

## **PRE-PROPOSAL**

### **Applying and Demonstrating Innovative Construction and Maintenance Practices to Reduce Sedimentation from Low-Volume Unpaved Roads for the Benefit of the Yellowcheek Darter (*Etheostoma moorei*), Speckled Pocketbook (*Lampsilis streckeri*), and other Species of Greatest Conservation Need in the Upper Little Red River Watershed, Arkansas**



#### **Project Summary**

The proposed project will address effects of sedimentation from unpaved roads and stream crossings on Yellowcheek Darter, Speckled Pocketbook, and other Species of Greatest Conservation Need (SGCN) in the Archey Fork of the Upper Little Red River Watershed. The proposed project will be part of a larger scale restoration effort, including river restoration projects along 3 miles of the Archey Fork, restoring riparian buffers along the Archey Fork and tributaries, replacing crossings over two tributaries to the Archey Fork with clear spanning structures, and fire restoration to oak woodlands and sandstone glades, all on The Nature Conservancy's Bluffton Preserve near Botkinburg, Arkansas.

#### **Project Leader**

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The total cost of this project will be \$32,020  
The Nature Conservancy respectfully requests \$20,941 to complete this project.  
TNC will provide the remaining \$11,079 as match (35%)  
in the form of cash and/or in-kind materials, equipment use and labor.

**Need:** The Nature Conservancy has implemented numerous projects demonstrating best management practices (BMPs) for unpaved roads and trails, but these demonstration projects were mainly focused on public unpaved roads that are maintained by county and city roads programs with budgets allocated for road maintenance. Although large amounts of sediment do come from public, county-maintained unpaved roads, many unpaved roads and trails on private land are also failing and contributing sediment due to poor construction and maintenance practices, affecting SGCN within the watershed. These issues aren't easily assessed during roads inventories because of limited access on private lands. Landowners often spend large amounts of money and time trying to address erosion problems along these roads and trails, building structures or using materials that only make the problem worse. With no annual budget for road maintenance, landowners need a cost-effective and simple means of addressing erosion along failing roads and trails. Addressing sediment from unpaved roads and demonstrating BMPs for low volume roads addresses threats to Yellowcheek Darter and Speckled Pocketbook (AWAP 453, 952), both of which are endemic to the Upper Little Red River watershed and federally listed as Endangered Species. The Yellowcheek Darter has the highest priority ranking of all aquatic SGCNs in the Boston Mountains ecoregion.

**Purpose and Objectives:** The proposed project will demonstrate techniques that effectively address erosion issues using readily available materials that can be installed with tools and equipment available to anyone. By demonstrating this project to the public in and around the Upper Little Red River watershed, landowners can replicate these techniques on their own land, decreasing sediment from unpaved roads on private land and its overall effect on the aquatic SGCN. Landowners benefit from having unpaved roads that require less maintenance and cost throughout the year.

The proposed project will:

1. Repair erosion on road beds and install conveyor belt diversions along approximately 2 miles of low-use, unpaved roads and trails.
2. Install geocell material, similar to a french mattress, at 10 selected locations where seeps and springs keep roads wet, causing rutting, erosion, and degradation.
3. Reroute stream crossing on a side channel of the Archey Fork to intersect the channel at a perpendicular angle, and install geocell material on approach slopes for stabilization of road materials.
4. Present demonstration projects to local landowners and offer a field tour of the sites.

**Location:** Implementation of this project would take place at The Nature Conservancy's Bluffton Preserve on the Archey Fork of the Little Red River in northern Van Buren County. The 1,000 acre preserve has over 3 miles of river, as well as dozens of tributaries. The roads of concern are all directly adjacent to the river, or its tributaries. See Figure1 below.

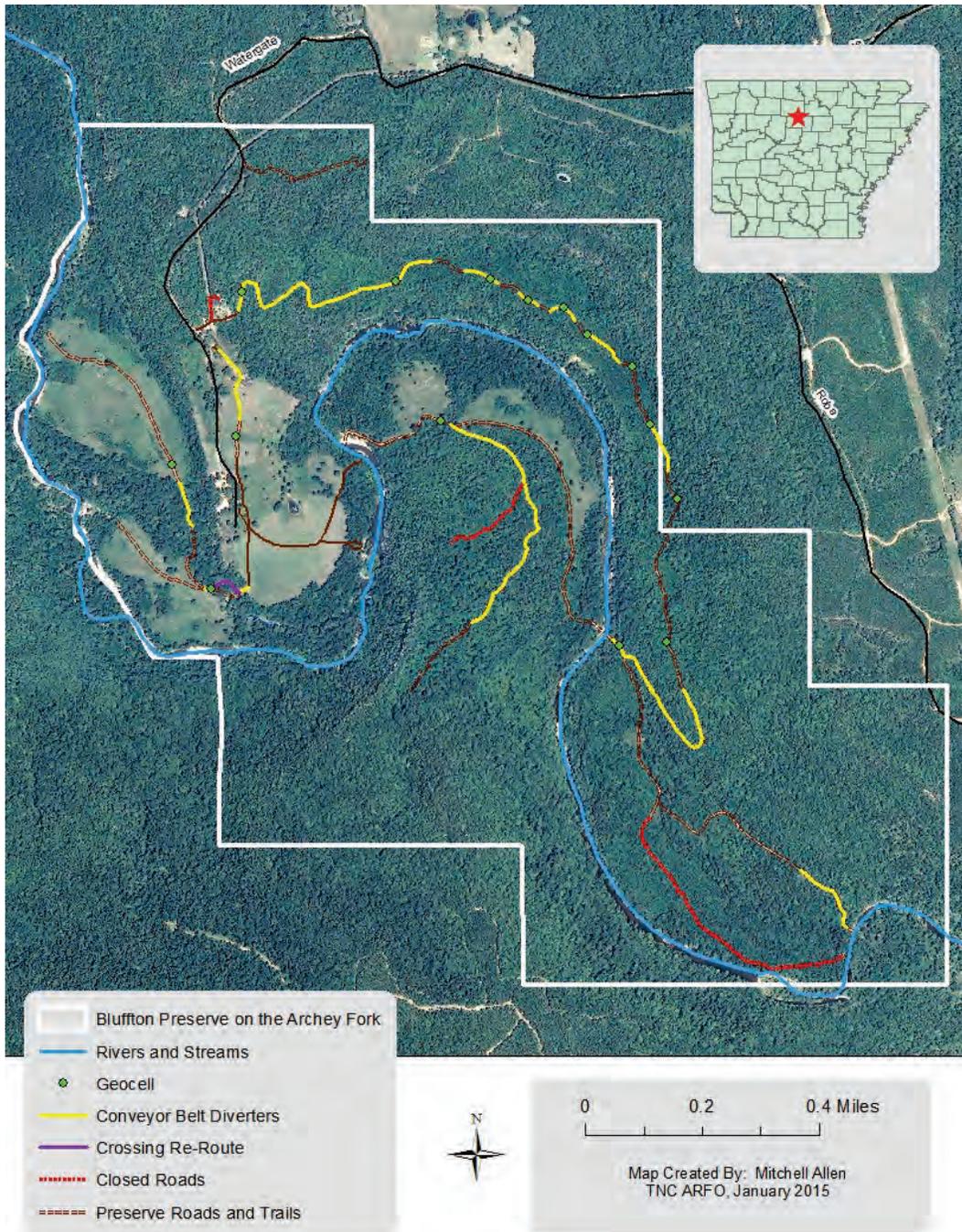


Figure 1 Map Showing TNC's Bluffton Preserve on the Archey Fork as well as the proposed work.

**Approach:**

- Repair erosion on road beds and install conveyor belt diversions along 2 miles of low-use, unpaved roads and trails.

Installation of conveyor belt diversions will follow BMPs and procedures from the USFS' Environmentally Sensitive Road Maintenance Practices for Dirt and Gravel Roads manual. This involves choosing correct spacing for road slope, depth of installation, and material selection.

- *Install geocell material, similar to a french mattress, at 10 selected locations where seeps and springs keep roads wet, causing rutting, erosion, and degradation.*

Installation of geocell drainage structures will follow BMPs and procedures from the USFS' Environmentally Sensitive Road Maintenance Practices for Dirt and Gravel Roads manual, as well as installation instructions and BMPs from the manufacturer.

- *Reroute stream crossing on a side channel of the Archey Fork to intersect the channel at a perpendicular angle, and install geocell material on approach slopes for stabilization of road materials.*

Re-routing crossings to intersect stream channels at a perpendicular angle allows for vehicles and equipment to come into contact with less of the stream, effectively decreasing disturbance from 50 linear feet of channel, to roughly 14 linear feet of channel. At this particular crossing, the re-route will also decrease slope of the approaches to the river, allowing diverters to be installed before runoff reaches the channel. Geocell materials will also be installed on the approaches to stabilize road materials from eroding into the channel, or from being easily entrained during rain events.

- *Present demonstration projects to local landowners and offer a field tour of the sites.*

Demonstrating cost-effective and efficient ways for private landowners to manage unpaved roads is imperative to reduce sediment throughout the watershed. After the work is complete, a presentation and field tour will be offered to the public at the worksite, detailing procedures and BMPs used to address erosion and sediment loss into streams and how it benefits both landowner and aquatic SGCNs in the Upper Little Red River watersheds. The materials and procedures we use will also be made available in a free pamphlet to all attendees or other interested parties.

**Results and Benefits:** Direct results from Objectives 1-3 will be decreased sedimentation from unpaved roads and trails into the Archey Fork of the Little Red River and its tributaries for the benefit of SGCNs, including Yellowcheek Darter and Speckled Pocketbook. Conveyor belt diverters are buried in the road surface, which keeps them functioning for much longer than waterbars or broad-based dips, even when road crown or outsloping has worn down. Likewise, geocell mats confine gravels within their honeycomb shaped cells, limiting spreading or rutting of the road materials, while still allowing water to drain. Again this offers a much longer lifespan than similar french mattresses without the use of synthetic geocell material. Objective 4 will give other private landowners insight into cost effective techniques and materials that they can replicate on their own roads and trails. Replication throughout the watershed would result in reduced sediment into surrounding rivers and reduced effect on aquatic SGCNs on a larger scale. Other benefits include roads and trails that require less maintenance and cost per year, an important incentive to implement demonstrated BMPs on private lands. Overall, this project aims to reduce sediment produced from low volume roads and trails that may not be assessed or detected during standard roads inventories in the watershed.

**Budget:**

Table 1: ESTIMATED BUDGET			
Category	Funds Required	TNC Cash Match	Total
Personnel and Benefits*	\$4,200	\$3,800	\$8,000
Operating Budget			\$0
Travel	\$1,200	\$1,600	\$2,800
Supplies	\$4,300	\$3,700	\$8,000
Contracts	\$7,500	\$0	\$7,500
Other	\$0	\$0	\$0
<b>Subtotal</b>	<b>\$17,200</b>	<b>\$9,100</b>	<b>\$26,300</b>
Indirect Cost (NICRA at 21.75%)	\$3,741	\$1,979	\$5,720
<b>TOTAL</b>	<b>\$20,941</b>	<b>\$11,079</b>	<b>\$32,020</b>
Total Match	\$11,079.25		
Percent Match	35%		
Note:	TNC's negotiates its indirect rate annually with the U.S. Fish and Wildlife Service, TNC's cognizant agency. The proposed negotiated indirect cost rate starting July 1, 2015 is 21.75%. Per the requirements of the RFP, TNC has reduced its recovery of indirect costs to 10% and unrecovered indirect costs will be included as part of our matching requirement. TNC will notify the AGFC of any changes to our indirect cost rate promptly.		

### Qualifications:

**Mitchell Allen**, Stream Restoration Specialist, will be responsible for project planning and implementation, reporting, and future monitoring and maintenance. Mitchell is a graduate of the University of Central Arkansas with a B.S. in Environmental Science/Biology. While working on his undergraduate degree, he was able to gain 3 years of experience with non-native plant removal and restoration ecology with the UCA Department of Biology and the National Park Service. Since graduating he has worked with the U.S. Fish and Wildlife Service on the Upper Colorado River Endangered Fish Program, helping restore habitat for four endangered species, as well as removing non-native fish species. He began work for The Nature Conservancy in August of 2012 where he has assisted with surveying, planning, and construction of multiple river restoration projects.

**Joy DeClerk**, River Restoration Program Director, will be responsible for providing technical expertise and assisting in project implementation. DeClerk is a graduate of Hendrix College with a B.A. in Environmental Studies, and Economics and Business and has worked for The Nature Conservancy since April 2005. In her current position she has focused conservation work on assessing sedimentation from various land uses and applying natural channel design restoration techniques to reduce sedimentation and restore habitat. DeClerk has completed trainings in "Applied Fluvial Geomorphology" and "Natural Channel Design" led by instructor Dave Rosgen, Ph.D. The most recent successful project completed was a large-scale river restoration project on the Archey Fork Upper Little Red River in Clinton, AR, designed and constructed by DeClerk. Other projects completed include: Assessment and improvement project on unpaved roads in the Middle Fork Saline Watershed, in Garland County; and Development of a trail assessment and monitoring methodology for Best Management Practices on ATV trails in the Wolf Pen Gap Area, Ouachita Headwaters Watershed near Mena, Arkansas.