

CLEAN WATER ACT SECTION 319
NONPOINT SOURCE POLLUTION CONTROL PROGRAM
WATERSHED OR DEMONSTRATION PROJECT FINAL
REPORT

PARIA RIVER RESTORATION PROJECT

BY

CANYONLANDS CONSERVATION DISTRICT

OCTOBER 23, 2009

This project was conducted in cooperation with the State of Utah and the United States
Environmental Protection Agency, Region 8.

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State contract # 02-1678

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Executive Summary

Project Title: Paria River Restoration Project

Project Start Date: June 1, 2001

Project Completion Date: September 30, 2002

Proposed Funding

Total Budget: \$21,667

Total 319 Grant	\$13,000.00
<u>In-Kind Match</u>	<u>\$8,667.00</u>
Total Funding	\$21,667.00

Actual Project Expenditure:

Federal 319:	\$13,000.00
In-Kind Match	\$8,667.00
<u>Excess Match (Cannonville Town equipment and labor)</u>	<u>\$19,333.00</u>
Total Project Cost	\$41,000

Summary of accomplishments: This project was sponsored by the town of Cannonville, Utah to stabilize a small segment of the Paria River in Cannonville to prevent erosion and further loss of sediment adjacent to the Paria River. It was also developed to protect the town's well site from flooding and damage. The project helped mitigate erosion of a steep cut bank and reduced sedimentation at that specific area of the river and protected the Cannonville City well site.

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1.0 Introduction

Streambed instability and loss of riparian habitat often results in widening of the stream channel and further eroding of riparian habitat. Many places along the Upper Paria River lack the riparian vegetation, in-stream cover, and structure for stable stream banks and natural erosion control.

The upper Paria River had a critical need for non-point source funding to stabilize approximately 400 feet of the Paria River 1/4 mile below the U12 Highway bridge, at Cannonville Town (lat 37 33 58.6 N; long. 112 03 00.1 W). The funding was used to implement Best Management Practices (BMPs) to reduce the eroding of the river bank. The Paria River is on the 303(d) impaired waterbody list for not meeting beneficial uses due to high concentrations of total dissolved solids. The primary source of TDS is erosion, particularly during storm events. The Paria River channel is quite unstable and shifts often as a result of the rare but extreme storm events that the watershed experiences. This restoration effort reduced the loss of valuable top soil and protected the town's culinary well site through the installation of in-stream structures and sloping of steep cut banks.

The primary pollutant of concern in the Paria River is total dissolved solids (TDS). The geology of the entire watershed is highly erosive and very saline. TDS concentrations are naturally elevated as a result of that. The designated uses for the Paria River in this section are 2B, 3C, and 4. See table 1 for designated use descriptions.

Table 1: Utah Beneficial Use Classification and Description

2B	Protected for boating, water skiing and similar uses excluding recreational bathing (swimming).
3A	Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.
3B	Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.
3C	Protected for non-game fish and other aquatic life, including the necessary aquatic organisms in their food chain.
3D	Protected for waterfowl, shore birds and other water oriented wildlife not included in classes 3A, 3B or 3C, including the necessary aquatic organisms in their food chain.
4	Protected for agricultural uses including irrigation of crops and stock watering

2.0 Project Goals, Objectives, Activities

2.1 Planned and Actual Milestones, Products, Completion Dates

Goal 1: Reduce erosion and sedimentation along corridor of the Paria River and to improve wildlife habitat.

Objective 1: Stabilize the banks on a small portion of the Paria River.

Task 1: Implement a Best Management Practice of stream restoration/revetment by constructing six heavy-duty rock barbs, placed in accordance with NRCS guidelines. This will keep heavy stream flows away from eroding stream banks.

Results: 400 feet of stream revetment (rock barbs) were put in place to prevent erosion of the stream bank.

Objective 2: Long Term/Natural Erosion Control Measures

Task 2: Sloping the steep banks. This would be a distance of approximately 400 linear feet.

Results: 400 feet of streambank was sloped and reshaped to mitigate the cut bank which was occurring at the project site.

Objective 3: Increase Wildlife Habitat

Task 3: Implement a Cottonwood planting plan to enhance habitat for wildlife species. The proposed plan would begin in 2001 with a time window of 2 years to finish. Cannonville Town and Garfield County have the machinery and laborers available to help perform this task. Natural re-vegetation is anticipated to occur along the banks, although no supplemental watering can be provided.
* All work will be completed in compliance with the conservation measures established for the Southwestern Willow Flycatcher. (i.e. no existing stands of woody vegetation will be destroyed, and no work will be conducted between of May 1st and August 15th so as not to disturb potential nests.

Results: No revegetation took place along that reach of the Paria. The project manager retired and interest dwindled. Since 2002 the task has dropped off the radar. Based on a site inspection by the Division of Water Quality in June 2009, vegetation is coming back naturally so planting may no longer even be necessary. The soil is challenging for plant growth and no watering would be available for anything that was planted.

2.2 Evaluation of Goal Achievement and Relationship to the State NPS Management Plan

This demonstration project was conducted in partial fulfillment of goals and objectives of the state NPS Management Plan.

3.0 Best Management Practices Developed and/or Revised

The BMPs were co-developed by the Natural Resource Conservation Service (NRCS) and the town of Cannonville. BMPs included implementing a stream revetment (rock barbs) to prevent erosion of the affected streambank, sloping steep banks back to grade (head cuts) and planting native cottonwood trees at the location for natural bank stabilization. (No plantings were done. See above.)

4.0 Monitoring Results

A monitoring plan was put in place for the UDWQ and the Southwest Health Department to monitor results of the demonstration project and to monitor the source protection of the town's well site.

4.1 TDML Implementation Effectiveness

This project aligns well with the goals of the Paria River Watershed Water Quality Management Plan that was completed in 2004. The first listed goal of the implementation plan is reduction of TDS and sediment loading to impaired reaches of the Paria River and its tributaries.

4.2 BMP Effectiveness Evaluation

The BMPs were successful at meeting their intended purpose. Although this was not demonstrated through water quality sampling, it is apparent with a site visit and with pre and post project photo points. The channel has not moved significantly since 2002 and the town well site has remained intact. The rock barbs have trapped a large amount of sediment and vegetation has naturally filled in the area. (See photos in Section 9 for the before and after conditions.)

4.3 Surface Water Improvements

Two stream sites on the Paria River were monitored before, during and after the project implementation. These sites have been monitored long term by the Division and were not established for the purpose of determining the effectiveness of this project. Unfortunately, the Paria River is most often dry at the upstream site as a result of diversion for irrigation, while the lower site is more than 35 miles downstream making it impossible to determine whether or not the project has impacted water quality in any way.

4.4 Other Monitoring

No additional monitoring of any kind has been conducted along this stretch of the Paria River in an attempt to determine effectiveness of this project.

4.5 Quality Assurance Reporting

No QAPP was developed for this project.

4.7 Results of BMP Operation and Maintenance

This project required no operation and maintenance.

5.0 Coordination Efforts

5.1 Coordination From Other State Agencies

The Utah Association of Conservation Districts Zone Planner/Technician assisted the NRCS engineering technician on the project. The Southwest Utah Health Department also agreed to monitor the integrity of the town's well site as it is adjacent to the eroding area.

5.2 Other State Environmental Coordination

None

5.3 Federal Coordination

All federal coordination was provided by the NRCS who developed the engineering and conservation plan for the demonstration project.

5.4 USDA Programs

No USDA programs were used in this project.

5.5 Accomplishments of Agency Coordinating Meetings

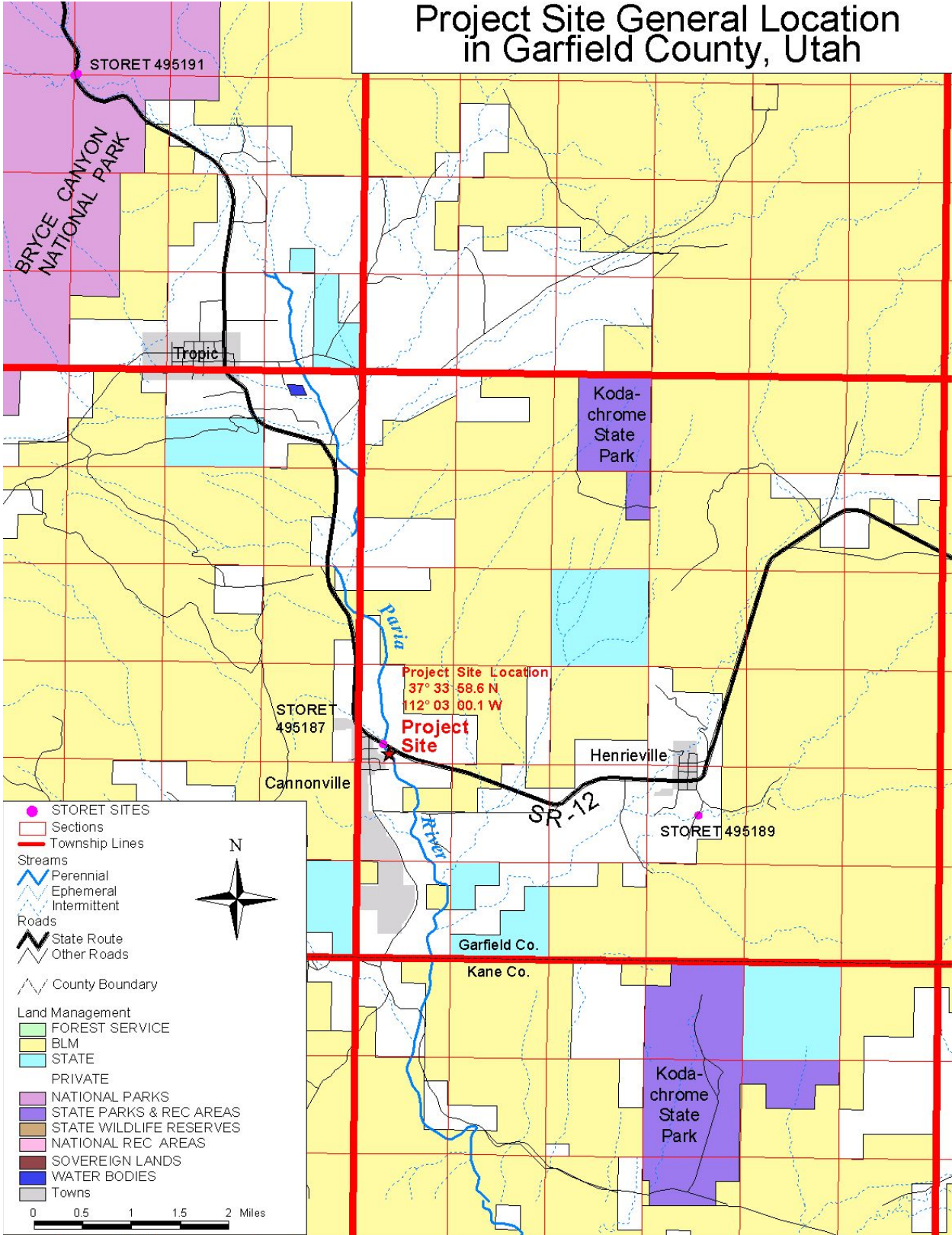
The town of Cannonville coordinated this project in local town council meetings during the project.

6.0 Future Activity Recommendations

The town of Cannonville would like to pursue future projects in other problem areas of the Paria River that pose a threat to the community and private lands. The town, along with the Southwest Health Department, will monitor on a yearly basis the source of protection of the town's well site.

7.0 Appendix (Map and Photos)

Project Site General Location in Garfield County, Utah





View of rock barbs and sloping on Paria River Restoration Demonstration Project, looking south from Highway 12 at Cannonville Bridge. (June 2004)



Additional view of sloping and rock barbs on Paria River Restoration Demonstration Project (June 2004)



View of rock barbs on Paria River Restoration Demonstration Project, looking north toward Highway 12 at Cannonville Bridge. (June 2009)



Additional view of rock barbs and sloping on Paria River Restoration Demonstration Project, looking north toward Highway 12 at Cannonville Bridge. (June 2009)