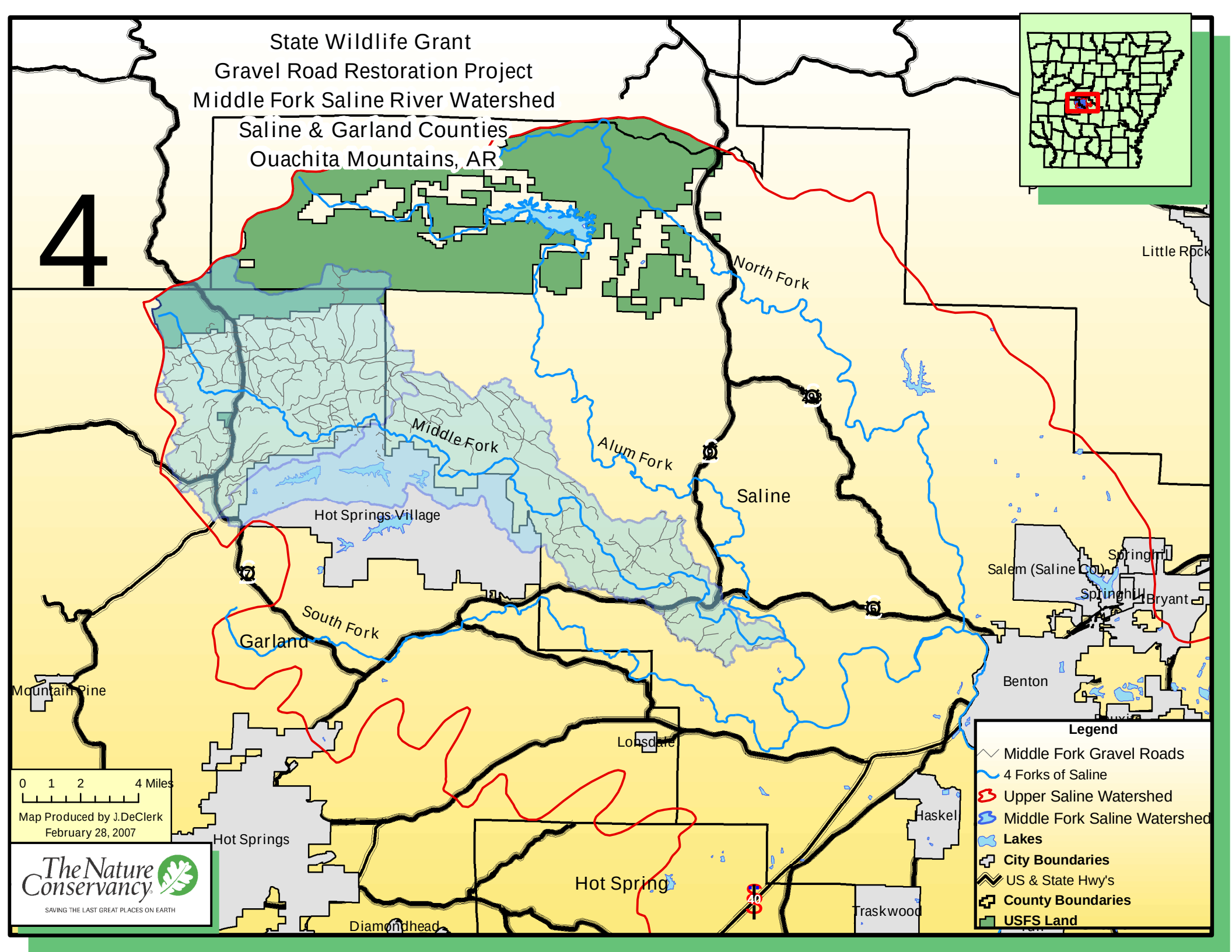
State Wildlife Grant
Gravel Road Restoration Project
Middle Fork Saline River Watershed
Saline & Garland Counties
Ouachita Mountains, AR
4
North Fork
Middle Fork
Alum Fork
South Fork
Saline
Garland
Hot Springs Village
Little Rock
Salem (Saline Co.)
Springhill
Bryant
Benton
Mountain Pine
Lonsdale
Hot Springs
Hot Spring
Haskel
Traskwood
Diamondhead
0 1 2 4 Miles
Map Produced by J.DeClerk
February 28, 2007
The Nature Conservancy
SAVING THE LAST GREAT PLACES ON EARTH
Legend
Middle Fork Gravel Roads
4 Forks of Saline
Upper Saline Watershed
Middle Fork Saline Watershed
Lakes
City Boundaries
US & State Hwy's
County Boundaries
USFS Land

Reducing Sedimentation through Implementation of Best Management Practices (BMP's) on High Priority Gravel Road Segments in the Middle Fork Saline River Watershed, Ouachita Mountain Ecoregion, Arkansas

Complete the rehabilitation of 1-3 of the highest priority road segments contributing the most sediment to the Middle Fork Saline River. Demonstrate cost-feasibility of best management practices through implementation of a demonstration project.

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The Nature Conservancy
SAVING THE LAST GREAT PLACES ON EARTH

<u>Project Partners</u>:

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Benton, AR 72015

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Total Project Cost: **$26,300**
Total Amount Requested: $13,150
Total Matching Funds/In-kind Services: $13,150

TITLE: **Reducing Sedimentation through Implementation of Best Management Practices (BMP's) on High Priority Gravel Road Segments in the Middle Fork Saline River Watershed**

LOCATION
Ecoregion: Ouachita Mountains
Habitat: Ozark-Ouachita Riparian/Aquatic

State Wildlife Action Plan Priority to be Addressed:
This project is geared towards "managing watershed…and land use components to restore aquatic life for all SGCN species," but particularly addressing sedimentation impacts to mussel species of concern within the Middle Fork Saline Watershed. This was identified as a conservation priority for the Arkansas State Wildlife Plan. Completing this project will encourage proactive management to benefit 15 aquatic endangered, threatened, and species of greatest conservation need (see table 1). Of these 15 species, there are 3 fish, 11 mussels, and 1 macroinvertebrate species of concern.

Database Update: The Nature Conservancy commits to updating the Comprehensive Wildlife Conservation Strategy (CWCS) database at the conclusion of this project.

Updating the Scientific Community: The Nature Conservancy anticipates to be prepared to present this project and results to the scientific community by fall of 2008.

Background:
The Middle Fork Saline River, home to eleven mussel Species of Greatest Conservation Need (SGCN) including the threatened Arkansas Fatmucket (*Lampsilis powellii)* and Southern hickorynut mussels (*Obovaria jacksoniana),* and the endemic Ouachita Creekshell (*Villosa arkansasensis*), is identified as both an Extraordinary Resource Waterbody (ERW) and Ecologically Sensitive Waterway (ESW) by the Arkansas Department of Environmental Quality. Unfortunately, the Middle Fork has also been identified by the Arkansas Natural Resource Commission as one of seven high priority watershed targeted for reduction of nonpoint source pollution.

Based upon a 2005/2006 threats assessment for the Upper Saline Watershed, conducted by The Nature Conservancy and funded through State Wildlife Grant funding, construction and maintenance of county roads ranked among the highest contributors to the degradation of suitable habitat for species of greatest conservation need. Over the last six months, The Nature Conservancy has been conducting an inventory of all existing gravel roads within the Middle Fork Saline River watershed. There are currently over 200 miles of gravel roads within the watershed of which TNC has inventoried 165 miles. Data collected during this survey includes gradient and length of road slopes, berms, ditch depth and length, in-slope/outslope, surface permeability, wing ditches, and connectivity to natural drainage features. Of the miles surveyed, TNC has found that roughly 7% of the gravel road

segments are identified as "extreme" or "high" priority for restoration totaling approximately 11.5 miles of road. It is a goal for this project to follow up on both the Threats Assessment and gravel road inventory to initiate restoration, through partnership with the county road department, on the top 1-3 priority road segments that are contributing the most sediment to the river with particular attention paid to segments with stream road crossings, culverts, and crossdrains of extreme and high priority and crossings with inadequate fish passages.

Approach and Methods

A road maintenance workshop will be held, in which representatives from both counties that fall within the study area, Garland and Saline, will be invited to attend. The primary audience will be county judges and road maintenance crews. Agency personnel and interested private land owners will also be encouraged to participate. The one-day workshop will be a classroom workshop and will cover the road inventory, WEPP modeling, road maintenance prioritization, and fish passage prioritization models. An emphasis will be placed on making the mapped information available and useful to the county personnel for their future work. Road maintenance best management practices (BMP) will also be discussed. In the field, BMP's will be demonstrated and implemented on one to three of the highest priority segments identified in the road survey data collection. Implementation will be focused on a priority subwatershed to immediately have a significant ecological impact on a major tributary as well as providing a mainstem benefit. The road segments selected for rehabilitation will also be based upon usefulness as a demonstration project.

The Nature Conservancy will work with Saline and Garland County road departments and several property owners associations as needed to improve sediment control structures and features on priority road segments. These entities have indicated that they are willing to work cooperatively if technical assistance and some material cost sharing were provided. To this end, working relationships with several county road departments will be developed during the road maintenance workshop and BMP demonstration project. The Conservancy will provide technical assistance and cost share in the installation of standard and innovative sediment control structures and redesigns.

Objectives:

1. Conduct a one-day BMP workshop focused on sedimentation from land use activities. Complete and disperse detailed maps and a report summary with the results of the roads inventory and WEPP modeling, and maps of problem areas and prioritized road segments with the highest sediment contribution.

2. Complete the rehabilitation of at least one and up to three road segments contributing the most sediment to the Middle Fork Saline River. Submit a report documenting the rehabilitation.

3. Complete a follow up site visit and field tour for the public of the restored segments for educational outreach.

Public Connection: The Nature Conservancy commits to hosting a public field tour as a medium for public outreach on this project.

Monitoring: Before the project begins and after project completion, The Nature Conservancy will conduct three stormwater turbidity sampling events at specified upstream and downstream locations of the selected road crossings to determine sediment reduction from the restoration of the chosen segment(s). In addition, The Nature Conservancy will establish a permanent benchmark and monumented cross-sections to determine pre- and post-project stream channel stability and to facilitate future monitoring. Water Erosion Prediction Project (WEPP) modeling efforts will also determine sediment reduction from project activities. The Nature Conservancy commits to updating the Natural Resources Monitoring Partnership database for all monitoring activities associated with this project.

***Budget*:**
The total cost for this project will be $26,300 with project costs totaling $6,300 for personnel expenses and $20,000 in operating expenses. Budget expenses supporting the deliverables below include personnel (may include overtime), supplies (such as materials for road restoration, field sampling supplies, etc.), equipment rental, possible contractual work, travel, and other program related expenses. The Nature Conservancy respectfully requests $13,150 (50%) from the Arkansas Game and Fish Commission through the State Wildlife Grant and will provide $13,150 (50%) as match. Twenty-five percent of the acquired funds will be applied to indirect expenses. Indirect Costs: The Nature Conservancy has a Federal Negotiated Indirect Cost Rate (NICRA) of 25%, which is accepted by USFWS. Completion of this project will take approximately one year from the project start date.

***Deliverables Calendar*:**

Task	Timeframe	Cost	Match	Total
1: Conduct 3 stormwater sampling events	Months1-3	$1,900	$1,900	$3,800
2: Establish permanent Cross-sections/survey site	Months 1-3	$1,900	$1,900	$3,800
3: Develop Restoration Design	Months 3-6	$1,900	$1,900	$3,800
4: Hold Workshop	Month 7	$1,900	$1,900	$3,800
5: Implement Road Restoration	Months 8-12	$1,900	$1,900	$3,800
6: Conduct 3 stormwater sampling events	Months 12-18	$1,900	$1,900	$3,800
7: Submit Final Report/Host Public meeting	Month 18-24	$1,750	$1,750	$3,500
		$13,150	**$13,150**	**$26,300**

Table 1.

Upper Saline and 4 Forks SGCN				
	Scientific Name	Common Name	Global Status	State Status
Fish	*Noturus lachneri*	Ouachita madtom	G2	S2
	Crystallaria asprella	Crystal darter	G3	S2?
	Percina uranidea	Stargazing darter	G3	S3
Insects	*Agapetus medicus*	Arkansas agapetus caddisfly	G?	S?
Mussels	*Alasmidonta marginata*	elktoe	G4	S3
	Cyprogenia aberti	western fanshell	G2	S2
	Lampsilis ornata	Southern pocketbook	G5	S1
	Lampsilis powellii	Arkansas fatmucket	G1G2	S2
	Toxolasma lividus	purple lilliput	G2	S2
	Villosa arkansasensis	Ouachita creekshell	G2	S2
	Obovaria jacksoniana	Southern hickorynut	G1G2	S2
	Lampsilis abrupta	Pink Mucket	G2	S2
	Pleurobema cordatum	Ohio pigtoe	G3	S2
	Pleurobema rubrum	Pyramid pigtoe	G2	S2
	Ligumia recta	Black sandshell	G5	S2

Joy DeClerk, Ouachita Rivers Project Manager, will be responsible for facilitation between groups, and completion of the project. DeClerk is a graduate of Hendrix College with a B.A. in Environmental Studies, and Economics and Business and has worked as project manager with The Nature Conservancy since April 2004. In her current position she has completed three courses in "Applied Fluvial Geomorphology" led by instructor Dave Rosgen, Ph.D., developed a Watershed Restoration Plan addressing Non-point Source Pollution for the Upper Saline Watershed, a Species Threats Assessment/Conservation Action Plan for the Upper Saline ranking identified threats and proposing clear conservation strategies towards abatement of the identified threats, and is currently conducting a two-year study geared towards measuring and prioritizing sediment sources for the Middle Fork Saline River Watershed.

Stephen Haase is a hydrogeologist with The Nature Conservancy of Arkansas. Dr. Haase received a Ph.D. in Geology and Geochemistry, and has more than 25 years professional experience in basic and applied hydrogeologic research. Since joining the Conservancy in 2002, Dr. Haase has served as the Project Manager for TNC's Lower White River Basin Project and currently serves as a regional hydrologist and river scientist providing technical support to TNC projects throughout the southeastern and south-central USA. Dr. Haase will provide technical assistance and oversight to this project.

The Nature Conservancy's Arkansas Field Office has a great interest and knowledge in watershed restoration, and has successfully planned for and implemented a large number of watershed projects across the country, including many in Arkansas. As a result of this and other conservation work, TNC recognizes the foundational importance of planning for successful implementation, and utilizes a four-step planning process for priority conservation areas with high biodiversity. This extensive experience has proven an excellent track record for TNC in generating public involvement for watersheds across the state. Furthermore, the Arkansas Field Office of TNC has a successful track record for leveraging limited conservation dollars via collaborations with multiple partners toward measurable conservation successes.