

I. Project Title: **Bonytail Reintroduction**

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III. Project Summary:

Bonytail (*Gila elegans*) is thought to be functionally extirpated from the Upper Colorado River Basin. The goal of this project is to reestablish bonytail in the Upper Colorado River Basin. To accomplish this goal, we are stocking juvenile bonytail and monitoring radio-tagged adult bonytail. This methodology will provide insight into habitat used by stocked fish and help determine if the habitat used overlaps with that used by roundtail chub.

Two stockings of bonytail were completed this year. Approximately 46,522 bonytail were stocked into the Green River at Green River, Utah (RM 120.0), in April. The Colorado River at Cisco boat ramp (RM 110.0) received approximately 27,968 bonytail in April (Table 1). All fish stocked were hatched at the Dexter National Fish Hatchery, and reared at the UDWR Wahweap Hatchery in Big Water, Utah. All fish were implanted with coded wire tags prior to stocking. Monitoring of these fish was accomplished through electrofishing and seining.

IV. Study Schedule:

- a. Initial year: 1996
- b. Final year: 2001

V. Relationship to the RIPRAP:

General Recovery Program Support

- IV. Manage genetic integrity and augment or restore populations
- IV.A.5. Implement basinwide bonytail restoration plan

VI. Accomplishments of FY2001 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Objective 1: Reintroduction of bonytail

To date, over 103,000 have been stocked into the Colorado River, over 109,000 have been stocked in the Green River, and 30,000 have been stocked in the Yampa River (Table 1). Numbers of bonytail stocked this year in the Colorado and Green rivers were slightly less than that stocked last year, and doubled for the Yampa River. No fall stockings were performed in any of the three rivers. The majority of these fish were stocked after being held in ponds for only one year, but some fish were stocked after being held for two years. All fish stocked have been tagged with coded wire tags that are unique for each lot of fish. These tags can be detected in live fish, but the fish would have to be killed to read the unique codes. Therefore, since lethal sampling has not yet been approved, the tags have only been used to determine whether a fish was produced in the hatchery system.

Objective 2: Determine appropriate number and size of fish to stock

Task 1: Monitoring of bonytail from previous stockings (1996 through 2001)

In addition to active sampling for bonytail for this project, other projects conducted by the Utah Division of Wildlife Resources have contributed results relevant to bonytail monitoring. Due to the initialization of the Colorado pikeminnow population estimate on the Green River this year, there was increased opportunity to sample the entire stretch between Green River State Park (where the fish were stocked) down to the confluence of the Colorado. This increased effort allowed for the evaluation of bonytail dispersal as has not been shown in previous years. The number and size of bonytail captured, during the 2001 field season are shown in Table 2. Electrofishing was the primary method used to collect bonytail. Most of the bonytail captured this year appeared to be from the most recent stocking efforts. However, information such as stocking date, location, and the size at stocking can not be determined without killing the fish and retrieving the coded wire tag. Thus, it is unknown what proportion of these fish were stocked in previous years. In addition, parameters such as growth rates and movement patterns can not be determined without killing fish to retrieve the tags.

Table 1. Summary of the number of bonytail stocked in the Colorado, Green, and Yampa rivers to date. Figures shown indicate the number of bonytail stocked with the cohort shown in parentheses.

		Colorado	Green	Yampa
<b>FY 1997</b>	Fall '96	1,996 (96)		
<b>FY 1998</b>	Fall '97	2,165 (97) 10 (96)		
	Spring '98	2,165 (97) 10 (96)		
<b>FY 1999</b>	Fall '98	2,232 (97) 1,048 (98)	3,000 (97)	
	Spring '99	15 (96) 10,000 (98)	10,000 (98)	
<b>FY 2000</b>	Fall '99			
	Spring '00	15,037 (99)	15 (96) 9,962 (98) 10,025 (99)	10,000 (99)
<b>FY 2001</b>	Fall '00	19,000 (99) 2,237 (00)	48,205 (00)	
	Spring '01	7,061 (99) 20,907 (00)	5,000 (99) 41,522 (00)	20,000 (00)
<b>Total</b>		103,188	109,175	30,000

The majority of bonytail captured in both the Green and Colorado rivers were caught within a few river miles of the stocking site soon after stocking. However, bonytail on the Green River were dispersed down to a mile above the confluence of the Colorado River (Figure 1). Average total length of bonytail found further downstream were slightly higher and suggest greater dispersal of the larger fish stocked and/or recaptures from previous year stockings. On the Colorado River, one bonytail was collected as far down stream as RM 21, approximately 80-100 miles below the stocking sites. Electrofishing was the only gear type that was used in a variety of different habitat types (e.g., low velocity, swift water, backwater). Most bonytail captured during electrofishing efforts were found in slackwater habitats, around tributary mouths, within flooded tributaries and in backwaters. Some bonytail were found along low-velocity shoreline runs.

Table 2. Catch rates and size of bonytail captured in the Green and Colorado rivers, Utah, during electrofishing for the FY2001/2002\* field season.

PROJECT	NUMBER OF BT CAPTURED	AVERAGE and (RANGE) of LENGTHS in mm	EFFORT (hours)	CPUE
GREEN RIVER				
Bonytail sampling (May & August)	4	124 (104-141)	12.53	0.319
Colorado pikeminnow Population estimate (March-May)	244	101.9 (65-315)	301.06	0.810
TOTAL	248	-	313.59	0.791
COLORADO RIVER				
Bonytail sampling (May & August)	65	115.75 (72-195)	33.72	1.927

\* FY2001/2002 data refers to monitoring efforts following Spring 2001 stocking.

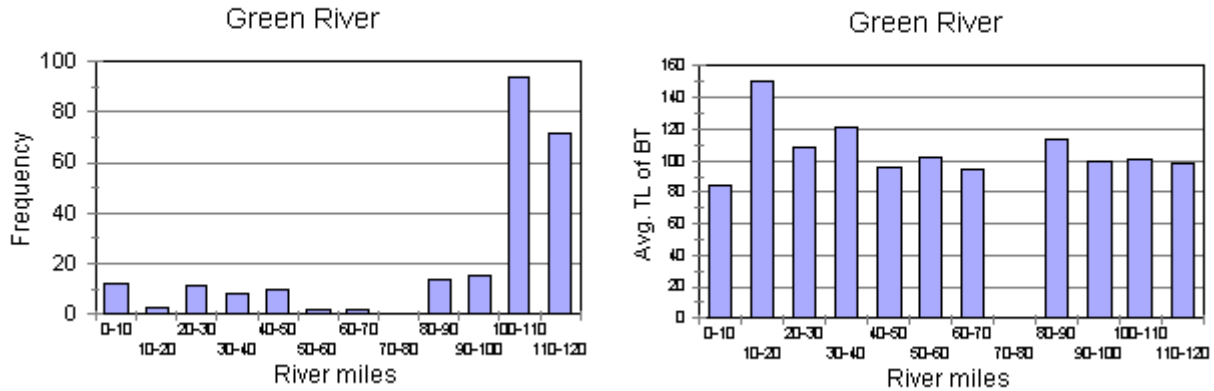


Figure 1. Frequency and average total length (TL) of bonytail (BT) collected on the Green River in 2001.

Task 2: Produce a report on stocking evaluation

A draft final report that summarizes the work done to address this objective will be completed in January 2002.

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Objective 3: Determine movements of bonytail and habitat overlap with roundtails

Task 1: No radio telemetry was conducted in 2001.

Task 2: Produce a report on radio telemetry

Results from the radio telemetry monitoring will be included in the report written to summarize the work done to address Objective 2. A draft of this report will be done in January 2002.

Objective 4: Flow Training

This work was conducted by Dr. Todd A. Crowl of Utah State University. Dr. Crowl is responsible for producing the annual and final reports related to this objective.

VII. Recommendations:

Efforts should be made to continue to produce bonytail in accordance to the approved stocking plans for stocking each year. The best size of fish to stock and the proper timing of the stocking has not yet been determined, but it does seem clear that we need to stock more than a few thousand fish per year to be able to recapture fish in succeeding years.

Coded wire tags, as they are currently being used, are not providing enough information to make sound biological decisions. These tags can provide valuable information on such parameters as stocking date, location, and average fish size for each lot stocked. This information would allow us to make better decisions on the proper stocking protocol for bonytail. However, lethal sampling techniques are required to obtain this information. Approval for lethal sampling should be obtained, or PIT tags should be used, so that we can better evaluate our stocking methodologies.

VIII. Project Status: Ongoing

IX. FY2001 Budget

- A. Funds budgeted: \$57,000
- B. Funds expended/obligated: \$57,000
- C. Difference: \$ 0
- D. Percent FY2001 work completed: 100%
- E. Recovery Program funds spent for publication charges: \$ 0

X. Status of Data Submission: Data will be submitted with the final report. A draft final report is due in January 2002.

XI. Signed: *J. Michael Hudson* Date: 12/10/2001