

Project Title

Surveying for Avian Species of Greatest Conservation Need in Managed Pine Woodlands and Pine Savannas

Project Summary

The proposed work will evaluate areas of restored pine woodland and pine savannah in Gulf Mountain Wildlife Management Area, Camp Robinson Special Use Area, and Camp Robinson Military Training Center by monitoring for avian Species of Greatest Conservation Need listed in the 2013 Request for Proposals priorities. The proposed work will take two approaches: total-community avian surveys and monitoring reproductive success of focal species. For the first approach, repeated surveys will be conducted at each site during each breeding season. In the second approach nest boxes will be placed to attract breeding species, and reproductive success will be monitored as an indicator of habitat quality.

Project Leader

Dr. Jennifer M. Wang, Research Associate, Department of Biology – Lewis Science Center, University of Central Arkansas, 201 Donaghey Rd., Conway AR 72035

Project Partners

Dr. Victoria McDonald, Associate Professor, Department of Biology – Lewis Science Center, University of Central Arkansas, 201 Donaghey Rd., Conway AR 72035

Project Budget

Total SWG money requested: \$125,288

Match amount: 50%, \$66,380; 35%: \$45,420

Total Project Cost: with 50% match, \$243,190; with 35% match \$173,729

Project Statement

Need

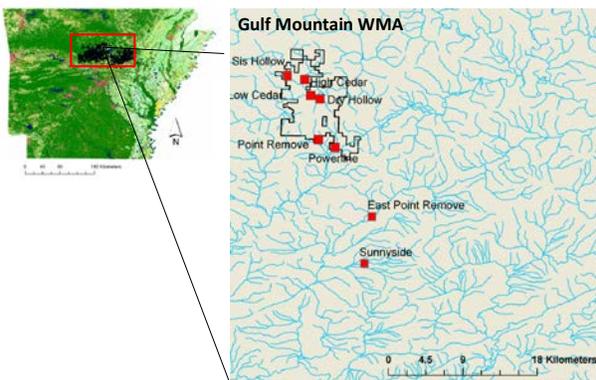
One of the 2013 State Wildlife Grant Funding Priority actions is “Implementation and/or evaluation of habitat restoration and management of pine woodland and savanna.” The comments in the Request for Proposals pertaining to this action state, “Pine woodlands and savannas are a conservation priority because of the many bird SGCN supported in these habitats. These habitats are threatened by conversion to pine plantations, the lack of prescribed burning and the suppression of naturally-caused fires.”

Purpose and Objectives

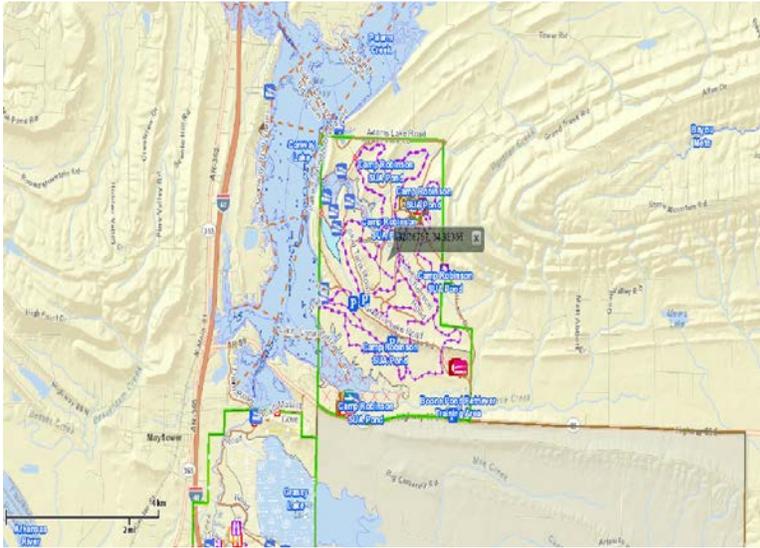
The proposed work will evaluate areas of restored pine woodland and pine savannah by monitoring for avian Species of Greatest Conservation Need (SGCN) listed in the RFP priorities list: *Picoides borealis*, *Aimophila aestivalis*, *Ammodramus henslowii*, *Pipilo erythrophthalmus*, *Sitta pusilla*, *Passerina ciris*, *Dendroica discolor*, *Melanerpes erythrocephalus*, *Colinus virginianus*, *Coccyzus americanus*. Trained observers will perform surveys over two breeding seasons, and the presence and abundance of target species will be compared across sites and years. Total species richness and diversity will be analyzed by habitat type and restoration phase. To measure habitat quality, the reproductive success of common breeding species will be compared across habitat type, year, and restoration phase.

Locations

1. Gulf Mountain Wildlife Management Area is located in southwest Van Buren County, in the Boston Mountains and Arkansas Valley ecoregions. The WMA contains pine woodland and pine savannah, habitats that are addressed in the current Request for Proposals. Native warm season grasses were planted in pine forest clearings four years ago and are being managed by fallow disking or prescribed fire as needed. Other clearings at Gulf Mountain are being reclaimed as row crops and are on a three-year rotation of disking/planting, leaving fallow, and mowing. The surveyed areas will include both restored and non-restored clearings (a subset of 200 total acres) to provide comparisons of habitat type and quality for SGCN. We have met with the on-site manager and the supporting Game and Fish wildlife biologist to discuss this project.



2. Camp Robinson Special Use Area (SUA) and Camp Robinson Military Training Center (RMTC) in Faulkner County (Arkansas Valley ecoregion) have a decades-long history of being managed for oak-pine woodland and savanna. The RMTC contains large areas of the target habitats, and the SUA is an Important Bird Area, where population data on SGCN is especially needed. We have received written documentation from the RMTC Natural Resources Manager in support of this project.



Approach

The proposed work will take two approaches: (1) total-community avian surveys and (2) monitoring reproductive success of focal species. For the first approach, repeated surveys will be conducted at each site during each breeding season. Because all of the clearings in Gulf Mountain WMA have clearly defined boundaries, censuses of all birds in each clearing will be performed to obtain counts specific to each plot. At Camp Robinson SUA and RMTC, variable distance point counts will be performed at locations randomized within suitable habitat. Each point will be visited at least three times per breeding season, and the counts of SGCN will be analyzed with respect to site, habitat type (restored vs. non-restored), year, and restoration stage. Total species richness and diversity will also be analyzed.

In the second approach, nest boxes will be placed in each census area in Gulf Mountain WMA to attract common breeding species (eg., Tree Swallow *Tachycineta bicolor*, Tufted Titmouse *Baeolophus bicolor*, Carolina Chickadee *Poecile carolinensis*, Eastern Bluebird *Sialia sialia*). Boxes will be monitored every three days during the breeding season to record the date of clutch initiation, clutch size, hatching success, and fledging success of each nesting attempt. Reproductive variables will be compared intraspecifically across plot type and phase of restoration, to assess whether they may indicate habitat suitability.

Timeline

Month	Year	Activity
July-Sept	2013	assess habitat for evidence of breeding by target species, select survey plots and points, construct and set out nest boxes
January-	2014	hire field technicians, obtain field housing and field equipment, train

March		technicians
April-June	2014	conduct surveys and nest-box monitoring
July-Sept	2014	data entry and proofing, preliminary analysis.
January-March	2015	hire field technicians, obtain field housing and field equipment, train technicians
April-June	2015	conduct surveys and nest-box monitoring

Expected Results and Benefits

The proposed work is expected to produce several peer-reviewed scientific articles comparing (1) the presence of avian SGCN in restored vs. non-restored areas, (2) avian species richness and diversity in restored vs. non-restored areas, and (3) reproductive success of nest-box breeding species in restored vs. non-restored areas. Several undergraduate students per year will be trained in ornithological and ecological field methods and may contribute to data analysis and paper writing. Technical reports will focus on the specific sites being compared and how the findings may apply to the restoration of other pine woodlands and pine savannas in Arkansas.

SGCN in current RFP known from project locations:

Northern Bobwhite *Colinus virginianus*

Least Bittern *Ixobrychus exilis*

Yellow-billed Cuckoo *Coccyzus americanus*

Red-headed Woodpecker *Melanerpes erythrocephalus*

Bell's Vireo *Vireo bellii*

Brown-headed Nuthatch *Sitta pusilla*

Prairie Warbler *Dendroica bicolor*

Eastern Towhee *Pipilo erythrophthalmus*

Bachman's Sparrow *Aimophila aestivalis*

Henslow's Sparrow *Ammodramus henslowii*

Le Conte's Sparrow *Ammodramus leconteii*

Painted Bunting *Passerina ciris*

Budget

	SWG Funds	<u>35% match scenario</u>			<u>50% match scenario</u>		
		Cash	In- Kind	Total Cost	Cash	In- Kind	Total Cost
Salaries	\$101,004	\$45,420	0	\$146,424	\$66,380	0	\$167,384
Contract Services	\$800	0	0	\$800	0	0	\$800
Supplies and Materials	\$1,500	0	0	\$1,500	0	0	\$1,500
Travel	\$10,500	0	0	\$10,500	0	0	\$10,500
Equipment	0	0	0	0	0	0	0
Indirect Costs	\$11,384	0	0	\$11,384	0	0	\$11,384
TOTAL	\$125,288	\$45,420	0	\$170,708	\$66,380	0	\$191,568

Qualifications

PI: Jennifer Wang, Ph.D.

Dr. Wang is a Research Associate and Adjunct Instructor in the Department of Biology at the University of Central Arkansas. She received a Ph.D. in Environmental Science, Policy and Management from the University of California, Berkeley, in 2009. Her thesis was on the environmental constraints on incubation behavior and egg viability in five cavity-nesting passerines (Western Bluebird *Sialia mexicanus*, Tree Swallow *Tachycineta bicolor*, Violet-green Swallow *Tachycineta thalassina*, Oak Titmouse *Baeolophus inornatus*, Ash-throated Flycatcher *Myiarchus cinerascens*). Dr. Wang has authored six peer-reviewed scientific papers. She has been an ad hoc reviewer for the National Science Foundation and is a manuscript reviewer for the journals *Auk*, *Condor*, *Ibis*, *Journal of Avian Biology*, *Journal of Ornithology*, *Behavioral Ecology*, *Behavioral Ecology and Sociobiology*, and *Oecologia*. As the principle investigator, Dr. Wang will be the lead coordinator and provide direction in all phases of the project: design, logistics, field work, analysis, and write-up.

Co-PI: Victoria McDonald, Ph.D.

Dr. McDonald will provide expertise in avian survey design, local biota, and distance sampling methods. Since 1990 she has been a member of the University of Central Arkansas biology faculty. She will hire and train field technicians and ensure rigorous standards for survey quality are met. Dr. McDonald has conducted site-wide point counts at the Smithsonian Conservation Biology Institute (SCBI) near Front Royal, Virginia, every summer since 1991. She has also worked as a contracted avian census specialist for the Missouri Army National Guard at various National Guard installations in that state. In addition, she designed the bird census and trained census volunteers for the Virginia Working Landscapes program through the SCBI for the past three summers.