

## Aquatic ‘Passenger Pigeon’ Shiner Found Swimming in the Rio Grande

April 21, 2017

Writer: Steve Byrns, 325-653-4576, [s-byrns@tamu.edu](mailto:s-byrns@tamu.edu)

Contact: Dr. Kevin Conway, 979-845-2620, [kevin.conway@tamu.edu](mailto:kevin.conway@tamu.edu)

COLLEGE STATION – Dr. Kevin Conway is ecstatic.

Conway, a Texas A&M AgriLife Research wildlife and fisheries scientist at College Station, is part of a joint team of researchers from Texas A&M University and Texas Parks and Wildlife Department who, after years of searching, recently collected a rare fish from the Rio Grande.

“The Rio Grande Shiner, *Notropis jemezanus*, is a type of freshwater cyprinid fish, commonly referred to as carps, minnows and shiners, that is endemic to the Rio Grande drainage,” Conway said. “It’s large as shiners go, growing up to about three inches in length, and though it has never been economically valuable from a commercial or recreational standpoint, it is certainly a valuable bioindicator of river health.”

Not unlike the now extinct passenger pigeon, which was once so numerous their flights could block the sun, Conway said the Rio Grande shiner was formerly found throughout almost the entire Rio Grande drainage and was one of the most abundant species in the system. But its numbers declined steadily in both Texas and New Mexico until it became a rarity.

“It’s not been collected in the Rio Grande in New Mexico since the 1940s and has only been collected sporadically from the lower Rio Grande along the Texas-Mexico border since 2000,” Conway said. “Its decline in Texas seems to have slipped under the radar and is likely the result of the interplay of anthropogenic manipulation of the system, including impoundment, dewatering and possibly the introduction of invasive species.”



*Rio Grande Shiner. (Texas Parks and Wildlife Department photo by Megan Bean)*

Other contributing factors Conway alluded to were poor water quality stemming from agricultural and urban runoff and sewage effluent entering the river. Changing land management practices, including the loss of riparian gallery forests and floodplain habitats and water withdrawals, impact spring flood pulses, which serve as spawning cues for the fish, further adding to the fishes’ woes.

Those up on shiner politics might ask why some native species such as the Red Shiner are doing OK in the Rio Grande while others like the Rio Grande Shiner are not? Conway said the answer may stem from the reproductive nature of the Rio Grande Shiner.

“The Rio Grande Shiner belongs to a unique reproductive guild referred to as pelagic broadcast spawners,” he said. “Members of this guild shed eggs and sperm directly into the water column. Fertilization and development of the semi-buoyant eggs occur as they drift downstream. The eggs only take a couple of days to hatch, but in that time they can drift a long way and must remain suspended in the water column.”

Trouble comes when the streamflow slows or stops due to impoundments or too much water leaves the river during drought or times of heavy irrigation, Conway said. When the stream flow becomes too slow to move the eggs along, they sink to the bottom and become trapped in the substrate and die.

“Needless to say, these pelagic broadcast spawning shiners are among the most threatened species of freshwater fishes in the U.S., particularly in the Great Plains and desert regions of the Southwestern U.S., including Texas where streamflow can slow to a trickle,” Conway said. “Those like the Red Shiner continue to do well in the Rio Grande because they lay their eggs directly on the substrate where they hatch and don’t require a large stretch of river to drift in the water column.”

Conway has been conducting surveys for Rio Grande Shiner along the Texas-Mexico border since 2014 as part of a project funded by Texas Parks and Wildlife Department. Despite multiple attempts to find the fish, he had had no luck.

In a last-ditch effort in March, Conway joined forces with Megan Bean, a TPWD fish conservation biologist from Kerrville, to try to locate the species near Eagle Pass and Laredo where Bean was previously successful in finding the rare fish.

Bean said Conway’s AgriLife Research projects with the Rio Grande Shiner provide Texas Parks and Wildlife Department and conservation partners with important information on species distribution and status, as well as river health. She said this information provides a data-driven, science-based approach to species conservation and management.

“We worked together to identify sites we thought would work based on earlier findings of researchers from Texas State University, University of Texas and the University of New Mexico and voucher specimens within museum collections,” Conway said.

The joint research team managed to collect four fish from the Rio Grande just downstream from Shelby Park in downtown Eagle Pass on March 21.

“This was the only spot out of six sampled by the joint agency team that produced specimens of this rare shiner,” Conway said. “But at least we are relieved to know they still exist.”

So why so much angst over a minnow?

“That’s a good question since there are lots of different silvery minnows around, so I guess you could look at this from two different points of view,” Conway said. “First, the Rio Grande shiner is probably the largest species of shiner in the U.S. and it would be a tragedy to lose it, not only

because of its unique characteristics but also because there are very few pelagic broadcast spawning fishes in the U.S. in the first place. And second, the presence of a healthy number of pelagic broadcast spawners within a particular river system could be taken as a sign that the system is healthy. When they are gone then it could be taken as a sign the physical characteristics of a river have been significantly degraded. Once they are gone from a system it is not easy to put them back.”

Texas Pride is also no small reason for saving the shiner in Bean’s estimation.

“The Rio Grande Shiner is found nowhere else in the world except for this region in the U.S. and Mexico,” Bean said. “This small fish is a unique part of our natural resource heritage we should conserve, manage and treasure. It’s a part of what makes Texas so special.”

Though the future seems bleak for the Rio Grande Shiner in the lower part of the Rio Grande along the Texas-Mexico border, Conway said there may still be light at the tunnel’s end.

“We’re comparing the DNA of the four recently collected fish with that of individuals from the Pecos River in New Mexico to assess whether members of these two populations are genetically similar,” Conway said.

“The genetic investigation of the New Mexico and Texas samples of Rio Grande Shiner are being conducted by Dr. Megan Osborne at the University of New Mexico and Dr. Dave Portnoy at Texas A&M University-Corpus Christi. We are anxiously awaiting the results of these analyses in order to plan the next steps in the conservation of the Rio Grande Shiner in Texas.”

-30-

Find more stories, photos, videos and audio at <http://today.agrilife.org>

We grant permission for the use of this news as a free service to the news media. Articles may be used either in their entirety or in part, provided that attribution remains. You may use the stories and art, or you may put the stories, art and/or news videos on your websites. High resolution photos, audio and video also are provided with many of our articles for your use at [agrilife.org/today](http://agrilife.org/today)