

2011 State Wildlife Grant Preproposal

Project Title: Restoration and Management of Emergent Wetlands in the Arkansas Valley Ecoregion

Project Summary: Emergent wetlands have been prioritized as critical habitat for some of the rarest wetland dependent species in Arkansas. This project will control invasive vegetation and enhance water management capabilities for the restoration and management of 240 acres of emergent wetlands within the Arkansas Valley Ecoregion. Marsh bird species including the American Bittern (*Botaurus lentiginosus*), Least Bittern (*Ixobrychus exilis*) and Pie-billed Grebe (*Podilymbus podiceps*) along with other priority wetland birds will benefit from this project.

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Budget Summary:

Total Project Cost: \$189,200

State Wildlife Grant Request - \$94,500

Matching Funds and In-kind Service - \$94,700 (\$91,700 AGFC; \$3,000 Audubon)

Restoration and Management of Emergent Wetlands in the Arkansas Valley Ecoregion

Project Need:

This project addresses multiple conservation actions outlined in the Arkansas Wildlife Action Plan (AWAP) and is targeted to address multiple conservation priorities including the management of emergent wetlands as well as the restoration and enhancement of wetland integrity as outlined in the 2011 State Wildlife Grants (SWG) Request for Proposals (RFP), specifically emphasizing the restoration and management of emergent wetlands. This project addresses needs of multiple marsh bird species that have been identified as species of greatest conservation need (SGCN) within the AWAP but will also benefit other fish and wildlife species that rely on both bottomland hardwood forests and emergent wetland habitats. Specific additional benefits include increased available forage production from moist soil plants for a wide array of migratory waterfowl species thereby helping to attain the goals outlined within the North American Waterfowl Management Plan (NAWMP). In addition, other wetland-dependent species such as the Bird-voiced Treefrog (*Hyla avivoca*), which has been documented in close proximity to both project sites will benefit from this project as well. This implementation project is very similar to a 2008 approved SWG project on Petit Jean River WMA that is nearing completion resulting in the restoration of 200 acres of emergent wetlands and enhancement of over 100 acres of adjacent bottomland hardwood forest.

The proposed project specifically addresses two funding priorities outlined in the 2011 State Wildlife Grants RFP. This project will: 1) manage for emergent wetlands to benefit priority marsh birds and 2) restore, enhance and/or maintain wetland integrity. Over a two year period, this project will control invasive vegetation and enhance water management capabilities on approximately 240 acres of emergent wetlands within the Arkansas Valley.

Wetlands have declined at an alarming rate over the past century throughout the United States. The availability of emergent wetlands in Arkansas in particular has declined dramatically due primarily to drainage, conversion and habitat succession. Likewise, wetland dependent bird species have experienced severe declines over much of their range in the United States, including species identified as high priority species in the AWAP as well as within the North American Waterbird Conservation Plan. Subsequently, emergent wetlands and their importance to associated marsh bird species have been identified to be a high priority for conservation actions in Arkansas by the steering committee of the AWAP. Threats to these species include habitat loss as a result of degradation, conversion to agriculture, and fragmentation. Marsh bird and water bird species of concern in the Arkansas Valley include Common Moorhen, Least Bittern, Little Blue Heron, Yellow-crowned Night Heron, American Bittern, and Pie-billed Grebe. Conservation actions suggested for marsh bird species include the restoration and protection of emergent wetlands to provide for diverse habitat conditions consisting of dense, emergent vegetation interspersed with open water with a gradient of vegetation height and water depth.

Project Objective:

Overall the proposed project, over two years, will control invasive vegetation (primarily buttonbush – *Cephalanthus occidentalis*) and enhance water management capabilities for 240 acres of emergent wetlands within the Arkansas Valley Ecoregion. These management activities will be conducted at two project sites on two Wildlife Management Areas (WMAs) owned and managed by the Arkansas Game and Fish Commission (AGFC). The 240 acres of restored emergent marsh lies within two larger wetland complexes including both permanently flooded cypress/tupelo swamps and seasonally flooded bottomland hardwood forests thereby enhancing habitat diversity while providing critical habitat for declining marsh birds. Marsh bird surveys will be conducted to further establish baseline presence/absence information at the project sites as well as begin to document species response to

management activities. In addition, herpetological surveys will be conducted at both project sites with emphasis on the Bird-voiced Treefrog and the Western Chicken Turtle (*Deirochelys reticularia miaria*).

Expected Results and Benefits:

Approval of this proposed two-year project will result in the restoration of 240 acres of emergent wetlands as well as provide enhanced water management capabilities for the critical long-term management of these areas. The current project sites have been invaded with undesirable woody vegetation and currently lack adequate water management capabilities to maintain these areas as emergent wetlands. The management of emergent wetlands is identified in the Arkansas Wildlife Action Plan as a high priority conservation action that will benefit several marsh bird species, such as American Bittern, Common Moorhen, Least Bittern, Pie-billed Grebe and Purple Gallinule. The restoration of the 240 acres of emergent wetlands and the overall enhancement of the surrounding wetland complexes contained within this project will benefit numerous species identified as SGCN. In addition to the marsh bird species listed previously, other SGCN such as the Bird-voiced Treefrog that has been documented in close proximity to the project sites will likely benefit from this project as well. Coordination is already underway with Audubon Arkansas staff and volunteers in addition to Conway East and University of Central Arkansas students to both conduct avian surveys and develop materials that will promote public awareness regarding emergent wetlands and associated marsh birds.

Approach:

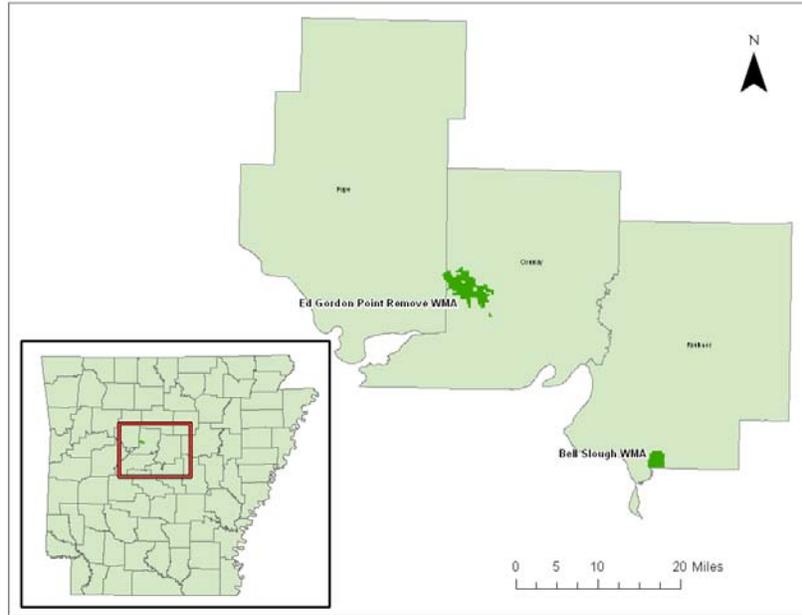
The proposed management activities for this project will be conducted in a manner similar to recent activities at Pullen Pond reservoir within Petit Jean River WMA (PJRWMA). Initial actions will include the aerial application of wetland-approved herbicides to control invasive woody vegetation over 190 acres of the 240 acre project area. As recently used on PJRWMA a helicopter will be used to apply the herbicide while the project area is dry to ensure the absolute highest level of accuracy and minimize risk of damage to either adjacent desirable vegetation or sensitive species. The herbicide treatment will control the existing woody vegetation as well as provide some control of future re-establishment of the woody vegetation. Following herbicide application, specialized equipment will be used to mulch the standing dense woody vegetation to allow for the growth of emergent wetland vegetation following the subsequent re-flooding of the project site. The project will include the clearing and re-shaping of an existing levee that is currently dysfunctional. In addition, two small water control structures will be installed and one existing water control structure will be renovated to provide for necessary water management capabilities. After all woody vegetation has been completely removed; the water control structures will be manipulated to manage the project area for emergent wetland vegetation with an emphasis on providing an interspersion of dense, emergent vegetation with varying gradients of vegetation height and water depth.

Marsh bird response to the conservation actions in this project will be monitored using national standardized protocols. In brief, these protocols call for point count surveys using broadcasts of marshbird vocalizations to elicit responses and improve detection. Survey points will be spaced at least 400 m apart along the upland-emergent marsh interface. This protocol also describes procedures for measuring habitat characteristics and water depth. Parameters to be estimated are densities, abundance indices, trends in bird populations, and habitat availability. Results will be summarized seasonally and shared among project partners and with the national marsh bird survey coordinator.

Location of Work:

This project will occur at two project sites on Ed Gordon Point Remove WMA (8,694 acres) located in Conway and Pope Co. and Bell Slough WMA (2,040 acres) located in Faulkner Co. (see map below). Both of these areas are owned and managed by the AGFC and lie within the southern portion of the Arkansas Valley Ecoregion. The work on Ed Gordon Point Remove WMA will be conducted within the 321 acre Steve Frick Waterfowl Rest Area while the work on Bell Slough WMA will be conducted in the

western periphery of Grassy Lake. Both WMAs are comprised of diverse wetland habitats including developed moist soil impoundments, bottomland hardwood forests, and various small oxbows, sloughs and reservoirs. Historic emergent wetlands on these areas have undergone succession into areas of dense, undesirable woody vegetation due to inadequate water management capabilities. These areas are now dominated with buttonbush (*Cephalanthus occidentalis*) with some invasion of black willow (*Salix nigra*) and sweetgum (*Liquidamber striaciflura*) on the higher elevations.



Budget and Expenditures:

The budget below outlines costs, for two years, to control invasive woody vegetation and enhance water management capabilities within 240 acres of emergent wetlands in the Arkansas Valley Ecoregion.

Item	Total	Match	Grant
Operating Expenses			
Contract labor for clearing and levee renovation	\$25,500	\$12,000	\$13,500
Herbicides and contract labor for aerial application (190 acres @ \$110/acre) – AGFC match	\$20,900	\$20,900	
Contract labor for mulching woody vegetation (190 acres @ \$600/acre) - AGFC match	\$114,000	\$48,000	\$66,000
Renovation of existing stoplog structure and installation of two additional water control structures – AGFC match	\$14,000	\$2,000	\$12,000
Monitoring – marsh bird and herpetological surveys (\$3,000 Audubon in-kind match, \$8,800 AGFC in-kind match)	\$14,800	11,800	\$3,000
Project Totals:	\$189,200	\$94,700	\$94,500

Qualification of Individuals and Organizations Involved

Organization:

The Arkansas Game and Fish Commission's mission is to wisely manage all the fish and wildlife resources of Arkansas while providing maximum enjoyment for the people. The Arkansas Game and Fish Commission is responsible for the effective coordination and implementation of the Arkansas Wildlife Action Plan and the management and protection of the Species of Greatest Conservation Need and priority habitats identified therein. The implementation of the AWAP includes the implementation of priority conservation actions on AGFC owned lands with the state. Region 8 personnel within AGFC have recently completed a similar work on the Petit Jean River WMA using the same methodology described in this project.

Audubon Arkansas, the state office of National Audubon, was founded in 2001. Their mission is to connect people with nature. Their staff has extensive experience in: wetlands reconstruction, reforestation, grasslands restoration, managing contracts, working with landowners, monitoring, conservation planning, and in public outreach and nature education. Audubon has a long history of citizen science campaigns stretching back 111 years to the first Christmas Bird Count, and more recently with the initiation of the Great Backyard Bird Count in 1997. Data collected by thousands of volunteers across the continent each year allow researchers to study the long-term health and status of bird populations across North America.

Personnel:

Brad Carner has worked in various positions with the AGFC over the past 12 years including private lands biologist, assistant regional wildlife supervisor, turkey/quail program coordinator, wildlife division assistant chief of programs and currently regional wildlife supervisor for an eleven-county area in north-central Arkansas. He received his BS degree in Zoology from Arkansas State University and his MS degree in Biology from Arkansas State University studying the Dispersal, Survivorship and Reproductive Success of a Reintroduced Population of Eastern Wild Turkeys in the Delta Region of Arkansas. He is a Certified Wildlife Biologist through The Wildlife Society.

Karen Rowe is the Bird Conservation Coordinator for the Arkansas Game and Fish Commission. For the past two decades, Ms. Rowe has been responsible for developing and implementing conservation programs for priority non-game birds in Arkansas. These programs range from monitoring and research projects to implementing on-the-ground management actions. Ms. Rowe is a Certified Wildlife Biologist through The Wildlife Society and serves as the agency representative on the Mississippi Flyway Nongame Bird Technical Section.

Daniel Scheiman, Ph.D., Director of Bird Conservation, manages the Important Bird Area (IBA) program, organizes a network of volunteers who monitor birds at IBAs, and provides technical expertise on bird habitat requirements. Dr. Scheiman also conducts marsh bird monitoring for AGFC at Black Swamp WMA. He received his B.S. from Cornell University, M.S. from Eastern Illinois University, and Ph.D. from Purdue University, all in wildlife ecology. He has over fifteen years of bird research and monitoring experience.

Kelly Irwin serves as the Herpetologist for the Arkansas Game and Fish Commission. He received his M.S. in Wildlife and Fisheries Sciences from Texas A&M University. He has over 35 years of experience in the field of herpetology. Duties include conducting, coordinating, and facilitating scientific research and management projects on reptile and amphibian species in Arkansas. Recent major projects have focused on the conservation and management of Ozark Hellbenders, American Alligators and aquatic turtles.