



Nepheline syenite glade. Photo by Audubon Arkansas



Oak Woodland, Oak Savanna, and Nepheline Syenite Glade Habitat Restoration at the Little Rock Audubon Center

Restoration of 153 acres of oak woodland, oak savanna, and nepheline syenite glades will benefit Arkansas Wildlife Action Plan Species of Greatest Conservation Need at the Little Rock Audubon Center. These systems will be restored through the use of prescribed fire, as well as mechanical and chemical control of non-native plants. The project will benefit 18 grassland and woodland birds and other species of conservation concern, and be a visible demonstration to an urban audience through Audubon's youth educational programs and attendant new wildlife observation trail under construction at Audubon's Center.

Project Leader

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Project Budget

SWG Amount Requested: \$105,199
Match Amount Provided: \$204,898
Total Amount of Project: \$310,097

Project Statement

A. Need: Habitat degradation due to fire suppression and non- native plant species invasion has caused declines of Species of Greatest Conservation Need (SGCN) associated with oak woodland, oak savanna, and glade habitats in Arkansas. The oak woodlands, oak savanna, and nepheline syenite glades on the grounds of the Little Rock Audubon Center need fire for the protection and management of critical species. Invasive species such as eastern red cedar, Chinese privet, saltbush, Bradford pear, crabapple, Johnson grass, Bermuda grass, fescue and common vetch dominate the more open areas.

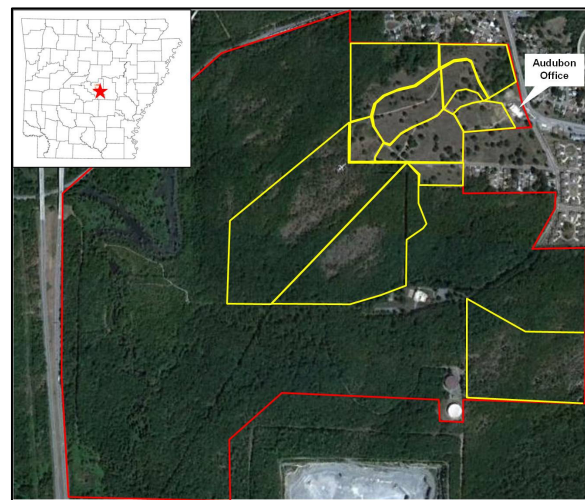
Nepheline syenite glade is the most significant biological community in Pulaski County. It is the rarest of the igneous outcrop-based ecosystems in the South and is globally critically imperiled (G1; NatureServe). There are fewer than five locations worldwide.

B. Location: The project area encompasses 153 acres of oak woodland, oak savanna, and nepheline syenite glades contained within the campus of the Little Rock Audubon Center in southeast Little Rock, Pulaski County, in the South Central Plains ecoregion. The Little Rock Audubon Center is located on 480 acres within the Granite Mountain community.

C. Objectives: Audubon’s goal is to provide habitat for 18 SGCN by restoring oak woodland, oak savanna, and nepheline syenite glade habitat structure. This is the highest priority of the Audubon Center’s adaptive land management plan. Audubon’s objectives are to:

- Restore a burn regime to enhance regeneration of native plant species that support SGCN.
- Increase native herbaceous ground cover to 50 percent.
- Reduce non-native plant species by 70 percent.
- Restore the percent of dominant canopy oaks in woodlands to 40-70 percent.
- Engage an urban audience in habitat management and conservation of SGCN.

D. Approach: Audubon will restore 153 acres of oak woodland, oak savanna, and nepheline syenite glades located on the Audubon Center property. Audubon will also provide community outreach and education about restoration practices with the communities adjacent to this habitat area as well as the larger city of Little Rock. Restoration will incorporate prescribed fire, as well as mechanical and chemical control of non-native plants. Fire is the most critical ecological process to maintaining the distribution, composition, and diversity of woodland, savanna, and glade communities. The reintroduction of fire will decrease the excessive moss and litter layer on the glades, , increase the size and connectedness of the glade openings, eliminate eastern red cedars, reinvigorate native shrubs, reduce the abundance of non-native species, favor native



Little Rock Audubon Center (red) and proposed burn units (yellow).

warm-season grasses, restore structure to the adjacent woodlands, and reinvigorate the woodland herbaceous layer and glade/woodland ecotone.

Audubon will work with The Nature Conservancy (TNC), who will conduct prescribed fires during the winter of 2012/2013. To reduce potential smoke impacts on surrounding smoke-sensitive targets, burns will be conducted over several days on approximately 12 burn units with fire lines surrounding each unit. To the extent possible, fire lines will minimize soil disturbance. Audubon and TNC will coordinate closely with the City of Little Rock, Little Rock National Airport, Little Rock Fire Department, Arkansas Highway and Transportation Department, and the Granite Mountain Community Association (GMCA). Habitat restoration provides an excellent opportunity to teach first-hand about restoration ecology. Audubon’s strong environmental education program incorporates field science and volunteerism. Audubon and TNC will use the prescribed burn for outreach and education to neighboring urban communities.

In spring 2013, Audubon will use photo monitoring to assess herbaceous vegetation response, and will herbicide any invasives still flourishing. Audubon will also systematically eradicate woody invasive plant species by applying herbicide to cut stumps. If native warm season grasses and forbs do not emerge, Audubon will seed native species on small plots over time as funding allows.

Audubon will conduct insect sampling before and at regular intervals during restoration. Staff and volunteers will use sweep nets, blacklights, and malaise traps, and follow standard sampling protocols. Insects are closely tied to plants and habitats, and respond rapidly to changes, making them good indicators of success.

The National Audubon Society is built upon a network of chapters, volunteers and community involvement. Concurrent with restoration efforts, Audubon will mobilize this community to assist in restoration and monitoring activities. Audubon will incorporate restoration activities into onsite education programs such as the Science-Technology-Engineering-Math Leadership Academy, Natural Leaders competition, and annual Bio-Blitz. Through hands-on field projects, students will foster a deeper appreciation and understanding of their own neighborhood habitats.

Concurrent with restoration, Audubon will construct a one-mile wildlife observation trail that will provide direct access to restored habitats. Funding for the construction of this trail has been committed by the Arkansas Game and Fish Commission through the Wildlife Observation Trails Pilot Program. Interpretive signage describing the benefits of prescribed fire will be included in the trail plan among additional signage regarding habitat along the trail.

Table 1. SGCN that will benefit from the project.
Bachman’s Sparrow
Bewick's Wren
Eastern Towhee
Northern Bobwhite
Painted Bunting
Red-headed Woodpecker
Whip-poor-will
Chuck-will's-widow
Yellow-billed Cuckoo
Bird-voiced Tree Frog
Western Slender Glass Lizard
Four-toed Salamander
Diana Fritillary
Meske’s Skipper
Granite Grasshopper
Frosted Elf
Purple Tiger Beetle
Giant Stag Beetle

E. Expected Results & Benefits: Restoration of target habitat types will create the vegetation structure and composition that supports 18 SGCN (Table 1) and encourages colonization of SGCN that have been extirpated or have not historically been present on site. Nearby preserves such as Dry Lost Creek Preserve and Dunahoo Pipewort Glade Preserve in Saline County are examples where target plant and animal species returned following restoration. Building upon the success of these restored areas, this proposed restoration project at the Little Rock Audubon Center will be a stepping stone to these sensitive areas and the SGCN that inhabit them.

F. Budget

	Year 1	Year 2	Match	Total
Project Leader, 35% FTE	\$13,485	\$13,485		\$26,970
Field Projects Coordinator, 30% FTE	\$9,405	\$9,405		\$18,810
Bird Conservation Director, 10% FTE	\$4,606	\$4,606		\$9,211
Interpretation/Education/Volunteer Coordination, 5% FTE			\$6,304	\$6,304
VP and State Executive Director, 5% FTE			\$8,200	\$8,200
Fringe (35%)	\$9,623	\$9,623	\$2,870	\$22,117
Volunteers			\$51,264	\$51,264
Supplies	\$5,300	\$5,300		\$10,600
Other				
UALR, insect identification			\$2,000	\$2,000
Signage (prescribed fire interpretation)			\$1,200	\$1,200
Wildlife Observation Trail Grant			\$100,000	\$100,000
TNC Prescribed burn plan, prescribed burns, post-burn evaluations			\$33,060	\$33,060
Total Direct Costs	\$42,419	\$42,419		\$84,838
Indirect Costs (24%)*	\$10,181	\$10,181		\$20,361
TOTAL PROJECT COSTS	\$52,599	\$52,599	\$204,898	\$310,097

* National Audubon Society has applied to the U.S. Department of the Interior for a 24% indirect cost rate.

Qualifications

Brent Kelley, Project Leader, is Field Programs Coordinator for Audubon and is the lead manager responsible for the project's success. Since 2006, Mr. Kelley has coordinated and managed multiple field projects, including habitat management at state Natural Areas, reforestation for the Ivory-billed Woodpecker, fish and mussel sampling on Fourche Creek, wetland restoration in Fourche Bottoms, grassland restoration in Northwest Arkansas, wildlife habitat improvements at Waste Management's Two Pine Landfill, and stream-bank stabilization in the Fourche Creek Watershed. He oversees construction and volunteer mobilization of the AGFC-funded Wildlife Observation Trail at the Audubon Center. He is certified in the use of a chainsaw, and has a permit to purchase and use non-commercial restricted-use pesticides. He has a B.S. in Botany and M.S. in Forest Entomology from the University of Arkansas at Fayetteville.

Jonathan Young, Field Projects Coordinator, will assist with project planning and field operations. Mr. Young has assisted with multiple field projects, including habitat management at state Natural Areas, reforestation for the Ivory-billed Woodpecker, fish and mussel sampling on Fourche Creek, wetland restoration in Fourche Bottoms, wildlife habitat improvements at Waste Management's Two Pine Landfill, and native warm season grass production for socially disadvantaged farmers. He has a B.S. in Biology from University of Arkansas at Little Rock.

Daniel Scheiman, Ph.D., Bird Conservation Director, has responsibility for fiscal, contractual, and staff oversight on project implementation. He provides technical expertise on bird habitat requirements and will assist with planning and implementation. Dr. Scheiman manages multiple federal, state, and private grants. Under various SWGs he has monitored for SGCN including Bewick's Wrens, marshbirds, and grassland birds. He received his B.S. from Cornell University, M.S. from Eastern Illinois University, and Ph.D. from Purdue University in ornithology.

Mary Smith, Education Director, will integrate habitat restoration into interpretation and education through volunteer and student participation and projects. Through Audubon's Common Ground program, Ms. Smith links over 30 Arkansas schools in projects that provide a positive environmental benefit to their community. She has over 30 years of education and administrative experience with rural, suburban, and urban schools. She has a B.A. from Southern Arkansas University, M.A. from Arkansas State University, and M.Ed. from University of Arkansas at Little Rock. She has served as the Director of Audubon's national Environmental Education Campaign and been a Field Director for National Audubon Society.

Ellen Fennell, Executive Director and Vice President, has responsibility for the integrity of both programmatic and fiscal project management. Ms. Fennell was appointed director of Audubon Arkansas in May of 2011. She works with Audubon's Board of Directors to establish policy to implement Audubon's mission in the state, and oversees management of all programs operated by Audubon in Arkansas. Prior to assuming her directorial duties, Ms. Fennell served as Director of Development for nine years for Audubon Arkansas. Ms. Fennell has over 25 years of experience in program development, implementation, and management. Prior to Audubon, Ms. Fennell held management positions at The Nature Conservancy, Winrock International and Heifer International. Ms. Fennell holds a B.A. in English from Rhodes College in Memphis, TN.