**COLORADO RIVER RECOVERY PROGRAM RECOVERY**
**FY 2006 ANNUAL PROJECT REPORT PROJECT NUMBER: 148**

I. Project Title: **Rearing razorback sucker in a floodplain on Ouray NWR.**

II. Principal Investigators:

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III. Project Summary:

While razorback sucker stocking in the Colorado River Basin to increase existing populations has seen limited success in the San Juan Program, the history of razorback sucker augmentation has been benign at best (Minkley et al. 1991, Mueller 2003). Success of augmentation is probably a factor of environmental challenges and its interaction with the fitness of the fish introduced. Given the assumption that genetics and health are equal, acclimation may be an important factor affecting survival of razorback sucker stocked into Upper Colorado River Basin rivers. Use of wild or naturally acclimated individuals is a practice used in reintroducing rare wildlife species (Griffiths et al. 1989). Mueller (2003) stated that physical and behavioral stress associated with the transition from a strictly controlled environment to the challenges of a natural environment demands time and tremendous energy reserves. In fact, acclimated razorback sucker moved shorter distances than non-acclimated fish (i.e., appeared more oriented to the environment) after stocking in the Colorado River basin (Mueller and Foster 1999).

To date the consideration of using floodplain wetlands as rearing sites has not been considered viable because the relatively low return rate and unpredictable survival rates. In addition, during the recent drought few floodplains in the Green River have retained sufficient water to overwinter fish that need at least two growing seasons before they are able to survive in the mainstem river. However, the ability of Ouray National Fish Hatchery to produce extremely large numbers

of larvae, the potential for large quantities of runoff from the Yampa River when normal or high flows return combine to make the opportunity of rearing large numbers of razorback sucker worth pursuing.

IV. Study Schedule: 2006

IV. Relationship to RIPRAP:
Green River Action Plan: Mainstem
IV.A. Augment or restore populations as needed.

VI. Accomplishments of FY 2006 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:
On April 28, 2006, 106,500 swim-up razorback sucker were stocked into Leota-10 impoundment on the Ouray National Wildlife Refuge. Water had been diverted into the impoundment approximately 3 weeks prior to stocking and water depth through the impoundment was approximately 12 inches. Water temperature in the floodplain when fish were stocked was 12.5ºC and dissolved oxygen was 6.5 mg/l. Air temperature on the stocking date varied between 66º and 34ºF. Twelve fyke nets were set on August 1, 2006 and captured three razorback sucker ranging between 87 and 101 mm TL. Due to the relatively low returns, water levels were not maintained through the late summer. On September 21, 2006 less than one foot maximum depth was available. One fyke net was set on this date and only a few black bullhead, green sunfish and fathead minnow were captured.

The low survival in Leota 10 was contrary to the results observed in 2004 reset study when hundreds of razorback sucker were collected in July/August. Observable differences between the two events were that more fish were stocked in 2004, and it appeared that a much higher area of emergent vegetation was present in 2006 than in 2004, reducing the area available to fish (Figure 1). Leota-10 had a much reduced area available to fish than other units within Leota Bottoms (Figure 2). It is unlikely that the habitat in Leota-10 during 2006 was as likely to support fish as it was in 2003—2004.

VII. Recommendations:
We recommend that any razorback sucker larvae produced above the number needed to secure stocking needs by the Ouray NFH be stocked in off-channel floodplains in the Green River. In order to improve the probability of success we recommend stocking a larger number of larvae in a greater number of floodplains to increase the probability of survival.

VIII. Project Status: Unless extended by the Biology Committee this project is concluded.

IX. FY 06 Budget Status:

A. Funds provided: $0
B. Funds expended: $0
C. Difference: -0-
D. Percent of the FY 2006 work completed: 100
E. Recovery Program funds spent for publication charges: -0-

X. Status of Data Submission: No data has been submitted to data manager.

XI. Signed: _Timothy Modde_____ November 8, 2006
Principal Investigator Date

References:

Griffiths, B., J.M. Scott, J.W. Carpenter, and C. Reed. 1989. Translocation as a species conservatioin tool, status, and strategy. Science Vol. 245: 477-480.

Minckley, W.L., P.C. Marsh, J.E. Brooks, J.E. Johnson, and B.L. Jensen. 1991. Management toward recovery of the razorback sucker. Chapter 17 in W.L. Minckley and J.E. Deacon eds., Battle against extinction: Native fish management in the American west. University of Arizona Press, Tucson, AZ.

Mueller, G., and D.K. Foster. 1999. A case for acclimation in the reintroduction of the endangered razorback sucker (Xyrauchen texanus): USGS Open-File Report 99-110. Denver, CO.

Mueller, G. 2003. The role of stocking in the re-establishment and augmentation of native fish in the lower Colorado River mainstem (1998-2002: USGS Open-File Report 03-288. Denver, CO.

Figure 1. Comparison of the emergent vegetation density in Leota-10 between the summers of 2006 (upper) and 2003 (lower).

Figure 2. Image showing the large area of emergent vegetation in Leota-10 (extreme top right) with vegetation abundance in other impoundments in Leota Bottoms at the Ouray National Wildlife Refuge in September 2006.