



**Project Title:** Restoration of Tallgrass and Wetland Prairie Habitat in Northwest Arkansas

**Project Summary:**

Wilson Springs Conservation Area is a 121-acre wetland prairie in Washington County. It is located within the city limits of Fayetteville, AR, surrounded by encroaching residential and commercial development. Years of fire suppression and lack of grazing by large ungulates has resulted in the overgrowth and forestation of the site's once open tallgrass and wetland prairie habitats. Wilson Springs provides habitat to the Arkansas Darter, a SGCN and candidate for federal endangered species listing. Sixteen species of grassland birds listed as SGCN have also been documented on the property in the last ten years. The property is owned and managed by the Northwest Arkansas Land Trust who began habitat restoration in 2012, removing overgrowth from the Wilson Spring riparian and surrounding 19-acre savannah habitat to improve conditions for the Arkansas darter. The land trust has a successful track record restoring significant portions of this important habitat and more work is needed to carry that progress to the rest of the property. This phase of restoration will focus on the continued clearing of the site's former tall grass wet prairie, increasing the quality and patch size for many SGCN that have historically called the Wilson Springs Conservation Area home.

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**Project Budget:**

<b>SWG Funding:</b>	\$56,057
<b>NWALT Match:</b>	<u>\$30,184</u>
<b>Total Project Cost:</b>	\$86,241

**Need:** The rapid pace of urban development in Northwest Arkansas has resulted in the loss and fragmentation of open grassland and wetland habitats. Wilson Springs Conservation Area is one of the largest remaining wetlands and tallgrass prairie remnants in the region. The quality of this habitat has been degraded, however, by surrounding land use changes and overgrowth of woody and invasive plant species. Wilson Springs is home to the Arkansas Darter, a SGCN and candidate for federal endangered species listing. Sixteen grassland birds listed as SGCN have also been documented on the property in the last ten years. This project will focus specifically on restoring tallgrass prairie, testing, monitoring and sharing best practices for wetland and prairie restoration maintenance, involving surrounding landowners in protecting the site, and improving the quality and patch size of this tallgrass wet prairie for the benefit of SGCN.

**Purpose and Objectives:** The purpose of this project is to improve habitat quality and increase patch size of declining wetland and tallgrass prairies in Northwest Arkansas to benefit SGCN. The four primary objectives are; 1) Clear forest overgrowth from an approximate 30-acre tallgrass prairie habitat, 2) Establish experimental maintenance test plots to track and report the most effective restoration maintenance techniques and regimes in a sensitive and urban area, 3) Conduct biological assessments to document restoration progress and to inform adaptive management decisions, 4) Outreach to surrounding landowners and businesses to educate and encourage their use of certain BMP's to help ensure the long-term protection of this site.

**Location:** Wilson Springs Conservation Area is located within the city limits of Fayetteville in Washington County Arkansas, in the Ozark Highlands eco-region. The property is situated at the headwaters of Clabber Creek in the Illinois River watershed. Several habitat types coexist on the 121-acre site, including spring-fed perennial and ephemeral wetlands and streams, forested riparian areas, oak savanna and tallgrass prairie. The namesake Wilson Spring runs from the east. An unnamed tributary comes in from the north. They converge within the conservation area with Clabber Creek.



**Map of targeted restoration plots within the Wilson Springs Conservation Area.**

## **Approach:**

### Clear overgrowth to restore open tallgrass prairie habitat (October 2015- January 2016)

An approximate 30-acre tallgrass prairie plot will be cleared of woody and invasive overgrowth including all understory and overstory vegetation which is 8 inches or less DBH or otherwise targeted for selective removal. A 100 foot forested buffer will be left around the perimeter of the cleared area to serve as a wildlife corridor and will only be cleared of invasive plant species. Although overgrown, this area has retained prairie characteristics including mounds and native prairie plant species. The relic seed bank is expected to respond with equal vigor to that of adjacent plots recently restored, increasing the size and quality of the sites former native tallgrass prairie habitat.

### Establish experimental test plots for habitat restoration maintenance (January 2016- September 2017)

Recent restoration of the site's Wilson Spring riparian corridor and surrounding 19-acre savannah has been effective and new aquatic vegetation has reestablished along the stream banks. Arkansas darters are already using their new habitat and a recent aquatic survey produced one of the highest number of Arkansas darters in Wilson Spring to date. Four maintenance test plots will be established to track and report the most effective restoration maintenance techniques in a sensitive wet prairie and urban area. To establish the plots, remaining stumps from the original canopy clearing will be grinded to ground level allowing for the application of a variety of prescribed management techniques including grazing, disking, brush hogging, hand clearing, selective herbicide applications and prescribed burning. These management techniques will be tested to determine and report the most effective tools and regimes for adaptive habitat restoration maintenance.

### Conduct biological assessments (May-September 2016 -2017)

Four native plant species tracked by the Arkansas Natural Heritage Commission and two new county records have been recently documented at Wilson Springs. Extensive biannual floral inventories and monitoring will be conducted by local botanist Jennifer Ogle. Ten permanent circular 5-m diameter plots will be established to study floral composition. A general walk-through survey will also be conducted to determine overall species composition and habitat types. Areas that are known to contain sensitive or tracked plant species will be marked and closely monitored. Aquatic inventories will be conducted twice annually by NWALT staff to continue monitoring the presence and size distribution of Arkansas darter on the site and to inventory the macroinvertebrate community as a general indicator of environmental quality. Water quality samples will be tested regularly.

### Outreach to surrounding landowners and businesses (October 2015) (April 2016)

Surrounding landowners and businesses that are within the Wilson Springs Conservation Area watershed have been identified. An informational packet will be distributed including; 1) Introduction to the Northwest Arkansas Land Trust and the Wilson Springs Conservation Area, 2) Illustration of the property within the watershed, 3) Encouragement to use Best Management Practices within Wilson Springs watershed, and 4) Invitation to attend a Wilson Springs Conservation Area Workshop and Tour. Outreach and updates to surrounding neighborhoods and stakeholders will occur on a regular basis.

**Expected Results and Benefits:**

The clearing of woody overgrowth from the former tallgrass prairie will greatly increase the amount of sunlight reaching the ground allowing for the native seed bank to reestablish. Previously cleared adjacent plots at Wilson Springs have reestablished vigorously with species such as Big Blue Stem, Indian Grass, Little Bluestem, Swamp Milkweed and Rattlesnake Master. This area, once liberated of invasive and woody overgrowth, is expected to respond with equal vigor, restoring the quality of this habitat and increasing the open prairie patch size by at least 30 acres for the many SGCN that have historically called Wilson Springs Conservation Area home. These species include birds such as Henslow’s Sparrow, Migrant Loggerhead Shrike, Northern Harrier, Willow Flycatcher, Sedge Wren, Grasshopper Sparrow, Black-crowned Night Heron, Eastern Towhee, Bell’s Vireo, Le Conte’s Sparrow, American Bittern, Yellow-billed Cuckoo, Pied-billed Grebe, Painted Bunting, Northern Pintail, Northern Bobwhite; and aquatic species such as Arkansas Darter and Ringed Crayfish.

Establishing maintenance test plots to determine the most effective habitat restoration maintenance techniques will lay the ground work for a long term management plan and provide useful information to other practitioners. A long term management plan is needed to ensure the prairie restoration project at Wilson Springs Conservation area is maintained well into the future as an open prairie wetland.

Biological inventories will help assess the progress and success of the restoration project and guide adaptive management decisions. Botanical surveys will determine the species and extent that native plants are reestablishing, and identify non-native or invasive species targeted for removal and maintenance. Aquatic and water quality surveys will document the presence and size distribution of the Arkansas darter, the diversity of macroinvertebrate communities, and the composition of water quality samples to monitor response to restoration activity and help identify and address any threats to water quality.

Ongoing outreach and involvement of surrounding landowners and businesses will help to create a community of informed citizens (Wilson Springs Neighborhood Coalition) who understand the significance of the area and can employ voluntary best management practices to reduce their collective impact on the Wilson Springs Conservation Area helping protect it into the future.

**Budget:**

<b>Item</b>	<b>NWALT Match</b>	<b>SWG</b>	<b>Total</b>
<b>Personnel Expenses</b>			
Salary	<b>\$19,796.00</b>		<b>\$19,796.00</b>
Overhead	<b>\$7,745.00</b>		<b>\$7,745.00</b>
Volunteer	<b>\$1,623.00</b>		<b>\$1,210.00</b>
Steering Committee	<b>\$1,020.00</b>		<b>\$1,020.00</b>
<b>Restoration Expenses</b>		<b>\$ 44,150.00</b>	<b>\$ 44,150.00</b>
<b>Research Expenses</b>			
Botanical Surveys		<b>\$ 10,180.00</b>	<b>\$ 10,180.00</b>
Aquatic Surveys		<b>\$1,727.00</b>	<b>\$2,140.00</b>
<b>Project Totals</b>	<b>\$30,184.00</b>	<b>\$56,057.00</b>	<b>\$86,241.00</b>

## **Qualifications:**

Terri Lane, Northwest Arkansas Land Trust, Executive Director

Terri will provide executive oversight for the purposes of this grant, ensuring the overall and timely completion of grant objectives. Terri has led restoration projects at Wilson Springs for the past two years as the director of the land trust. She holds a degree in Environmental Soil and Water Science from the University of Arkansas and has worked in the environmental field over 15 years.

Alan Edmondson, Northwest Arkansas Land Trust, Land Stewardship Specialist

Alan will serve as the primary manager of the restoration project including working with restoration and biological monitoring contractors, conducting site visits, monitoring aquatic communities and conducting water quality sampling. Alan has worked on Wilson Springs restoration projects and monitored the property for the past 7 months as a land stewardship specialist for the land trust. He holds a degree in Earth Science and is completing a master's degree in Geography. Alan's has worked as an independent contractor for USGS, as well as a land and game manager on a private reserve.

Tim Snell, The Nature Conservancy, Associate State Director

Tim is a board member at the Northwest Arkansas Land Trust. He will provide technical expertise and guidance on the restoration process. Tim is responsible for Arkansas' Water Resources Initiative and has worked to develop and implement conservation strategies, working with landowners, government agencies, corporations and researchers to protect rare species and threatened habitats.

