

I. Project Title: Floodplain Management Plan for the Green River Subbasin.

II. Principal Investigators:

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III. Project Summary:

Floodplain management plans were developed concurrently for the Green River and Upper Colorado River subbasins to provide restoration and management strategies for existing floodplain sites within each subbasin that have been acquired and/or are managed by the Recovery Program for the benefit of endangered fishes. These plans are necessary for the Recovery Program to establish goals, identify management actions, and to gage progress on habitat restoration and protection. Implementation of these management plans will be the means by which the Recovery Program achieves floodplain-related recovery criteria and management actions identified in the Razorback Sucker Recovery Goals (U.S. Fish and Wildlife Service 2002a) and Bonytail Recovery Goals (U.S. Fish and Wildlife Service 2002b).

The goal of these floodplain management plans is to provide adequate floodplain habitats for all life stages of razorback sucker, particularly to serve as nursery areas for larvae and juveniles, for establishment and maintenance of self-sustaining populations. It is hypothesized from scientific studies and hatchery culture that bonytail will also benefit from a greater availability of floodplain habitat. The objectives of this Plan are to:

1. Inventory floodplain habitats;
2. Identify and acquire available floodplain easements;
3. Restore and manage floodplains to benefit razorback sucker and bonytail; and
4. Evaluate effectiveness of restoration.

This project will produce two floodplain management plans; one for the Green River and one for the Upper Colorado River. The Green River Floodplain Management Plan was reviewed and approved by the Biology Committee in December 2003 and is being finalized. The Upper Colorado River Floodplain Management Plan is being drafted.

IV. Study Schedule:

- a. Initial year: 2003
- b. Final year: 2004

V. Relationship to RIPRAP:

General Recovery Program Support Action Plan

- II. Restore habitat
 - II.A. Restore flooded bottomland habitats

VI. Accomplishments of FY03 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

The Green River Floodplain Management Plan is being finalized (Biology Committee and Recovery Program comments are being incorporated) in January 2004. The following summarizes findings of that report. Inventories show that there are 37 potential floodplain sites for a total of about 11,400 acres in the Split Mountain to Desolation Canyon reach. At 18,600 cfs, the estimated area of floodplain inundation is 6,000 acres. Under average hydrologic conditions (i.e., 30–70% peak exceedence), the Green River flow recommendations predict that 18,600 cfs should occur in 1 of 2 years and be maintained for at least 2 weeks in 1 of 4 average years. This Plan identifies 16 floodplain sites totaling 4,423 acres with access by the Recovery Program for restoration and management. The Recovery Program has restored and is evaluating and managing five sites (209 acres) as long-term floodplain depressions: (1) Bonanza Bridge, 28 acres; (2) The Stirrup, 28 acres; (3) Baeser Bend, 47 acres; (4) Above Brennan, 50 acres; and (5) Old Charlie Wash, 56 acres. Long-term floodplain depressions become inundated at spring runoff and entrain larval razorback sucker, then maintain suitable water quantity and quality for 24 months, at which time the fish escape to recruit as adults in the mainstem. These floodplains reset periodically by desiccating and killing stranded predaceous and competitive nonnative fishes. Shallow depressions desiccate after a short time period, and terraces fill and drain with river stage; neither feature is suitable as nursery or rearing habitat.

This Plan identifies two additional floodplain sites for restoration and management that will provide an additional 900 acres of floodplain depressions for a total of 1,109 acres available at seven sites located 5 to 60 miles downstream of the razorback sucker spawning bar. These sites include: (1) Thunder Ranch, 330 acres, and (2) Stewart Lake, 570 acres. An easement agreement to access, flood, and manage the Thunder Ranch floodplain was acquired by the Recovery Program in 2003, and levee breaches are identified as restoration under this Plan. Stewart Lake is managed by the Utah Division of Wildlife Resources (UDWR) as the principal feature of the Stewart Lake Waterfowl Management Area. This Plan calls for cooperative and coordinated management of Stewart Lake as a nursery and rearing area to benefit razorback sucker consistent with the primary purpose of the management area.

Three floodplain sites in the Ouray National Wildlife Refuge (ONWR) are identified as additional restoration sites: (1) Johnson Bottom, 146 acres; (2) Leota Ponds, 1,016 acres; and (3) Sheppard Bottom, 300 acres. Some restoration has taken place at Johnson Bottom and Leota Ponds, including levee breaches and installation of water control gates and fish kettles by the

Recovery Program, and removal or breaches of internal dikes by ONWR. The need for additional restoration of these sites will be determined following restoration and evaluation of Thunder Ranch and Stewart Lake and response by the razorback sucker and bonytail populations to all floodplain management actions. If a need for additional restoration is identified, the Recovery Program will establish a partnership with the ONWR to develop restoration and management strategies compatible with program and refuge goals and objectives. Restoration of the three sites on the ONWR would result in an additional 1,462 acres of floodplain depressions, for a total of 2,571 acres (i.e., 1,109 + 1,462) in 10 sites located 5 to 60 miles downstream from the known razorback sucker spawning bar.

VII. Recommendations:

The following recommendations identify actions that should either be implemented immediately or should be prioritized for implementation. These recommendations are intended to provide direct and immediate guidance for initiating implementation of this floodplain management plan. These actions are not ordered by priority.

1. Suspend further acquisition of private property easements in the Green River Subbasin.

Activities and expenditures by the Recovery Program for further acquisition of private property easements in the Green River Subbasin should be suspended, except for completion of negotiations with Thunder Ranch. Floodplain area currently accessible to the Recovery Program through coordination with State and Federal agencies is sufficient for recovery of razorback sucker. Further acquisition of easements should be continued only if potential floodplain depression area is insufficient through coordinated efforts.

2. Implement restoration and management of Thunder Ranch floodplain.

The first priority of this Plan is restoration and management of the floodplains at Thunder Ranch. This floodplain is only 5 miles from the razorback sucker spawning bar and can potentially entrain large numbers of wild-produced razorback sucker larvae.

3. Coordinate management of Stewart Lake with Utah Division of Wildlife Resources, Bureau of Reclamation, and U.S. Fish and Wildlife Service.

Stewart Lake is managed by the Utah Division of Wildlife Resources (UDWR) primarily for waterfowl. Bureau of Reclamation (Reclamation) and U.S. Fish and Wildlife Service (Service) have implemented remediation measures for selenium, which has been identified as a risk to fish health. Stewart Lake currently has the structural components (i.e., inlet/outlet control gates, lowered portions of levee for flooding, trenched depression for draining) for management as a 12-month depression floodplain, and the Recovery Program should coordinate with UDWR, Reclamation, and the Service to manage the floodplain to benefit the razorback sucker and not negatively impact waterfowl management.

4. Coordinate floodplain restoration and management with Ouray National Wildlife Refuge.

The majority of potential floodplain depression habitat is found in the Ouray National Wildlife Refuge. The Recovery Program should initiate coordination, as necessary, with ONWR to manage key floodplains to benefit the endangered fishes and not negatively impact the goals and objectives of the ONWR Comprehensive Conservation Plan.

5. Continue to manage restored floodplains.

The Recovery Program has initiated restoration on eight sites: Bonanza Bridge, Horseshoe Bend, The Stirrup, Baeser Bend, Above Brennan, Johnson Bottom, Leota Ponds, and Old Charlie Wash. These sites should be managed and evaluated for effectiveness as habitat for all life stages of razorback sucker and bonytail.

6. Continue stocking of hatchery razorback sucker and bonytail.

Release of hatchery razorback sucker and bonytail is vital to species recovery. These fish augment sparse wild populations and provide the foundation for a self-sustaining population. Stocking also provides fish in the wild to better assess best management strategies for floodplains.

7. Assimilate and synthesize results of fish growth and survival in floodplains.

Studies of growth and survival of hatchery razorback sucker and bonytail have been on-going since 1996. More recent and on-going studies address pertinent issues of best size at stocking and survival under varying levels of nonnative fish densities. The sum of information gathered from these studies needs to be assimilated in order to determine the status of knowledge and the need for additional studies. Possibly, there is sufficient information available to apply best strategies of growth and survival learned at one floodplain site to other sites, precluding the need for comprehensive growth and survival studies at each site.

8. Evaluate geomorphic and hydrologic characteristics of entrainment.

Conditions that maximize entrainment of larval razorback sucker in floodplains are not well known. A single study should be implemented to assess conditions at key floodplain sites in order to incorporate necessary elements into design of levee breaches and inlet/outlet control gates.

9. Use existing programs to monitor response by razorback sucker and bonytail.

The Recovery Program should use existing programs, as much as possible, to monitor response by razorback sucker and bonytail at the population level. Continued release of hatchery fish and restoration of floodplains should lead to successful reproduction and recruitment that should be detected by on-going sampling programs. Various sizes of razorback sucker and bonytail should be captured during sampling for population estimates with electrofishing for Colorado pikeminnow and trammel nets and hoop nets for humpback chub. This sampling is being conducted through most of the Green River Subbasin, and should be sufficient for detecting increased numbers of razorback sucker and bonytail. The Recovery Program may choose to implement in the future a more detailed sampling program for population estimates to document

self-sustainability, and monitoring for downlisting and delisting will be implemented after self-sustained populations are established.

VIII. Project Status: Ongoing

Green River Floodplain Management Plan completed; Upper Colorado River Floodplain Management Plan being drafted.

IX. FY03 Budget:

A. Funds budgeted:	\$ 45,500
B. Funds expended/obligated:	\$ 30,000
C. Difference:	\$ 15,500
D. Percent FY2003 work completed:	67%
E. Recovery Program funds spent for publication charges:	\$ 0

X. Status of data submission:

No data associated with this project.

XI. Signed: **Rich Valdez** Date: 1/6/2004