2015 Arkansas State Wildlife Grant Pre-proposal

Pine-oak Flatwoods Habitat Restoration to Benefit AWAP Species of Greatest Conservation Need

Project Summary

The Nature Conservancy and partners will conduct ecological restoration including prescribed burns, mechanical reduction of woody vegetation, and non-native invasive species control within the Pine-oak Flatwood Ecosystem in Cleveland, Monroe, and Union counties. This project addresses two conservation action funding priorities and benefits 12 or more species of conservation concern. These restoration activities will enhance ecosystem function, and increase the size and connectivity of Pine-oak Flatwood habitats on 1,500 acres. These activities will create high-quality habitat, provide connectivity that builds on previous restoration efforts, and restore a large landscape of priority habitat.

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Untreated flatwoods at Kingsland Prairie Preserve

SWG Funding Requested: $67,000
Total Match Amount: $37,000
Total Project Costs: $104,000

NEED: The loblolly pine flatwoods of south-central Arkansas and the Delta are the second least protected forest type in the United States. Largely converted to dense pine plantations and fire suppressed, they no longer provide habitat for wildlife of conservation concern. The Arkansas Natural Heritage Commission (ANHC) and The Nature Conservancy (TNC) previously identified pine-oak flatwoods as one of Arkansas's most endangered forested ecosystems and are working together to protect and restore these imperiled ecosystems. At least 12 animal SGCN find open pine flatwoods optimal habitat.

Pine City Natural Area (PCNA; 1,000 acres), Kingsland Prairie Natural Area and Preserve (KPNAP; 1,500 acres), Hall Creek Barrens Natural Area (HCBNA; 650 acres), and Felsenthal-west Preserve (FWP; 3,900 acres) support a mosaic of important habitats including:

Target habitats
West Gulf Coastal Plain and Mississippi Alluvial Plain: Pine-Oak Flatwoods

Associated habitats
West Gulf Coastal Plain: Pine-hardwood forests
West Gulf Coastal Plain: Saline glades
West Gulf Coastal Plain: Wet hardwood flatwoods

The historical flatwoods were much more open than they are today at the protected areas (PCNA, KPNAP, HCBNA, FWP), highlighting the need for fire—the most important ecological process maintaining the distribution, composition, and diversity of this system. Decades of fire suppression prior to state and private conservation ownership at these four sites altered species composition and structure, resulting in dense forest stands. Portions of three sites (KPNAP, HCBNA, FWP) were converted to industrial pine plantation.

Untreated and treated flatwoods at Pine City Natural Area

Restoration of pine-oak flatwoods structure and composition through the reintroduction of fire, mechanical reduction of woody species, and control of non-native invasive species is needed if

SGCN preferring this habitat are to increase or even continue. These combined restoration actions will provide high-quality habitat, increase the scale of managed land, and provide an increased landscape for SGCN and non-SGCN animals. These are tried and true restoration methods that have yielded the desired results over the last 20 years.

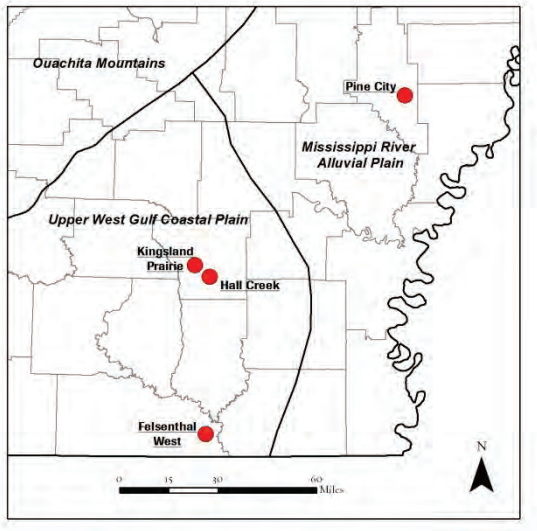
FUNDING PRIORITIES: This project addresses two 2015 AWAP funding priorities: (1) Birds of Pine-Oak Flatwoods and Savanna Habitat – implementation and/or evaluation of habitat restoration and management of Pine-Oak and Savanna, and (2) Pine-Oak and Savanna – habitat management to maintain or increase habitat quality or increase patch size for SGCN.

PURPOSE AND OBJECTIVES: The purpose of this project is to restore Pine-Oak Flatwood habitats by increasing fire management, and reducing woody encroachment and invasive species on 1,500 acres at PCNA, KPNA, HCBNA, and FWP.

Objectives

1. Restore fire to Pine-Oak Flatwoods habitat on 1,300 acres with >70% coverage and moderate intensity, thereby increasing the amount and quality of pine woodlands. (PCNA, KPNAP, HCBNA)
2. Increase the efficiency of fire management by burning larger units across ownership boundaries. (PCNA, KPNAP, HCBNA)
3. Conduct herbicide applications to reduce non-native species on 100 acres, targeting Chinese tallow and sericea lespedeza. (PCNA, KPNAP, HCBNA, FWP)
4. Implement forestry mulching to reduce woody vegetation on 100 acres, maintaining pine dominance at a basal of 50-70 square feet per acre. (PCNA, KPNAP, HCBNA)
5. Monitor progress by documenting restoration through the use of permanent photopoints.

LOCATION OF WORK: Project activities will occur at KPNAP, HCBNA (Cleveland County) and FWP (Union County) to restore Pine-Oak Flatwoods habitat located within the South Central Plains ecoregion. PCNA (Monroe County) activities will occur in the Wet Pine-Oak ecosystem of the Mississippi Alluvial Plain (Delta) ecoregion.



APPROACH: Objective 1 will be addressed in both years of the project. Prescribed fire by TNC and ANHC will restore and maintain habitat structure and species composition. Areas to be restored include degraded habitat adjacent to high-quality habitats already restored or undergoing restoration. It will take 5-7 burns to complete the deliverable. Tasks include: selecting burn units, writing burn plans, installing fire lines, burning, and completing post-burn evaluations. The actual timing of prescribe burns is weather and fuel dependent.

Objectives 2 and 4 will be addressed early in the project so that mulching does not hinder the planned prescribed fire activities and increases the efficiency of burning by creating larger units around mulched fire lines.

Objective 3 will begin in the first summer of the project when herbicide use is most effective in controlling the target non-native invasive species.

Objective 5 will begin before any restoration work is begun by installing permanent baseline photo points. The photo points will be re-taken annually in the same time frame as the baseline.

Table 1. Arkansas Wildlife Plan SGCN which will benefit from this project and have been documented at the restoration areas.

American woodcock	Northern bobwhite
Bachman's sparrow	Prairie warbler
Brown-headed nuthatch	Red-cockaded woodpecker
Henslow's sparrow	Red-headed woodpecker
Le Conte's sparrow	Rusty blackbird
Diana fritillary	Sedge wren

EXPECTED RESULTS AND BENEFITS TO SPECIES OF CONCERN: Restoring degraded pine-oak flatwoods and saline barrens will (1) restore an ecological fire regime that is necessary to maintain this system, (2) reduce the ecosystem-altering threat posed by non-native invasive species, (3) provide connectivity by restoring degraded habitat adjacent to existing high-quality habitat, (4) increase the scale of managed land, thereby providing a larger landscape to benefit SGCN and other wildlife, (5) establish larger burn units that will enhance the logistical and financial ability to conduct prescribed fire and most importantly, (6) create additional high-quality habitat for SCGN.

Measurable Results

1. 5-7 burn plans.
2. Prescribed fires completed on 1,300 acres.
3. Post-fire summary reports to confirm completed objectives.
4. Reduction of woody stems on 100 acres.
5. Herbicide application on 100 acres.
6. Pre and post treatment photo points.

Budget

Category	Requested SWG Funds	TNC Match	ANHC Match	Total
Personnel & Fringe	$9,703	$3,715		$13,418
Operating Expenses				
Travel	$3,000	$1,000		$ 4,000
Supplies	$2,000	$1,000		$ 3,000
Contracts for mulching	$40,000			$40,000
Contracts for prescribed burns			$30,000	$30,000
Indirects (22.48% NICRA)	$12,297	$1,285		$13,582
Subtotal	$67,000	$7,000	$30,000	$104,000
TOTAL	**$104,000**			

QUALIFICATIONS:

As a prescribed burn boss and land steward for TNC, Project lead **Clint Harris** has established a working track record with partners in this proposal while conducting prescribed fire activities, participating as a team member in partner-developed workshops, and as a peer in conservation planning. Clint is trained in planning and implementing ecological restoration activities including prescribed fire, forest management, and invasive species control.

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. His current projects include oversight of restoration of open loblolly (*Pinus taeda*)-shortleaf (*P. echinata*) pine ecosystems in southern Arkansas and repatriation of a population of red-cockaded woodpeckers (*Picoides borealis*). Recently completed projects focused on two rare grassland birds: structure and composition of grassland habitats used by wintering Smith's longspurs (*Calcarius pictus*) and density and habitat associations of Henslow's sparrows (*Ammodramus henslowii*) in saline soil barrens. His thesis work focused on spatial patterns of red crossbills (*Loxia curvirostra*) and conifer cones in southeast Alaska, and he later worked on similar projects in lodgepole pine (*P. contorta*), ponderosa pine (*P. ponderosa*), and black spruce (*P. mariana*) dominated ecosystems.

Douglas Zollner is the Director of Conservation Science for TNC, 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 US 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.