



Electro-shock Fish Survey of the Pedernales River

for the Lyndon B. Johnson National Historical Park & Lyndon B. Johnson State Park and Historic Site

Source: Bryan Cook, Lower Colorado River Authority

PROJECT SUMMARY



PHOTO: BRYAN COOK

Warmouth sunfish

Introduction

The Lyndon B. Johnson National Historical Park (LYJO) is comprised of 674 acres in the "Hill Country" of south-central Texas. The landscape consists of forested hills and grasslands, and a tributary to the Colorado River, the Pedernales River, flows through the park. The Lower Colorado River Authority (LCRA) partnered with the National Park Service (NPS) and Texas Parks and Wildlife (TPW) to perform a fish survey along a stretch of the Pedernales River which is adjacent to LYJO and Lyndon B. Johnson State Park and Historic Site. The primary purpose of the survey was to augment previous fisheries work performed by The Nature Conservancy in 2002. The previous surveys documented 18 species of fish collected with seines in the shallow areas of the river. Study participants indicated a need for boat electrofishing in the deeper portions of the river. Therefore, LCRA's sampling efforts were directed at electrofishing the deeper waters impounded by the two in-

channel dams within the park.

Methods

Fish were collected with a Smith-Root GPP 5.0 (5,000 watt) boat-mounted electrofisher in two separate pools of the Pedernales River, one above the Jordan Dam, the other above the Johnson Dam. Sampling was conducted on March 10, 2005. The edges of each pool were sampled in an upstream fashion. The boat was maneuvered slowly and methodically ensuring adequate coverage of each instream cover type such as trees, brush, and rocks. The deeper sections of the impoundments were sampled along transects, run shoreline to shoreline across the pool and spaced approximately 20 meters apart. A few seine transects were conducted in the free-flowing river below the Jordan Dam. Fish were retained for identification and photo documentation, then released.

Results

A total of 17 fish species were collected during the survey (Table 1). The collection was diverse, representing seven families: Clupeidae (shad), Cyprinidae (shiners and minnows), Catostomidae (suckers), Centrarchidae (sunfish and bass), Atherinidae (silversides), Poeciliidae (live bearers), and Percidae (darters).



PHOTO: BRYAN COOK

LCRA team conducting electro-shocking



Table 1. Fish collected in March 2005 by boat electrofishing.

Common Name	Scientific Name
Largemouth bass	<i>Micropterus salmoides</i>
Guadalupe bass	<i>Micropterus treculi</i>
Orangespotted sunfish	<i>Lepomis humilis</i>
Bluegill sunfish	<i>Lepomis macrochirus</i>
Green sunfish	<i>Lepomis cyanellus</i>
Warmouth sunfish	<i>Lepomis gulosus</i>
Common carp	<i>Cyprinus carpio</i>
Red shiner	<i>Cyprinella lutrensis</i>
Blacktail shiner	<i>Cyprinella venusta</i>
Texas shiner	<i>Notropis amabilis</i>
Bullhead minnow	<i>Pimphales vigilax</i>
River carpsucker	<i>Carpionodes carpio</i>
Gray redhorse	<i>Moxostoma congestum</i>
Gizzard shad	<i>Dorosoma cepedianum</i>
Brook silverside	<i>Labidesthes sicculus</i>
Texas logperch	<i>Percina carbonaria</i>
Western mosquitofish	<i>Gambusia affinis</i>

Discussion

The survey resulted in the documentation of three new species of fish in the park: orangespotted sunfish, river carpsucker, and Texas shiner. Several brook silversides were collected and positively identified; these fish are west of their known range. Other species of interest were Guadalupe bass (the state fish of Texas) and Texas logperch, both of which are indicative of high water quality.



Red shiner (top), Texas shiner (center), Brook silverside (bottom)

No channel catfish, flathead catfish, or spotted gar were collected. These species are common in the river and should be present in the deeper habitats at the park. LCRA conducted fish surveys 35 miles downstream of the park in 2000. These surveys used electrofishing and seining and collected 24 species of fish. Seven more species were collected in these 2000 surveys than in the current project. These additional species included two species of darters and two species of sunfish. The darter species (orangethroat and dusky) require constant flow in riffle areas, which are not present in the impoundments; however, they may exist below the dams. The two sunfish species (longear and redbreast) should be present at the park and future sampling would likely encounter them.

Contacts

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Orangespotted sunfish, a new species recorded at LYJO