

**RESTORING PRIORITY HABITAT IN THE ARKANSAS VALLEY PRAIRIE LANDSCAPE
TO BENEFIT GRASSLAND-DEPENDENT SPECIES**

Project Summary

Tallgrass prairie, savanna, and woodlands of the Arkansas Valley will be restored at H. E. Flanagan Prairie Natural Area using a forestry mulcher (grinder), herbicide treatment, and prescribed fire. This will address three conservation action funding priorities and benefit 21 grassland-dependent animal species of conservation concern known from the site. This project will provide additional high-quality habitat, provide connectivity to adjacent high-quality habitat, and restore a larger landscape of priority habitat to benefit AWAP SGCN and other wildlife across the Arkansas Valley prairie landscape.



Project Leader

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*Dickcissel perched on compass plant
at Flanagan Prairie Natural Area*

SWG Funding Requested: \$60,125 (65%)

Amount and Source of Matching Funds: \$32,375 (35%) will be provided from the
Arkansas Natural Heritage Commission

Total Project Costs: \$92,500

NEED: Tallgrass prairie is one of Arkansas' 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, prairie and savanna remnants are scattered across the state with the largest tracts of remaining unplowed prairie found in the Arkansas Valley Ecoregion. Further, prairie habitat within the Arkansas Valley is in general surrounded by a large grassland landscape managed for grazing and hayfields. This region once contained extensive areas of prairie and savanna at the time of European settlement which supported large populations of grassland-dependent species. Thus, this area contains great potential for habitat restoration at a scale that would benefit many grassland-dependent wildlife species.

Arkansas conservation partners have been working in this high priority area to protect, enhance, and expand habitat availability to restore sustainable populations of the numerous grassland-dependent wildlife species known from the region. The Arkansas State Wildlife Grant program contributed to this effort via three grants: (grant T26-16; 2007 ANHC) surveys to identify the size and status of privately owned remnants and on rare grassland-dependent animal species of concern, (T27-06; 2008 TNC) controlling non-native plant species on protected prairie sites, and (T27-10; 2008 TNC) coordinating conservation efforts on privately owned prairie remnants. Results from two of the grants led to fee title acquisition of a privately owned high priority remnant, the Hudson tract, by Arkansas Natural Heritage Commission (ANHC) in August of 2010. This tract was added to H. E. Flanagan Prairie Natural Area (FPNA).

FPNA is one of the highest quality prairie remnants in the Arkansas Valley. The site encompasses 340 acres owned and managed by ANHC. It is part of a larger prairie complex including Cherokee Prairie Natural Area (ANHC) and Presson-Oglesby Preserve (TNC) which collectively protect more than 1,050 acres of high-quality prairie communities.

Approximately half of the recently acquired Hudson tract at FPNA was fenced and excluded from any type of management practice. This resulted in encroachment of eastern red cedar, sweet gum, and other brushy woody species. In addition, riparian areas at FPNA are overgrown with cedar and non-native invasive plants such as Chinese privet and Japanese honeysuckle which likely resulted from fire exclusion and suppression prior to ANHC ownership. Prescribed fire, although frequent at the site, has not been effective in restoring the structure and species composition along the riparian areas due to a combination of soil moisture and lack of fine fuels to carry fire. Fire is the most important ecological process maintaining the distribution, composition, and diversity of prairie, savanna, and woodland communities.

For this proposal, we are targeting restoration of recently acquired habitat (Hudson tract) and riparian areas including adjacent degraded prairie habitat at FPNA. Restoring Arkansas Valley Prairie and Woodland communities at Flanagan Prairie will address three 2012 Arkansas Wildlife Action Plan (AWAP) priority actions for: (1) Grassland Birds – manage landscapes for native grasslands, (2) Prairies and Native Grasslands – habitat management to maintain or increase habitat quality for SGCN, and (3) Woodlands and Savannas – habitat management to maintain or increase habitat quality for SGCN. Management of native grasslands for grassland birds is identified in the 2012 State Wildlife Grants RFP as the Bird Taxa Team's highest priority. In addition, Arkansas Valley Prairie and Woodland is the third highest ranked terrestrial habitat (score of 2,452) in the AWAP. A higher ranking (or score) implies a higher quantity of species of greatest conservation need (SGCN) and/or more greatly imperiled species. Indeed, nineteen SGCN and two additional species of concern, the federally listed candidate Sprague's Pipit and the Arogas Skipper, have been documented at FPNA.

LOCATION OF WORK: Project will be conducted in the Arkansas Valley Ecoregion at FPNA in Franklin County (Figure 1).

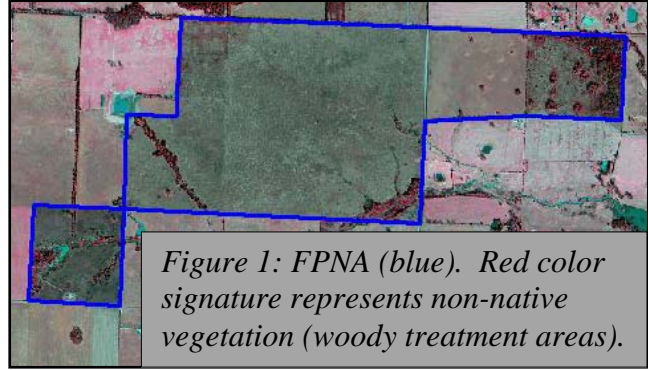


Figure 1: FPNA (blue). Red color signature represents non-native vegetation (woody treatment areas).

OBJECTIVES: Project completion will take two years.

1. Restore habitat structure and species composition of prairie, savanna, and woodland communities on 37 acres of the Hudson tract using mechanical treatments ranging from 0% (prairie) - 70% (woodland) canopy cover.
2. Restore habitat structure and species composition in wet prairie, riparian woodlands, and adjacent prairie habitat by reducing shrub and midstory cover by 60-80% on 70 acres.
3. Restore a fire regime to increase the amount and quality of grassland habitat and woodland grassland understory on 300 acres with an average 70% unit coverage.
4. Measure progress towards desired ecological conditions by monitoring habitat response and response of species of greatest conservation need.

APPROACH: Objectives 1 and 3 will be addressed in both years of the project period. Analysis of General Land Office (GLO) survey notes from December 1825, indicate that the eastern edge of the Hudson tract supported woodland and savanna. NRCS soils data also supports this observation with woodland soils in the northeast corner of the tract grading into prairie soils along the remainder of the parcel. Structure treatments will follow this gradient. A forestry mulcher (i.e., grinder) that can chip trees up to 20" DBH will be used during the fall/winter of the first year to remove shrubs, saplings, and canopy trees. Herbicide will be used the following spring to treat re-sprouting hardwoods. A late summer/early fall prescribed burn will be conducted during the second year followed by a final application of herbicide in the spring.

Objectives 2 and 3 will be addressed during both years of the project period. The 1825 GLO survey notes indicate that riparian areas within and adjacent to FPNA were open with few if any trees present. A hand crew will be used to restore riparian areas using foliar, hack-and-squirt, and cut stump herbicide applications during the first year. A fall/winter prescribed burn will be conducted the second year followed by herbicide treatment to re-sprouting hardwoods/brush in the spring. Upland dry areas adjacent to riparian areas will be bush-hogged, prescribed fire will be used to weaken woody plants, and re-sprouts treated by herbicide application during the first year. A follow-up herbicide treatment during the second spring of the project period will be required.

Objective 4 will be addressed by conducting baseline and monitoring surveys over the two year period. Habitat response from restoration activities will be monitored by measuring changes in community structure and plant species composition using transects, measuring immediate post-burn effects, and monitoring photopoints to document removal of undesired species and establishment of native plant species. Surveys for wintering and breeding grassland birds will be conducted by using a combination of point counts and general area searches.

EXPECTED RESULTS AND BENEFITS: Restoration of wet and dry prairie, savanna, and riparian and upland woodlands at Flanagan Prairie will (1) create additional high-quality habitat for grassland and woodland birds and insect species of conservation concern, (2) restore an

ecological fire regime to a previously unmanaged tract and 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 21 grassland-dependent animal species of conservation concern documented from FPNA. Of these, 19 are SGCN (Table 1) and another two (Sprague’s Pipit and Arogos Skipper) will be submitted as future AWAP additions.

Table 1: AWAP SGCN known from FPNA which will benefit from this project (19). AWAP Species Priority Score is listed in parenthesis.

American Burying Beetle (42)	Painted Bunting (11)
Bell's Vireo (19)	Prairie Mole Cricket (32)
Diana (25)	Red Milkweed Beetle (21)
Grasshopper Sparrow (19)	Red-headed Woodpecker (14)
Henslow’s Sparrow (33)	Sedge Wren (23)
Lark Sparrow (17)	Short-eared Owl (19)
Le Conte's Sparrow (17)	Texas Frosted Elfin (65)
Migrant Loggerhead Shrike (33)	Texas Milkweed Beetle (21)
Northern Bobwhite (10)	Upland Sandpiper (8)
Ornate Box Turtle (19)	

Restoration of priority habitat at FPNA will address key AWAP conservation actions of SGCN, such as: manage areas to increase numbers of small mammals and ground-nesting birds/reduce habitat fragmentation (American burying beetle), restore prairie to achieve habitat connectivity (red milkweed beetle, Texas milkweed beetle), disturb grasslands every 4-5 years/restore native grasslands (Henslow’s Sparrow, Le Conte’s Sparrow), restore native warm season grasses and forbs (Bell’s Vireo, Northern Bobwhite, Sedge Wren, Short-eared Owl, Upland Sandpiper), conduct prescribed burns/restore native grasslands (Grasshopper Sparrow, Ornate Box Turtle), maintain and restore grassland with shrub component/restore native grasslands (Migrant Loggerhead Shrike), maintain or restore open habitat with scattered shrubs and trees (Painted Bunting), maintain or restore a mosaic of grassland with shrub and bare ground components (Lark Sparrow), and restore oak-savanna (Red-headed Woodpecker). This project will further maximize conservation efforts in the Arkansas Valley. Restoration and management of priority habitat will optimize breeding and wintering opportunities for grassland birds and provide quality habitat for other grassland-dependent wildlife. Furthermore, this project will create additional quality habitat which should encourage population growth of dispersing grassland species from nearby protected prairies thereby providing benefits across the Arkansas Valley prairie landscape.

BUDGET: The estimated total cost of this project is \$92,500. The federal share is \$60,125 (65%) and the total match is \$32,375 (35%). ANHC will provide non-federal match for restoration activities. Grant funding for salary of ANHC staff will be used for staff paid from non-recurring federal funds.

Category	Total	Match ANHC	Grant
Salary / Benefits	\$ 16,000	\$ 10,000	\$ 6,000
Contract Services	71,000	21,875	49,125
Supplies and Materials	500	500	0
Travel	5,000	0	5,000
Grand Total	\$ 92,500	\$ 32,375	\$ 60,125

ORGANIZATION AND STAFF QUALIFICATIONS

ANHC has worked alongside with other state agencies and private partners to develop a broad understanding of this at-risk ecosystem through years of scientific observation and use of adaptive management in implementation of restoration and conservation techniques. ANHC protects and maintains tallgrass prairies within four natural divisions of the state. In the Arkansas Valley, ANHC owns sizeable high-quality remnants: H. E. Flanagan Prairie and Cherokee Prairie Natural Areas. In combination with 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 is Chief of Research for the Arkansas Natural Heritage Commission. Bill 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. 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 four scientific papers on rare birds of Arkansas; three on grassland birds and the fourth on the endangered Red-cockaded Woodpecker (*Picoides borealis*).

Jennifer Akin is a Conservation Biologist and Plant Community Ecologist for the Arkansas Natural Heritage Commission. Jennifer received a B.S. in Biology and a M.S. in Botany both from the University of Arkansas at Fayetteville. Jennifer has worked for The Nature Conservancy documenting the recovery of restored wetland and uplands and the National Park Service performing surveys in over two hundred vegetation types in the Sierra Nevada Mountains for production of a vegetation map. In her current position, she is responsible for and conducts plant community monitoring projects documenting change in relation to habitat restoration and management activities at Natural Areas located across the state.

Toby Von Rembow is a full-time Land Management Specialist and Trails Coordinator with the Arkansas Natural Heritage Commission. Toby attended the University of Central Arkansas where he received his B.S. in Environmental Science with an emphasis in Biology. Toby previously worked as a Park Interpreter for Withrow Springs State Park and most recently as a School Program Coordinator/Teacher Naturalist at the Ozark Natural Science Center.

ALTERNATE BUDGET: An alternate budget is provided at a 50%-50% cost share ratio. This budget change will reduce the treatment acreage of riparian woodlands and adjacent prairie habitat to 35 acres and reduce the number of acres treated by prescribed fire to 140 acres.

Category	Total	Match ANHC	Grant
Salary / Benefits	\$ 9,025	\$ 3,025	\$ 6,000
Contract Services	43,000	25,000	18,000
Supplies and Materials	500	500	0
Travel	4,525	0	4,525
Grand Total	\$ 57,050	\$ 28,525	\$ 28,525