex are surrounded by a large landscape managed for grazing and hayfields. Thus, this area contains great potential for habitat restoration and management at a scale that would benefit many grassland-dependent wildlife species.

Cherokee Prairie Natural Area (CPNA), H.E. Flanagan Prairie Natural Area (FPNA), and the Presson-Oglesby Preserve (POP) are protected remnants of the Cherokee Prairies Complex and collectively conserve more than 1,079 acres of high-quality prairie communities just north of Charleston. CPNA and FPNA (584 acres and 340 acres, respectively) are 1.5 miles apart and support a mosaic of wet and dry prairie, savanna, and riparian and upland woodlands. These diverse communities provide critical habitat for species of greatest conservation need (SGCN), including the northern bobwhite, ornate box turtle, and Texas frosted elfin. The Arkansas Natural Heritage Commission (ANHC) owns and manages both of these natural areas. The POP, owned and managed by The Nature Conservancy (TNC), is located in between the two natural areas and comprises 155 acres of tallgrass prairie exhibiting more than 220 species of plants and supporting grassland specialists like nesting Henslow's and wintering Le Conte's sparrows, both of which also occur on CPNA and FPNA.

Fire is the most important ecological process at CPNA, FPNA, and the POP, maintaining the distribution, composition, and diversity of prairie, savanna, and woodland communities. Though fire has been reintroduced to the landscape at these sites, portions of CPNA, FPNA, and the POP are overgrown with eastern red cedar, sweet gum, and other brushy woody species; this encroachment likely resulted from fire exclusion and suppression prior to state and private conservation ownership. Additionally, non-native invasive plant species persist in disturbed areas that resulted from the historical agricultural use of the prairies and the current use of adjacent land for pasture, hay production, and energy extraction. Particularly problematic are *Sericea lespedeza*, sweet clovers, fescue, Johnson grass, and Japanese honeysuckle. Invasive and woody plant species threaten the diversity of desired native plant species, which in turn threatens the SGCN dependent on Arkansas Valley prairie communities.

Because so much of Arkansas's tallgrass prairie ecosystem has been lost, restoring extant habitat is critical to increase the number and viability of SGCN. This project builds upon decades of prior strategic work and planning, including the success of State Wildlife Grants T26-16, T27-06, T27-10, and T39-03: a focus of efforts by various partners within the best remaining Cherokee Prairie Complex remnants. Restoration and improvement of degraded prairie, savanna, and woodlands at three priority sites in west-central Arkansas will further this long-term effort and benefit at least 19 grassland-dependent SGCN.

FUNDING PRIORITIES: This project addresses three 2016 Arkansas Wildlife Action Plan funding priorities for:

1. Grassland Birds – manage landscapes for native grasslands
2. Prairies and Native Grasslands – habitat management to maintain or increase habitat quality for SGCN
3. Woodlands and Savannas – habitat management to maintain or increase habitat quality for SGCN

PURPOSE AND OBJECTIVES: The primary goal of this project is to restore and improve the quality of prairie, savanna, and woodland habitat at three sites in west-central Arkansas by reducing woody encroachment and invasive plant species on 740 total acres using prescribed fire and mechanical and chemical methods, thereby increasing viability of SGCN. Project completion will take two years; proposal objectives are:

1. Restore habitat structure and species composition of prairie, savanna, and woodland communities by reducing shrub and midstory cover by 60-80% on 320 acres.
2. Increase the amount and quality of grassland habitat and woodland grassland understory by implementing a fire regime on 740 acres with an average 70% unit coverage.
3. Measure progress toward desired ecological conditions by monitoring habitat response and response of species of greatest conservation need.

LOCATION OF WORK: Project activities will restore prairie, savanna, and woodland habitat in the Arkansas Valley ecoregion at CPNA, FPNA, and the POP in Franklin County (Figure 1).

APPROACH: Objective 1 will be addressed during both years of the project period. Restoration of 320 acres, which will occur in areas to be burned, will entail a hand crew reducing shrub and midstory cover via foliar herbicide application, cut-and-treat applications of chemical herbicide, cut/lay for cedar removal, and bush-hogging. Herbicide will be used to reduce privet, winged elm, sweet gum, sumac, and other woody species. For the cut-and-treat method, a crew will immediately apply herbicide to freshly cut stumps. Moreover, successional vegetation will be bush-hogged where needed to further reduce unwanted woody vegetation.

Objective 2 will be addressed during both years of the project period. Prescribed fire by the ANHC and TNC over 740 acres with an average 70% unit coverage will stimulate the herbaceous layer, reduce the abundance of invasive plant species while favoring native warm-

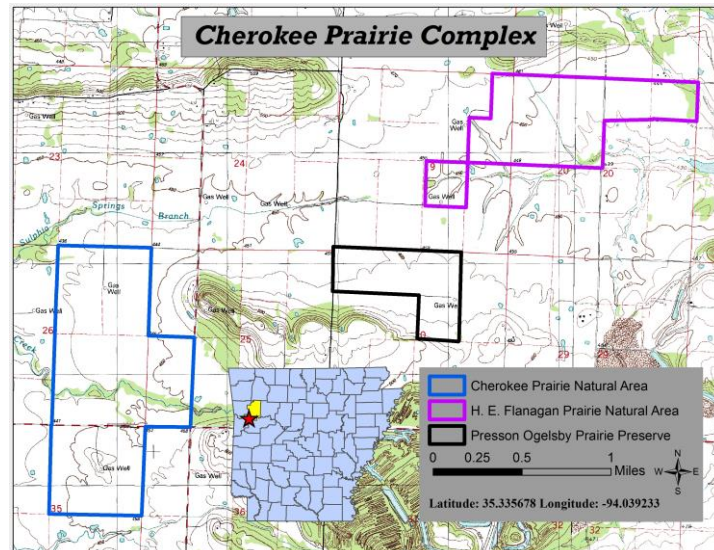


Fig. 1. Restoration sites: Cherokee Prairie Natural Area (CPNA), H.E. Flanagan Prairie Natural Area (FPNA), and the Presson-Oglesby Preserve (POP).

season grasses, restore community structure, and increase the size and connectedness of tallgrass prairie, savanna, and woodlands, thereby benefiting SGCN. Established burn units will be used.

Objective 3 will be addressed by conducting pre-treatment (baseline) and post-treatment monitoring surveys over the two-year period. Habitat response to restoration activities will be monitored by measuring changes in plant community structure and composition using transects and documenting changes visually using photopoints. Surveys for wintering and breeding grassland birds will be conducted by using a combination of point counts, transects, and general area searches; butterflies will also be surveyed.

EXPECTED RESULTS AND BENEFITS: Restoration of prairie, savanna, and woodlands at CPNA, FPNA, and the POP will (1) create additional high-quality habitat for grassland and woodland SGCN, (2) help restore an ecological fire regime that is necessary to maintain habitat on managed land, (3) provide connectivity to adjacent high-quality habitat, and (4) increase the scale of managed land, which will provide a larger Arkansas Valley prairie landscape to benefit animal SGCN and other wildlife.

This project will benefit 20 grassland-dependent animal species of conservation concern documented from CPNA, FPNA, and the POP. Of these, 19 are SGCN (Table 1), and one (Sprague’s pipit) is a federally listed candidate species.

This project will further efforts to restore and maintain prairie communities in a landscape context that we will maintain in future years, thereby increasing diversity and viability of 19 SGCN known from FPNA, CPNA, and the POP.

Table 1: SGCN known from CPNA, FPNA, and the POP that will benefit from this project (19).

American burying beetle	Painted bunting
Bell's vireo	Prairie mole cricket
Diana fritillary	Red milkweed beetle
Grasshopper sparrow	Red-headed woodpecker
Henslow’s sparrow	Sedge wren
Lark sparrow	Short-eared owl
Le Conte's sparrow	Texas frosted elfin
Migrant loggerhead shrike	Texas milkweed beetle
Northern bobwhite	Upland sandpiper
Ornate box turtle	

BUDGET 35 - 65% Cost Share: The ANHC and TNC will provide non-federal match.

Category	Total	Match ANHC	Grant ANHC	Match TNC	Grant TNC
Salary/Benefits	\$ 16,840	\$ 0	\$ 8,000	\$ 7,130	\$1,710
Contracts	74,750	20,000	50,000	3,000	1,750
Supplies	1,530	0	0	1,185	345
Travel	3,300	0	2,000	1,000	300
Indirect Costs*	3,580	0	0	2,685	895
Grand Total	\$100,000	\$20,000	\$60,000	\$15,000	\$5,000

*TNC’s indirect cost rate in its FY16 NICRA is 21.8%. TNC’s indirect rate is negotiated annually, and TNC will charge indirect at the federally approved rate each year.

ORGANIZATION AND STAFF QUALIFICATIONS

The ANHC has worked alongside other state agencies and private partners to develop a broad understanding of this at-risk ecosystem through years of scientific observation and the use of adaptive management in implementation of restoration and conservation techniques. The ANHC protects and maintains tallgrass prairies within four natural divisions of the state. In the Arkansas Valley, the ANHC owns sizeable high-quality remnants: Cherokee Prairie and H.E. Flanagan Prairie natural areas. In combination with the Presson-Oglesby Preserve (TNC), these protected sites form the largest prairie landscape remaining of the original Cherokee Prairie Complex in the region.

Project Leader: **Bill Holimon** is an Ornithologist and Chief of Research for the Arkansas Natural Heritage Commission. Holimon received a B.S. in Biology from the University of Arkansas at Little Rock and an M.S. in Biology from New Mexico State University. Holimon 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. Holimon is a native Arkansan who has published four scientific papers on rare birds of Arkansas: three on grassland birds and the fourth on the endangered red-cockaded woodpecker (*Picoides borealis*).

Douglas Zollner is the Director of Conservation Science for The Nature Conservancy, Arkansas Field Office. He has been working with the Conservancy for 20 years. Zollner also serves as the Conservancy's National Fire Restoration Coordinator, coordinating Conservancy efforts to reduce the threat of altered fire regimes to biodiversity across ownerships at landscapes in the U.S. and Mexico. Zollner has over 30 years of working experience with ecological assessments and conservation planning, woodland and watershed restoration, fire ecology, ecological modeling, and developing and implementing measures of conservation success in an adaptive management context. He received a B.S. from the University of Arizona in Watershed Management and an M.S. from Texas Tech University in the Ecology of Arid Lands.