

Back From the Brink...
A Fish Tale about Coping with Drought and Fire in Four Corners Country

By Mike Japhet
Aquatic Biologist
Colorado Division of Wildlife
Durango, Colorado



Adult roundtail chub in spawning condition. Photo courtesy of Steve Whiteman

The last few years have not been easy ones in southwest Colorado. The ongoing drought and a spate of forest fires in southwest Colorado have taken a toll on fish and aquatic life in several rivers in this area. The native fish community of the Mancos River was hard hit by the Bircher and Pony wildfires that collectively burned nearly 29,000 acres within Mesa Verde National Park and the Ute Mountain Ute Reservation in the summer of 2000. The lower Mancos River flows through a wild, remote desert canyon within the Ute Mountain Ute Reservation near the Four Corners. The Mancos River is a tributary of the San Juan River and contains many of the same fish species found in the San Juan: flannelmouth sucker, bluehead sucker, roundtail chub and speckled dace. However, the lower Mancos River fish community is unique in that it is comprised almost entirely of native fishes; a relative rarity in these times of widespread invasions by non-native fish species. In 2001, runoff from the burn areas on Mesa Verde dumped tons of ash and sediment in the Mancos River, covering fish spawning areas and smothering aquatic life. To make matters worse, the Mancos River literally dried up in the

summer of 2002 as a result of water diversions for irrigation and a 300-year drought that gripped the area.



Bircher Fire, July 28, 2000 near Moccasin Overlook. Photo courtesy of Doug Parker, BLM, Medford OR



Mancos River Canyon, June 19, 2002. Tribal, state, and federal officials standing in dry river channel. Photo courtesy of National Park Service

The prospect of permanently losing roundtail chubs from the Mancos River was imminent. While valuable in their own right, the other native fish species were more common and could be reintroduced from other waters once the drought ended and habitat conditions improved. But roundtail chubs (a Species of Special Concern in Colorado) are uncommon in the San Juan River and its tributaries within Colorado and are listed as endangered within New Mexico. The roundtail chub is a member of the minnow family that commonly grows to a length of 12 inches. It has fairly specific habitat needs and is usually found in deep, boulder-strewn pools or in proximity with undercut banks, fallen logs or other overhead cover in rivers. Recent studies indicate that roundtail chubs from the San Juan basin have a unique genetic makeup that differs from roundtail chubs found in the upper Colorado River basin. By the spring of 2002 it appeared that back-to-back natural disasters of fire and drought were about to eliminate this declining fish species from the Mancos River.

In June, 2002 a fish salvage operation was mobilized to rescue roundtail chubs from isolated and rapidly shrinking pools in what was once the Mancos River. While this was a last-ditch measure undertaken during hard times, a “can-do” spirit of cooperation and camaraderie prevailed among the interagency crew that included folks from the Ute Mountain Ute Reservation, Colorado Division of Wildlife, U.S. Fish and Wildlife Service and National Park Service. Twenty eight roundtail chubs were collected by use of electrofishing equipment. These fish came from three isolated pools in a forty-mile reach of the Mancos River, much of which was already a dry channel. From all indications, the salvage operation came in the nick of time. One fifty feet long pool containing roundtails had also been discovered by a family of common mergansers, which

are fish-eating ducks. When captured, many of the roundtail chubs from this pool had scrapes and abrasions from close encounters with avian predators.



June 19, 2002. Electrofishing equipment was used to salvage roundtail chubs from the few pools remaining in the Mancos River. Photo courtesy of National Park Service



June 19, 2002. Ute Mountain Tribal Wildlife Officer Jack Cantsee holds a flannelmouth sucker while DOW Aquatic Biologist Mike Japhet weighs a fish caught during the Mancos River fish salvage. Photo courtesy of National Park Service

This was only the beginning of the story. What could be done with the refugee roundtail chubs? Fortunately, there was a ready solution nearby—the John Mumma Native Aquatic Species Restoration Facility near Alamosa, Colorado. This hatchery began operation in 2000 and was built by the Colorado Division of Wildlife and Colorado Water Conservation Board (with funding from Great Outdoors Colorado) for the purpose of propagating rare and declining fish, amphibians, and mollusks. Sometimes problems can lead to opportunities; in this case the last remaining roundtail chubs from the Mancos River were destined to become the founding members of a new brood stock at the Alamosa facility. Would these wild fish be able to survive their ordeal? Fortunately, the dedicated and innovative crew at the Alamosa native species facility rose to the challenge. Twenty two of the original twenty eight fish were nursed back to health and trained to feed on a diet of krill, brine shrimp, and trout chow according to assistant hatchery manager Jennifer Logan.



*May, 2003. Adult roundtail chub in spawning condition at Alamosa Native Species Facility
Photo courtesy of Jenn Logan*

However, the big unknown was whether the adult roundtail chubs held at the Alamosa facility would find conditions there suitable for spawning in captivity, which was a far different environment than the wilds of the Mancos Canyon. The photoperiod at the Alamosa hatchery was adjusted to match natural conditions, and in May, 2003, the adult roundtail chubs began to “color up” or display pre-spawning coloration, according to Logan. A variety of techniques were used to induce the roundtail chubs to spawn, but what finally succeeded was an excelsior mat placed in the bottom of the tank where the roundtails lived. Left to their own devices, the adult chubs spawned over the excelsior mat and the tiny eggs lodged in the spaces within the mat, where they were protected until they could hatch. Newly hatched roundtail chub fry were removed from the communal tank containing the adult fish to prevent predation. Fed on a rich diet of rotifers, brine shrimp, and spirulina (algae) the little roundtail chubs soon began to grow. By September, 2003 the aquatic “Ark” was getting crowded and “Noah” (Alamosa Native Species hatchery manager Dave Schnoor) decided it was time to stock the young roundtail chubs, now about two inches in length.

This time Mother Nature was more accommodating. While the multi-year drought hasn’t ended in southwest Colorado, a huge monsoon storm drenched the Four Corners on September 9, 2003. “This was the biggest 24 hour rainfall in 60 years.” according to Scott Clow, a water quality specialist with the Ute Mountain Ute Tribe. “Flows in the Mancos River reached 1,000 cubic feet per second and scoured out the fire ash and sediment from the Bircher and Pony Fires of three years ago, according to Clow. Clean river cobble was again exposed and a substrate was

present for aquatic insects. On September 29 and 30, 2003 there was a reunion of biologists, state and tribal wildlife officers, and volunteers from Mesa Verde National Park who stocked ten thousand roundtail chubs in the Mancos River and several of its tributaries. Midge larvae and mayfly nymphs were beginning to re-colonize the river, which was a hopeful sign that other aquatic life (and a food source) was returning to the river, along with the young chubs.



September, 2003. Two inch roundtail chubs shown here just before stocking in the Mancos River. Photo courtesy of Jenn Logan.



September 30, 2003. Ute Mountain Tribal Wildlife Officer George Wells stocks young roundtail chubs in the Mancos River. Photo courtesy of the author

The combination of wildfires, drought, and water diversion in recent years nearly led to the disappearance of roundtail chubs from the Mancos River Canyon. It is still too early to predict whether the reintroduction of roundtail chubs to the Mancos River will be successful. Additional stocking of roundtail chubs and other fishes is needed to re-establish the native fish community in the coming years. A more diverse gene pool than twenty two fish is desirable for re-establishing roundtail chubs in the Mancos River. There is still a risk of mudflows from the burn areas that could cause future fish kills. However, one of the key elements has been preserved--a brood stock of roundtail chubs is now present at the Alamosa native species hatchery. This brood stock will be available to aid in future roundtail chub conservation efforts for the Mancos River and other streams in the San Juan basin. And equally important, an awareness and commitment to preserving these hardy little fish has been fostered among the human inhabitants of Four Corners Country.

Note: The Ute Mountain Ute Indian Tribe deserves recognition for their enthusiastic cooperation and support for this project. Without their help, the rescue of roundtail chubs from the Mancos River and the subsequent re-stocking would not have been possible.

--End--