Texas State Report
Gulf and South Atlantic Regional Panel on AIS
New Orleans, LA, November 30 – December 1, 2022

Regulatory Changes

The Texas Parks and Wildlife Commission adopted recent rule changes that ensure that commercial facilities (e.g., aquarium stores) are not eligible for exotic species zoological display permits following interest by such entities in these permits. Although such entities may intend to comply with regulations prohibiting sale under these permits, enforcement would be difficult and display of these species in aquarium stores could generate interest among aquarium hobbyists in obtaining them illegally and is not consistent with the goals and objectives of the department to prevent introductions.

New AIS Reports

Australian Redclaw Crayfish (*Cherax quadricarinatus;* ARC) were reported to TPWD from an apartment pond in the Brownsville, TX area (southeast TX near Mexico border and Gulf coast) by researchers from the University of Texas Rio Grande Valley. It was later found that an earlier, unreported sighting had been documented at the same site on iNaturalist in 2013. Surveys in July found a single ARC at an additional site a few miles away. A press release was issued to solicit reports from the public, resulting in a number of additional confirmed reports from resacas in the surrounding area, including one in the Rio Grande. Given they have been found at numerous sites and the connectedness of the waterways in this area, control efforts would likely not be feasible.

Zebra/Quagga Mussels

Since the last GSARP meeting, zebra mussels have been detected in only one new water body in Texas, Diversion Lake. This is a private access lake located immediately downstream of an infested water body and downstream dispersal into this water body was inevitable.

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Lake Walter E. Long was also upgraded to fully infested status following the finding of settled adult mussels; previously only larvae had been detected.

The quagga mussel situation at Lake Amistad on the Rio Grande continues to be monitored by the NPS in collaboration with TPWD. Since the spring/summer 2021 detection of quagga mussel larvae and eDNA, there have been no additional eDNA/larvae detections and settled mussels have not been found.

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 (bighead and silver) in the Lower Red River Basin across the tri-state area. A ~$1M grant was recently obtained to continue the population assessment for a third year and to conduct a two-year telemetry study. To date, bigheaded carps have been found in the Red River upstream to Denison Dam below Lake Texoma and in all monitored tributaries. However, thus far, successful reproduction has not been documented.

Aquatic Invasive Plants

Giant salvinia continues to be the most problematic aquatic invasive plant in Texas, and is present in 25 reservoirs and 7 river systems. Early detection and rapid response efforts continue, and a new introduction was recently extirpated at Lake Pinkston and a reoccurrence found at Lake Gilmer where treatment is ongoing. 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 353,638 weevils released in fiscal year 2022. Self-sustaining weevil populations are now present at J.D. Murphree WMA lakes, Toledo Bend Reservoir, Sheldon Lake, Lake Naconiche, Lake Nacogdoches, and Lake Raven. Herbicide treatments using penoxsulam/flumioxazin are also used to control giant salvinia on 31 water bodies, with nearly 15,000 acres treated in fiscal year 2022.

Water hyacinth also continues to be problematic and is present in 58 reservoirs and all major rivers across the state. In fiscal year 2022, nearly 3,500 acres of water hyacinth were treated with herbicides on 30 water bodies, primarily using 2,4-D.

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 2022, 170 acres of hydrilla were treated across 9 water bodies.

Riparian Invasive Plants

Giant reed (*Arundo donax*) control is ongoing in Central Texas and has expanded to include the Pedernales, Blanco, Guadalupe, Medina, Nueces, and Llano rivers and San Felipe Creek. Control is implemented on nearly 400 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.

Watershed-scale elephant ear control on the Llano River continues, with over 50 river miles in monitoring or active management status. In 2022, survey and treatment efforts were hindered by severe drought, with only one treatment event conducted.

Aquatic Invasive Species Research

TPWD is currently supporting four AIS research projects through our biennial AIS grant program.

Near real-time detection and monitoring of invasive mussel species in Texas waterways

Early detection of zebra mussel veliger larvae requires microscopic analysis of plankton samples that can be time consuming and delay results. This project seeks to test a novel and efficient AI process to more quickly detect and enumerate zebra mussel veligers, refine the technology, and explore spatiotemporal variability of veliger presence and density over time in the study areas. The study will also implement this technology to augment early detection monitoring in Texas.

Assessing the Population Dynamics and Body Condition of Zebra Mussels Within and Between Two Texas Water Bodies with Different Population Trajectories: Lakes Belton and Stillhouse Hollow

Long-term studies have indicated that some zebra mussel populations in Texas decline in density and growth rates over time, whereas others do not. This study seeks to better understand population dynamics in two lakes with different population trends in conjunction with food availability and water quality parameters. This study will evaluate potential explanations for population declines that will have implications for predicting ecological and economic impacts of zebra mussels in infested waters and aid in guiding mitigation strategies.

Using remote sensing to map Arundo donax populations in Native Fish Conservation Areas throughout Texas to better understand causal factors of invasion and set management priorities

Giant reed (Arundo donax) is a highly problematic invader of rivers and creeksides with significant impacts on both riparian and aquatic habitats and efforts to manage this species are ongoing in the Hill Country. This study will test and develop the use of remote sensing technology to identify infested areas and areas where infestation is increasing as well as examining landscape factors influencing infestations and identify areas at high risk of impacts. This technology will be applied to Native Fish Conservation Areas across the state to aid in prioritizing areas for future control efforts.

Assessing abundance, sex ratio, and space use by suckermouth armored catfish to enhance control efforts

Non-native suckermouth armored catfish compete with native species, alter food webs, and cause habitat degradation through burrowing into banks, and efforts to remove these invasive fish are underway in the San Marcos River to protect imperiled species. This study seeks to assess seasonal abundance of this species in the San Marcos River as well as assess movement and population sex ratios and test potential new control augmentation techniques. Results of this study will aid in guiding and enhancing the efforts of ongoing removal efforts.