Rio Grande Emphasis Area Project

The Rio Grande Big Bend Recovery and Restoration Project was selected as one of the initial priority projects in the Rio Grande Emphasis Area. The Rio Grande silvery minnow (*Hybognathus amarus*; RGSM) is one of the most endangered fishes in North America, and is currently found in only seven percent of its historic range. Wild RGSM have not been captured in Texas since 1977, and were believed to have been extirpated from the Rio Grande and its tributaries in Texas. Creating a self-sustaining population of RGSM in the Big Bend reach of the Rio Grande (Big Bend Reach) could ultimately lead to the down-listing of the species.

Reduced flows and sediment surplus, together with invasive plant species have led to increased channelization of the main channel and reduced aquatic and riparian habitat diversity. Efforts to reestablish this endangered fish in the Big Bend reach can be enhanced by aquatic and riparian habitat restoration through reforestation of riparian zones. The riparian restoration reduces potential scouring and can help decrease the current sediment surplus in the Big Bend reach that together with invasive plant species leads to increased channelization of the main channel. The reforestation of riparian zones in the tributaries of the Rio Grande is being done through the Big Bend National Park in Terlingua Creek with opportunities to spread into other tributaries.

We proposed meeting the 2015 stocking recommendations for the Big Bend Reach of 182,000 hatchery produced RGSM, by beginning captive propagation of RGSM at Uvalde National Fish Hatchery (UNFH) and additional RGSM produced by the Southwestern Native Aquatic Resources and Recovery Center (SNARC). The Rio Grande Team will monitor the success of the restocking, as well as of the rest of the fish and invertebrate community in the Lower and Martin canyons stretch (over 100 river miles) of the Big Bend Reach. The collection of habitat use data during the RGSM monitoring and restoration project benefits other imperiled fish species, such as the Chihuahua shiner (*Notropis chihuahua*), and the Rio Grande shiner (*Notropis jemezanus*), and may help to prevent listing of these species in the future.

On 4 June 2015, 140,000 RGSM fry, produced by the SNARC, were transferred and stocked into four ponds at UNFH. Reuben Mendoza, a third-year Pathways Program student, was acting as the lead biologist for the RGSM effort at UNFH. The fry initially fed on natural zooplankton in the ponds but were eventually switched to a special RGSM diet. In late September 2015, 132,500 minnows were harvested from the ponds, a 94.6 percent survival rate.

On 13-14 October 2015, staff from the SNARC, Uvalde National Fish Hatchery, the Texas Fish and Wildlife Conservation Office (TXFWCO), Stewart Jacks (Fisheries ARD), Deputy Director Joy Nicholopoulos, and Texas Parks and Wildlife Department (TPWD), stocked 227,000 RGSM produced at UNFH and SNARC into the Rio Grande at Dryden Crossing. Originally, 94,500 of them were to be

stocked at into the Rio Grande near Maravillas Creek, but a recent flash of the Rio Grande made the roads muddy and drivable, so the decision was made to also stock them at Dryden, the midpoint between the Lower and Martin canyons.

An additional 2,000 RGSM were stocked into Terlingua Abajo, a tributary where RGSM have been frequently captured, with the assistance of Marie Landis of the Big Bend National Park (BBNP) and two volunteers, Becca Pachlhofer and Alexandra O'Neill. The stocking site was approximately a quarter mile from the parking area, so a large cooler was used to transport the fish to the creek.

On 17 November 2015, while traveling to Dryden, Mike Montagne (TXFWCO) and Kenny Saunders (TPWD) stopped to talk with a cooperating landowner 30 miles downstream of Dryden. The landowner allowed access to the Rio Grande through his property and allowed us to sample the river and the spring run that flows to the Rio Grande. We captured three RGSM in the first seine haul in the eddy below the spring run mouth. We then took two more seine hauls, catching multiple RGSM in each one. We kept 13, and returned the rest to the spring and did not sample the rest of the spring run, as we could see many RGSM and did not want to disturb them further.

The 13 were positively identified as RGSM in the lab, and are being sent to the SNARC for gut content analysis and to age them by looking at their otoliths. They were of differing sizes and may be from different year classes. If these were fish released in 2015, they traveled approximately 30 miles in about 30 days.

On 18 November 2015, staff from the SNARC, the Texas FWCO, and Texas Parks and Wildlife Department, stocked an additional 83,000 RGSM into the Rio Grande at Dryden Crossing. A total of 310,600 RGSM have been stocked at this location in 2015. Due to heavy rains and flash flooding, the other sites were inaccessible, and the decision was made to stock them all at Dryden.

The TXFWCO and the rest of the Lower Rio Grande Team will look for these fish in the spring of 2016 in the Lower Canyons and the Martin Canyon reaches (upstream and downstream of the stocking location). The 53-mile Martin Canyon reach will be sampled in late April (7 days + 2 travel days), and the 56 mile Lower Canyons reach will be sampled in May (7 days + 2 travel days).