Texas State Report
Gulf and South Atlantic Regional Panel on AIS
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Zebra/Quagga Mussels

Since the last GSARP meeting, Lake Amistad on the Rio Grande at the Mexico border has been confirmed to be fully infested with zebra mussels following detection of settled mussels of multiple size classes at multiple locations around the lake in February 2024. Zebra mussel larvae were first detected in the lake in 2022, but until recent record low water levels facilitated searching, settled mussels were not found.

The quagga mussel situation at Lake Amistad continues to be monitored by the NPS in collaboration with TPWD. Quagga mussel larvae (and eDNA) were detected in very low numbers in spring/summer 2021 and spring/summer 2022. However, there have been no detections since 2022 and settled quagga mussels have not been found on settlement samplers or in shoreline searches. Monitoring is ongoing and will continue for at least five years from the last quagga mussel detection to assess status.

There have been no new detections of invasive mussels since the last GSARP meeting.

Invasive Carp

TPWD is continuing to work with Oklahoma Department of Wildlife Conservation, Arkansas Game and Fish Commission, Auburn University, and Texas Tech University to assess the population status of invasive bigheaded carp in the Lower Red River Basin across the tri-state area. From 2021-2023, 313 Silver Carp and 108 Bighead Carp have been found in the Red River upstream to Denison Dam below Lake Texoma and in all monitored tributaries (including the Sulphur River). Thus far, successful reproduction has not been documented with no fish less than three years old captured. Telemetry work is underway in the Red River and tributaries with 25 Silver Carp and 25 Bighead Carp tagged, to provide movement data to augment population monitoring. Baseline native fish assemblage data were also collected.

Aquatic Invasive Plants

Giant salvinia continues to be the most problematic aquatic invasive plant in Texas and is present in 26 reservoirs and 7 river systems. Early detection and rapid response efforts are ongoing and have resulted in giant salvinia being extirpated from 2 public water bodies. Biological control using giant salvinia weevils continues to show success and the weevils are being used as part of our IPM strategy on 15 water bodies with a total of 336,583 weevils released in fiscal year 2023. Self-sustaining weevil populations are now present at J.D. Murphree WMA lakes, Toledo Bend

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Reservoir, Sheldon Lake, Lake Naconiche, Lake Nacogdoches, and Lake Raven. Over-wintering populations were also noted at Lake Murvaul and Caddo Lake but cold weather reduced giant salvinia coverage on both lakes, removing the weevil's food source and preventing the population from building. Herbicide treatments are also used to control giant salvinia on 35 water bodies, with nearly 13,200 acres treated in fiscal year 2023.

Water hyacinth also continues to be problematic and is present in 58 reservoirs and all major rivers across the state. In fiscal year 2023, nearly 2,500 acres of water hyacinth were treated with herbicides on 30 water bodies.

Crested floating heart is currently found in 4 water bodies and yellow floating heart in 2 water bodies, as well as the latter being present on the Louisiana side of Toledo Bend Reservoir on the state border. Treatment using ProcellaCOR has been highly effective, and infestations have been significantly reduced on most water bodies.

Because hydrilla in many cases provides much needed fish habitat in those aging reservoirs in Texas with minimal littoral zones, treatments of this species are limited to addressing access issues at swimming areas, campsites, along shorelines where it has become problematic for lakefront landowners for access, boat ramps, and boat lanes unless coverage exceeds 40%. Control strategies include herbicides and triploid grass carp. In fiscal year 2023, 104 acres of hydrilla were treated across 8 water bodies.

Riparian Invasive Plants

Giant reed (*Arundo donax*) control is ongoing in Central Texas to reduce impacts and improve river and stream habitat across the Pedernales, Blanco, Guadalupe, Medina, Nueces, and Llano river watersheds and San Felipe Creek. Control is implemented on hundreds of private and public properties across these basins in collaboration with the landowners.

Saltcedar control on the Upper Brazos River in critical habitat for smalleye and sharpnose shiners in collaboration with the USFWS continues to be a priority. To date, over 20,000 acres have been treated across approximately 150 primarily private properties. Treatment is anticipated in summer 2024.

Watershed-scale elephant ear control on the Llano River continues, with over 50 river miles in monitoring or active management status. At least one survey and treatment event is conducted each summer.

Aquatic Invasive Species Outreach

Outreach and prevention remains a high priority in Texas. The TPWD, with support from 13 partners, implements an annual 'Protect the Lakes You Love' clean, drain, dry campaign targeting watercraft owners/operators during peak boating season. The campaign includes billboards and gas station advertising as well as a variety of paid targeted digital media including social media platforms, apps, digital radio, and pre-roll video. The TPWD is also implementing

the 'Never Dump Your Tank' outreach campaign using digital media strategies to encourage aquarium owners to seek alternatives to release of aquarium life.

Aquatic Invasive Species Research

The TPWD is currently funding three AIS research projects, as described below. Reports for previously funded projects can be found on our past research webpage.

Developing spawning protocols and identifying the sex determining regions in suckermouth armored catfish to facilitate the production of neofemales and YY males for use in population control

Texas A&M University

This project seeks to develop genomic resources for invasive suckermouth armored catfish to facilitate production of YY males for use in genetic/biological population control. This project will also begin to test protocols for spawning these species and beginning the process of feminizing males. This work will contribute to furthering efforts to control these invasive species.

Assessing seasonal variation in thermal refugia use and drivers of angler participation in removal efforts of suckermouth armored catfish in San Felipe Creek, Val Verde County

University of Texas at San Antonio

This study will evaluate use of thermal refuges (e.g., springs) by suckermouth armored catfish during winter months to increase survival. Locating aggregations of this invasive species can aid in enhancing removal efforts. This study will also examine angler interest in participating in removal tournaments, including any seasonal differences in willingness to participate. This work will aid in enhancing ongoing removal efforts.

Distribution of the Australian redclaw crayfish in Texas

University of Texas at Tyler

Invasive Australian redclaw crayfish have become established in South Texas, but little is known of their distribution. This study will evaluate distribution of this species in Texas as well as abundance and life-history traits. This work is an important step toward better understanding this invasion as well as facilitating potential future assessments of impacts on native species. Other research using specimens from this study will assess the species' physiological tolerances.