

2018 State Wildlife Grant Application Pre-Proposal

Project Title: Mapping and Prioritizing Sediment Sources from Unpaved Roads in the Central Sandhill Ecosystem

Project Summary: The Nature Conservancy and partners will conduct an ecological assessment on 75 miles of unpaved roads Central Sandhill Ecosystem in Nevada county and Ouachita county. The restoration activities will enhance ecosystem function, increase the connectivity of wetlands and stream habitats, reduce sedimentation, and serve to continue an organized, ecosystem-based partnership.



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Budget Summary: Total Amount of Project Cost: 77,000
Total Amount of SWG Allocated: \$50,000
Matching Funds from TNC and Partners: \$27,000 (35% match)

Conservation Need: The sandhills represent one of the most impressive centers of biological diversity in the Natural State. The most xeric condition in the Upper West Gulf Coastal Plain ecoregion contains over

400 plant taxa in just portions of Ouachita and Nevada counties; accounting for over 13% of the entire flora of Arkansas in a relatively small area of the state. Conservation ownership is vested in the Arkansas Forestry Commission (AFC), Arkansas State Parks (ASP), Arkansas Natural Heritage Commission (ANHC), The Nature Conservancy (TNC), and other private lands.

The sandhill ecosystem comprises six distinct plant communities, three are upland (xeric sand grassland, dry sandhill savanna, and dry mesic sandhill woodland) and three are wetland (wooded sandhill seep, saturated sandhill shrub seep, and herbaceous sandhill marsh). They are grouped in the AWAP under Upper West Gulf Coastal Plain Sandhill Oak-Shortleaf Pine Forests and Woodlands habitat type on page 1539 and Upper West Gulf Coastal Plain Seepage Swamp and Baygall on page 1548. Collectively, these plant communities support at least twenty-seven rare plant species, as monitored by the ANHC.

Previous funding from SWG addressed the impacts of unpaved road erosion and stream connectivity as part of upland habitat restoration. We made improvements on one mile of unpaved roads and removed stream barriers to allow fish passage at one stream crossing. However, there remains a need for more work along the remaining 75 miles of unpaved roads in the project area.

This SWG will continue the work of unpaved road restoration (sediment BMP's and removal of barriers), inventory two streams, and create a map to prioritize areas of focus for future restoration work aimed at reducing sedimentation and improving stream and wetland habitat connectivity. However, lack of aquatic inventory does not allow us to claim that improved water quality is positively impacting many species of concern, except for the goldstripe darter.

In addition, ongoing habitat restoration will support grassland birds (specifically Northern Bobwhite (*Colinus virginianus*), monarch butterflies, and pollinators due to the continuing implementation of woodland thinning, prescribed burns, and invasive species control.

Funding Priorities:

1. Aquatic SCGN – status of habitat connectivity and identification and mitigation of barriers/impediments to connectivity. SGCN (goldstripe darter p459).

Purpose and Objectives: The Nature Conservancy (TNC) and its partners maintain an on-going presence in the sandhill ecosystem of Ouachita and Nevada counties, but funding is rarely adequate to maintain progress on all our conservation objectives. This project will utilize our varied expertise and funding capabilities to complement each other's programs in areas that will provide increased benefits to the ecosystem's SGCN. Specific objectives have been determined based on each partner's needs and capabilities.

Inventory Assessment and Mapping Objectives:

- Develop a GIS model to prioritize locations for future unpaved road rehabilitation.
- Map and digitize sandhill barrens and seeps.
- Implement aquatic inventories of two streams in the project area.

Sedimentation abatement and improved stream and wetland connectivity Objectives:

- Road rehabilitation to reduce sedimentation
- Improve wetland and stream connectivity by removing barriers.
- Conduct pre- and post-treatment photo monitoring.

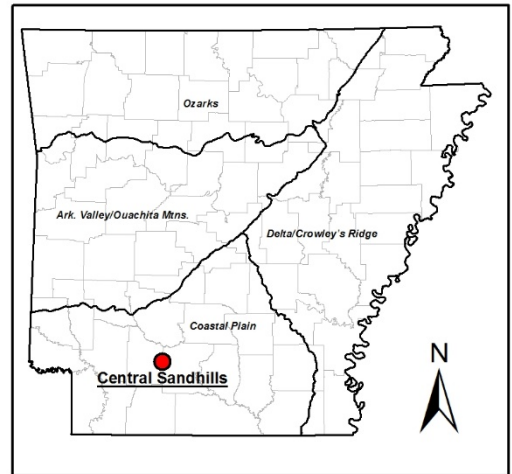
Approach: We will integrate the AWAP with other natural resource efforts at federal, state, and local levels to continue the organized Sandhill Restoration Partnership.

Fall/Winter 2018

- Develop a GIS ranking methodology for unpaved roads in the sandhills.
- Map and digitize sandhill barrens and seeps.

Spring/Summer 2019

- Start unpaved road surveys.
- Begin stream inventory.
- Conduct pre-treatment photo points of road improvement project.
- Complete road improvement project (barrier removal and road restoration BMP's).



Fall/Winter 2019

- Continue unpaved road surveys.
- Conduct post-treatment photo points of road improvement project
- Annual report.

Spring/Summer 2020

- Complete unpaved road survey
- Produce final map of road prioritization.
- Produce digitized map of sand barrens and seeps.
- Complete stream inventories.
- Complete final report.

Expected Results/Benefits: TNC and its partners expect to improve ecosystem conditions for SGCN in priority areas located within the Central Sandhills. Mapping and prioritizing the existing unpaved roads for impacts on water quality and removing barriers will direct road rehabilitation efforts for the benefit of rare habitats and SGCN. A digitized map of sand barrens and seeps allows for efficient conservation implementation in the future. This work will demonstrate and implementing road BMP's and will improve sandhill wetland habitat connectivity.

Measurable Results:

- 75 miles of unpaved roads mapped and prioritized by potential sediment impacts.
- Produce digitized map of sandhill barrens and seeps.
- Inventory of aquatic habitats.
- Road erosion BMP's and barrier removal implemented on severely impacted roads (figure 1).
- Complete pre- and post-monitoring, operational reports after each treatment and a final report.



Figure 1: Scott Story Road Restoration; before and after restoration.

Table 1. Priorities of the Sandhill SWG as identified in the 2018 RFP, description of qualifying activities, page number of priority in the AWAP, and state and global conservation rank, if applicable.

Priority Habitat	Priority Name	Activity Description	AWAP Page No.	State-Rank	Global-Rank
Seep Wetlands	<i>Coccyzus americanus</i>	Conduct habitat management	191	S4B	G5
Seep Wetlands a	<i>Scaphiopus hurterii</i>	Conduct habitat management	110	S2	G5
Seep Wetlands	<i>Chaetura pelagica</i>	Conduct habitat management	176	S4B,S5N	G5
Seep Wetlands	<i>Neonympha areolata areolata</i>	Conduct habitat management	676	S2	G4T3T4
Seep Wetlands	<i>Corynorhinus rafinesquii</i>	Restore, enhance, or maintain	817	S2	G3
Seep wetlands	<i>Eurycea quadridigitata</i>	Restore, enhance, or maintain	67	S3	G5
Seep wetlands	<i>Ictinia mississippiensis</i>	Restore, enhance, or maintain	236	S4B,S4N	G5
Seep wetlands	<i>Satyrium kingi</i>	Restore, enhance, or maintain	695	S1	G3
Seep wetlands	<i>Protonotaria citrea</i>	Restore, enhance, or maintain	294	S4B	G5
Seep wetlands	<i>Desmognathus conanti</i>	Restore, enhance, or maintain	64	S1	G5
Seep wetlands	<i>Deirochelys reticularia miaria</i>	Restore, enhance, or maintain	1059	S3	G5
Stream Quality	<i>Etheostoma parvipinne</i>	Implement road BMP projects	459	S2	G4

Proposed Budget

Category	SWG Funds	Match (AFC)	Total
Personnel	22,700	27,000	45,700
Travel	2,800		2,800
Supplies	2,500		2,500
Contractual	12,549		12,707
Total Direct Costs	40,549	27,000	67,549
Total Indirect (23.31%)*	9,451		9,451
<i>Totals</i>	50,000	27,000	77,000

*The Nature Conservancy has a Negotiated Indirect Cost Rate (NICRA) of 23.31% through June 30. TNC's indirect rate is negotiated annually with the Department of the Interior and TNC will charge indirect at the federally approved rate each fiscal year.

Qualifications of Partnership

As a prescribed fire project manager and land steward for TNC, **Clint Harris** has established a working track record with partners in this proposal while conducting monitoring 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.

Gabriel De Jong received his B.S. in Biology (plant biology and ecology focus) from Calvin College in Grand Rapids, Michigan. He received an M.A. in Plant Biology (plant community ecology focus) from the University of Texas at Austin. His work experience includes invasive species control (The Nature Conservancy, Michigan) and nature interpretation (Edinburg Scenic Wetlands and World Birding Center). Gabe currently works at The Nature Conservancy in Arkansas (two years) where he manages TNC's terrestrial monitoring efforts and ecological assessments in all ecoregions throughout the state. Gabe has extensive experience in vegetation data collection, data management, statistical analysis, ArcGIS, written reporting, and presenting to diverse audiences.

As State Forest Manager for the Arkansas Forestry Commission, **Daniel Browne** works with partners including The Nature Conservancy, Arkansas Game and Fish Commission, Arkansas Natural Heritage Commission, and Arkansas Department of Parks and Tourism in the management of Poison Springs State Forest. Daniel's duties as State Forest Manager include making silvicultural decisions for over 23,506 acres of timberland, supervising timber inventory, timber marking, road, boundary, campsite, vehicle, and building maintenance, contract administration, assisting with land purchases, and bidding and awarding timber sales.

As a prescribed fire project manager and Park Superintendent for Arkansas State Parks, **Robert Giles** has established a working track record with partners such as Arkansas Forestry Commission, USDA Forest Service, and The Nature Conservancy conducting prescribed fire activities. Duties included: planning and writing burn plans, assisting other parks with planning, prep work, burns, and post burn assessments and records.