COLORADO RIVER RECOVERY PROGRAM
FY 00 ANNUAL PROJECT REPORT

RECOVERY PROGRAM
PROJECT NUMBER: CAP-6

I. Project Title: Floodplain Habitat Restoration Program

II. Principal Investigator:

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III. Project Summary:

The purpose of the Floodplain Habitat Restoration Program is to restore or enhance natural floodplain functions that support recovery of endangered fishes in the upper Colorado River basin.

-Levees were breached on the upstream end of two Green River sites, to entrain drifting razorback larvae. Subsequent hydrologic evaluation suggests that the sites will likely work as designed. Biologic evaluation will begin during spring runoff 2001.

-The outlet canal at Old Charlie Wash was dredged to facilitate draining

-Pre-acquisition contaminants surveys were conducted for 19 properties

-Pre-acquisition floodability surveys were conducted for 4 properties on the Colorado River and one site on the Gunnison River
-Post-restoration geomorphic surveys were conducted at 2 sites on the Green River

-Five properties (152.7 acres) were acquired during FY 00. Approximately 20 properties are currently in various stages of the acquisition process.

-An easement management manual was developed for lands acquired by the Recovery Program. Lands are being managed by the FWS-ONWR Refuge Manager as part of the Colorado River Wildlife Management Area.

-Old Charlie Wash was drained, seined, shocked, and remaining standing water was rotenoned to remove Northern pike that had spawned in the wetland during 1999.

-Age-1 razorbacks stocked into floodplain wetlands in 1999 successfully overwintered into 2000. Unfortunately, many did not make it through the summer of 2000, thought to be the result of high water temperatures combined with low dissolved oxygen..

-The levee removal evaluation completion report is behind schedule. A peer-review draft is expected by January 2001.

-Powerpoint presentations were created and loaded onto the Recovery Program web site for levee removal, habitat, and fish passage.

IV. Study Schedule:

1993 to 2003

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
II.A. Restore and manage flooded bottomland habitat.
-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.A. Conduct inventory of flooded bottomland habitat for potential restoration.
II.B. Support actions to reduce or eliminate contaminant impacts.

VI. Accomplishment of FY 00 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Contaminants

Federal mandates require that contaminants surveys be conducted on properties in which the government wishes to acquire an interest (e.g., easement). Also, the Habitat Restoration Program does not wish to spend money restoring areas that cannot sustain endangered fishes because of contaminants problems. The following sites were surveyed for contaminants and/or pre-acquisition samples were collected and analyzed:

Colorado River	River Mile	Acres	Clearance
Clifton Pond/Slough	178.0	38.4	Conditional
Pick-up Pond	174.8	6.5	Conditional
Ron Tipping	174.6	?	Pending
Ephemeral Resources	174.5	?	Pending
Terrence Hammer	169.8	5.7	Yes

Neil Hammond	169.5	9.4	Yes
Mesa County	168.5	12.9	Yes
Ela Sanctuary	167.8	?	Pending
Grand Junction Pipe	165.5	17.7	Yes
Mesa County	161.5	20.1	Yes
Glen Miller	161.5	10.3	Yes
T&F Investments	160.0	20.5	Yes
Robert Rigg	160.0	10.2	Yes
Snooks	156.8	31.0	Yes

Gunnison River	River Mile	Acres	Clearance
Graff Bros. Dairy	62.0	45.6	Yes
Byron Benson	61.7	11.1	Yes
Gregory Fedler	55.0	54.5	Conditional
Helen Morgan	55.0	7.4	Yes
Unaweep Charolais	12.5	98.7	Yes

Sites designated as "conditional clearance" will require clean-up if acquired.
Sites designated as "pending" are awaiting clearance.

Hydrology/Geomorphology (see annual report attached)

The objectives of this work are 1) to conduct pre-acquisition and pre-restoration floodability surveys to determine what the Recovery Program is getting for its acquisition and construction dollars; 2) to develop habitat restoration design options and to assist with construction oversight; and 3) to conduct post-restoration surveys to refine site designs that will not adversely affect channel morphology or adjacent landowners and that will require minimal long-term O&M.

Pre-acquisition floodability assessments were conducted for four properties along the Colorado River and one property along the Gunnison River. Preliminary results are being provided to appraisers to help determine easement values, and to evaluate floodability enhancement options assuming easement negotiations are successful.

Pre-restoration floodability surveys and design options were developed for the Walter Walker State Wildlife Area on the Colorado River. Design options for the Escalante State Wildlife Area on the Gunnison River were refined.

Pre-construction stake-out surveys and post-construction as-built surveys were conducted for Bonanza Bridge and Above Brennan, where levees were breached on the upstream end to entrain drifting razorback larvae. Subsequent post-restoration hydrologic evaluation and scour and deposition monitoring were performed. Results suggest that sites will likely perform as designed. However, low spring flows during 2000 did not provide a definitive test.

Environmental Compliance

Compliance with federal and State environmental laws is necessary prior to acquisition and/or restoration of sites. Assessments are needed to cover NEPA, 404 permits, water rights, water quality regulations, Section 7, floodplain regulations, etc. During FY 2000, the necessary permits were acquired for construction at Bonanza Bridge and Above Brennan; rotenone of Old Charlie Wash; and aerial photography of the Ouray National Wildlife Refuge.

Land Acquisition Activities (see annual report attached)

The purpose is to acquire interests in land from public and private landowners to restore and protect bottomland habitat. This involves acquisition planning, community involvement, establishing and monitoring acquisition procedure, acquiring land from willing landowners, and transferring that land.

-Two easements were acquired from Mesa County (20.1 and 12.9 acres)
-One access easement was acquired from a private landowner (3.4 acres)
-One property was acquired in fee from a gravel mining company (17.6 acres)
-One property was acquired in fee from a private landowner (98.7 acres)

Old Charlie Wash (see annual report attached)

Old Charlie Wash is a wetland on the Ouray National Wildlife Refuge. Since 1994, it has served as a pilot site for testing hypotheses on floodplain habitat and razorback sucker restoration. Water inlet and outlet control structures, fish screens, and a harvest kettle were installed.

BR-Provo cleaned out the drainage canal in late November/early December 1999, to facilitate site draining. The canal was dredged too deeply, resulting in a long narrow dead pool that could not be drained. Because numerous age-1 northern pike had been harvested during the September 1999 draining, the site was rotenoned in early April 2000 to prevent any remaining pike from getting into the river during spring runoff.

Razorback larvae (9,599) were stocked into Old Charlie June 5, 2000. On June 20-21, 2,106 razorbacks, 1999 year class, 175 mm, 49 g, were stocked. Four razorbacks and 2,059 nonnative fishes were harvested during September 2000 draining. Bird predation and poor water quality are thought to be factors that contributed to the results.

Johnson and Leota

Outlet structures with fish kettles have been completed for Leota L-7/7a and Johnson Bottom. Additional work has been and will continue to be needed to make the sites completely drainable. Johnson will be tested during 2001.

Bonanza Bridge and Above Brennan

Levees were breached in three locations at the upstream end of each of the two sites, so that they will entrain drifting razorback larvae during spring runoff. Biological evaluation is scheduled to begin in 2001.

The Stirrup, Baeser Bend, and Above Brennan

On April 14, 1999, these three floodplain wetlands were each stocked with 1,985 razorbacks, 1998 year class, 103 mm. Survival during 1999 (in the presence of nonnative fishes) was good; growth was excellent. Survival estimates from spring 1999 to spring 2000 were 49% for the Stirrup; 61% for Baeser Bend; 72% for Above Brennan, suggesting good overwinter survival. Some of the razorbacks were caught trying to escape into the river during spring runoff. Baeser Bend was connected to the river for 7 days, 31 razorbacks were captured trying to escape; Above Brennan 10 days, 10 razorbacks captured; the Stirrup 3 days, one razorback captured. It is unknown if the razorbacks were trying to leave the sites because of poor site conditions or for other reasons.

On April 12, 2000, each of the three sites received 2511 razorbacks, 1999 year class, 103.7 mm, 12.8 g. Survival was poor, possibly because of low flows during runoff, sites were connected to the river for only a few days, high water temperatures and low dissolved oxygen.

No survival was detected for the ~57,000 larval razorbacks stocked into the Stirrup in spring 1999.

Walter Walker

Reports are behind schedule. Two of the three final draft Walter Walker reports are due to the Biology Committee by 1/31/01.

Gravel Pit at 29 5/8 Road and Jarvis Site (see annual report attached)

There are ~340 gravel pits in the Colorado (Grand Valley) and Gunnison (Delta) rivers. The Gravel Pit at 29 5/8 Road (also known as Gardner Pond) and the Jarvis site were connected to the Colorado River to determine if gravel pits can serve as a surrogate floodplain habitat to assist in recovery of the endangered fishes.

Project goals are to 1) evaluate gravel pits traditionally reclaimed as depressions but reconfigured, backfilled, and sloped to drain and behave as ephemeral, floodplain habitats for adult Colorado pikeminnow and other native fishes, and 2) remove and dispose of nonnative fishes from these same modified ponds.

During 1999, 5,943 nonnative and 413 native fish (including 2 sub-adult and 15 adult Colorado pikeminnow) were collected from Gardner Pond; 1,017 nonnative and 175 native fish from the Jarvis Pond.

During 2000, 101 native and 6,813 nonnative fish were collected from Gardner and Jarvis ponds. Green sunfish, black bullhead, and red shiner were dominant. Gardner Pond continues to be a suitable spawning area for green sunfish and largemouth bass. Three adult Colorado pikeminnow were captured from Gardner Pond, compared to 17 in 1999 and 11 in 1998. Two razorback sucker, one stocked in Gunnison River and one stocked in Colorado River upstream, were collected in Gardner Pond. No endangered fishes were captured in Jarvis Pond. The final report is due May 2001.

Levee Removal

The primary purpose of this work is to restore or enhance natural floodplain functions that support recovery of endangered fishes (especially the razorback sucker) in the upper Colorado River basin. Levees have been breached at eight sites along the Green River in Utah. The report is behind schedule; a peer-review draft is expected in January 2001.

Site design. For most sites, the levees were breached at the downstream end. While this configuration allows access by adult and juvenile fishes, it is not conducive to entraining drifting razorback larvae. Upstream levee breaching was done for Bonanza Bridge and Above Brennan prior to runoff 2000.

Razorback response. There are not enough razorbacks left in the system to adequately evaluate response to habitat restoration or other recovery activities. Increased hatchery production and stocking is underway to help with response evaluations and to "kick-start" razorback populations.

Nonnative fish response. Both floodplain and main channel habitats are dominated by nonnative fishes. Some nonnative species have been found to reproduce in floodplain habitats (e.g., black bullheads and green sunfish). So far, there has been no evidence to suggest that floodplain habitat restoration results in an increase in abundance of nonnative fishes that persist in the river over the long term. In instances where fishes have been drained directly into the river, however, a short-term pulse in nonnatives has been observed.

Fish food. Preliminary results of studies on fish-food organisms suggest that floodplain habitats are highly productive and provide food to the river ecosystem, especially plankton. Water temperatures in the floodplain were found to be warmer even after spring runoff had subsided.

Vegetation. A variety of plant species (including tamarisk and whitetop) have begun to colonize the disturbed areas where levee cuts were made. It remains to be seen which species will win out. During 1999 it was observed that the levee cut at Bonanza Bridge has been colonized primarily by cottonwoods and other native plant species.

There appears to be a correlation between densities of native fishes and aquatic vegetation. One hypothesis that was suggested is that native fishes may be keying on vegetative cover.

Duration of inundation. Inundation of both terraces and depressions are expected to help feed the ecosystem and benefit endangered, native, and nonnative fishes. However, floodplain terraces do not remain inundated for a long enough period of time for razorback larvae to grow large enough to avoid predation when they have to return to the main river channel.

Timing of inundation. Timing high flows (greater than 13kcfs) to coincide with larval razorback drift would ensure that larvae have access to and/or would be entrained in floodplain habitats where levees have been breached or lowered.

VII. Recommendations:

1. Continue existing studies as planned in FY 01 Work Plan.
2. Continue to breach levees at the upstream end of sites, and evaluate ability of sites to entrain drifting razorback larvae.
3. Continue to stock razorback larvae and juveniles into floodplain depressions to demonstrate survival to recruitment in the presence of nonnative fishes; and to determine when (and why) razorbacks decide to move into the river.
4. For floodplain wetlands where razorbacks have been stocked, monitor conditions (e.g., water levels, dissolved oxygen, temperature). Retrieve/harvest razorbacks if conditions become marginal.

VIII. Project Status:

On track and ongoing.

IX. FY 00 Budget

		Capital	Annual
A.	Funds Provided:	$1,355.5K	$89.7K
B.	Funds Expended:	$ 863.9K	$79.7K
C.	Difference:	$ 491.6K	$10.0K

D. Percent of FY 00 work completed: 90%

E. Recovery Program funds spent for publication charges: None as yet.

Note: Of the unexpended capital funds, $24.7K was from hydrology/geomorphology, and $466.9K was from land acquisition. Of the unexpended annual funds, $10K was from weed management.

X. Status of Data Submission (Where applicable):

No data have been submitted to the database manager as yet.

XI. Signed: Pat Nelson January 3, 2001

Principal Investigator Date