

I. Project Title: Site surveys, floodability assessments, design and engineering for floodplain habitat restoration.

II. Principal Investigator(s):

*Jason P. Carey, P.E.
Tetra Tech, Inc.
410 South French Street
Breckenridge, CO 80424
(970) 453-6394
(970) 453-4579 FAX
jason.carey@ttisg.com*

III. Project Summary:

Goal:

To restore floodplain habitats in a manner that will benefit endangered fishes, minimize potential adverse effects, and be cost-effective.

Objectives:

1. To determine the relative floodability of targeted habitats under existing conditions, and to identify enhancement options.
2. To evaluate existing channel and site morphology and predict post-restoration morphology and changes as a function of flow hydraulics.
3. To develop cost-effective alternatives for feasible, long-term habitat restoration.
4. To design restoration features that meet the objectives of the Recovery Program and function in the riverine environment with minimal operation and maintenance.
5. To monitor the effects of restoration on riverine morphology and continue the improvement of habitat restoration design.
6. To assist with construction oversight.

Refer to Section VI. for project progress.

IV. Study Schedule: Initial Year - FY 1995
Final Year – Unknown

V. Relationship to RIPRAP:

-GREEN RIVER ACTION PLAN: MAINSTEM
ACTIVITY II. RESTORE HABITAT
II.A. Restore and manage flooded bottomland habitat.
-COLORADO RIVER ACTION PLAN: MAINSTEM
ACTIVITY II. RESTORE HABITAT
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-COLORADO RIVER ACTION PLAN: GUNNISON RIVER
ACTIVITY II. RESTORE HABITAT

II.A. Restore and manage flooded bottomland habitat.

-GENERAL RECOVERY PROGRAM SUPPORT ACTION PLAN
ACTIVITY II. RESTORE HABITAT

II.B. Support actions to reduce or eliminate contaminant impacts.

VI. Accomplishment of FY 2003 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

- Habitat restoration measures were successfully implemented at Butch Craig's on the Gunnison River with a high level of communication between the engineers and the construction operators.
- Restoration design was developed for Audubon property on the Colorado River and Thunder Ranch on the Green River.
- Surveys and analyses at Hot Spot Complex on the Colorado River were completed to prepare for development of alternatives.
- Data collection during high flows provided valuable information at all study sites.
- Post-construction data were collected at Above Brennan and Bonanza Bridge on the Green River. Preliminary results suggest insignificant erosion and deposition occurred from the flow-through configurations .

Task 1. 'Bottomlands Hydrographic Surveying' was performed during the runoff of 2003 to gather additional water surface data; to define existing conditions at Pickup Pond; and on all sites to support the alternative development and design phase. All data collected were reduced and summarized.

Task 2. 'Bottomlands Engineering Analyses' were performed to develop and select alternatives for Thunder Ranch; to develop alternatives for Audubon; and to analyze existing conditions at the CDOT site.

Task 3. 'Bottomlands Engineering Design' was performed to develop plans and specifications for Audubon and to finalize design for Butch Craig's.

Task 4: 'Bottomlands Construction Oversight' was performed at Butch Craig's including construction stakeout. This task was very beneficial in assuring the constructed restoration met the intent of the design. Construction stakeout resulted in efficient completion of the construction phase.

Task 5. 'Bottomlands Restoration Monitoring' was performed at Above Brennan and Bonanza Bridge. These sites were constructed with flow-through notches and experienced significant connection for the first time during runoff 2003. Monitoring revealed that the bottomlands may actually benefit from the flow-through condition as some of the bottomland bed actually scoured, increasing the depth of the ponds.

Task 6. 'Ouray National Wildlife Refuge (ONWR) Engineering and Surveying Services'. Three major efforts at ONWR included: calibration of staff gauges; detailed survey of Wyasket Lake and Pond; and establishment of a survey control network for the entire refuge.

VII. Recommendations:

Anticipated specific work includes, but is not limited to: final design at Hot Spot Complex; final design at Thunder Ranch; construction services for Audubon, Thunder Ranch, and Hot Spot Complex; monitoring of Butch Craig's, Above Brennan, Bonanza Bridge, Escalante SWA and all other restoration sites.

The monitoring of water surfaces, erosion and sedimentation at the bottomland and river cross sections should continue in 2004 and beyond. All sites that receive significant flows in spring of 2004 should be monitored during peak flow. Monitoring the reaction of the river and bottomlands to various constructed configurations will provide valuable data that can be referenced in refining engineering design for future bottomlands restoration. All constructed sites that connect in spring of 2004 should be evaluated after runoff to determine if design is meeting objectives or if design modifications should be recommended. Sites along the Green River, constructed between 1995 and 1999, should be visited this spring to evaluate site configurations relative to the designs, note the health of vegetation, photograph the sites and record site observations.

VIII. Project Status: On-track and Ongoing

IX. FY 2003 Budget Status

- A. Funds Provided: \$160,997
- B. Funds Expended: \$ 88,740
- C. Difference: \$ 72,257 Ongoing work in FY 2004
- D. Percent of the FY 2003 work completed, and projected costs to complete: 47% completed, \$72,257 projected to complete.
- E. Recovery Program funds spent for publication charges: \$0.00

X. Status of Data Submission (Where applicable): N/A

XI. Signed: Jason Carey, P.E. Date 11/13/03