

FINAL PERFORMANCE REPORT

State: Oklahoma

Grant Number: E-68-R-1

Grant Program: Endangered Species Program, Section 6

Grant Title: Identification, Enumeration and Cataloging of Samples Collected during Arkansas River Shiner Monitoring Surveys in Oklahoma

Project Leader: Dr. Edie Marsh-Matthews

Grant Period: August 1, 2008– October 31, 2011

I. Abstract

US Fish and Wildlife Service's Tulsa Field Office made 90 collections in the Canadian and Cimarron Rivers in summers of 2007, 2008, 2009 to monitor populations of Arkansas River shiners (*Notropis girardi*). These collections were sorted, and species identified and enumerated by personnel at the Sam Noble Oklahoma Museum of Natural History, University of Oklahoma in Norman, OK. A total of 2992 Arkansas River shiners was found in 38 collections. All collections containing Arkansas River shiners were from the Canadian River drainage; none were found in collections from the Cimarron River drainage.

II. Project Objective

Enumerate and analyze fish collections made by the U.S. Fish and Wildlife Service to determine the number, and relative abundance of Arkansas River Shiners and associated fish species in the Canadian and Cimarron river systems.

III. Methods

Collections were made by the US Fish and Wildlife Service's Tulsa Field Office as part of their on-going Arkansas River Shiner monitoring activities on the Canadian and Cimarron Rivers. Collections were made in summers of 2007, 2008 and 2009. Collections originated from the Canadian and Cimarron rivers in portions of Hughes, Seminole, Pontotoc, McClain, Cleveland, Canadian, Grady, Caddo, Blaine, Custer, Dewey, Roger Mills, Payne, Logan, Kingfisher, Major, Woods, Woodward, Harper, and Beaver counties in Oklahoma and portions of Hemphill, Roberts, Potter and Oldham counties in Texas.

Fish samples were sent to the Sam Noble Oklahoma Museum of Natural History (SNOMNH) in a preserved condition for enumeration, cataloging and archiving. Prior to their shipment to the SNOMNH, the specimens in these samples were fixed in a 10% formalin solution and preserved in a 50% isopropyl alcohol solution.

Department of Ichthyology personnel at the SNOMNH sorted and identified to species the fish in each sample and archived the fish into the permanent collection of the Museum in keeping with the Museum's standards of practice. In addition, all Arkansas River shiners and selected other minnow species were measured to determine size distribution. Data, consisting of the numbers of fish by species, by sample, as well as size distribution data have been provided to the Oklahoma

Department of Wildlife Conservation and the U.S. Fish and Wildlife Service in earlier reports and final data are appended here.

IV. Results

A total of 90 collections was delivered to SNOMNH for processing. Of these, 47 were made in the Canadian River drainage and 43 in the Cimarron River drainage. Numbers of collections by year and drainage are in Table 1.

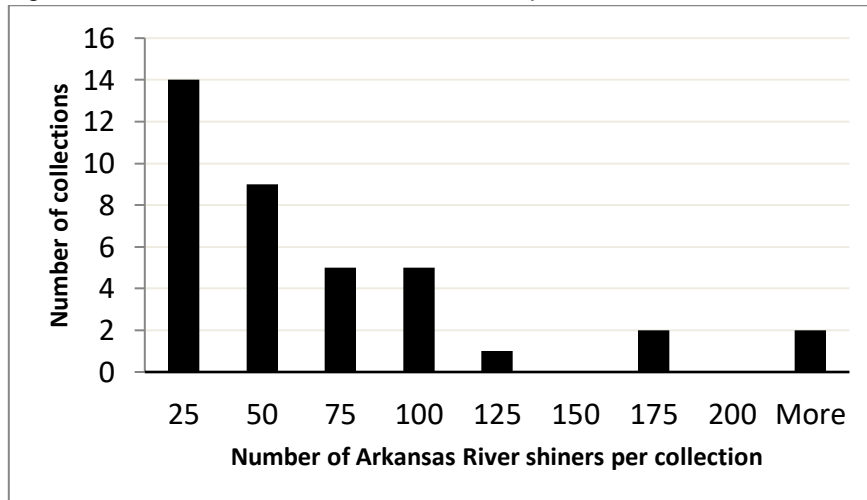
Table 1: Number of collections made in each river drainage in each year.

Year of Collection	Canadian River Drainage	Cimarron River Drainage
2007	19	15
2008	14	13
2009	14	15

Arkansas River shiners were identified from 38 collections, all of which were from the Canadian River drainage. Within the Canadian River drainage, sites containing Arkansas River shiners were located in all counties except the most upstream reaches of the North Canadian River in Harper and Woodward counties in Oklahoma, and reaches of the Canadian River in Hemphill and Roberts counties in Texas downstream of the Lake Meredith impoundment.

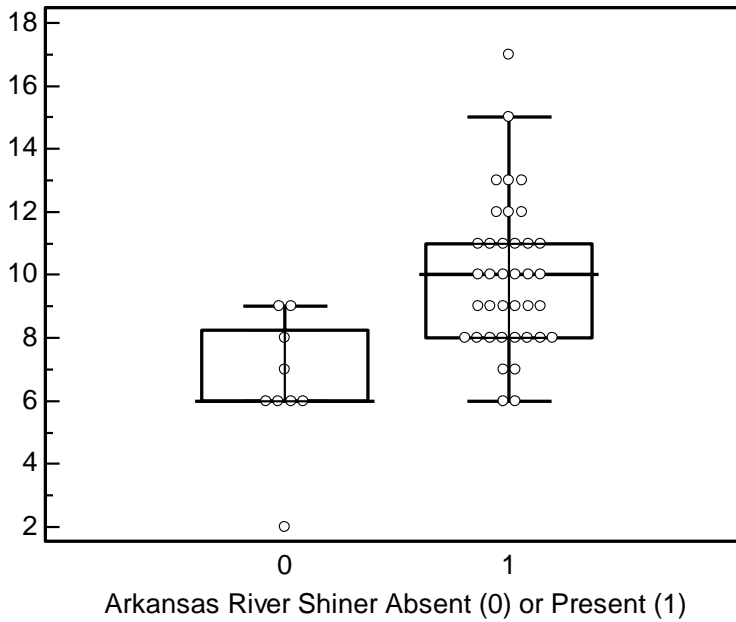
At sites where Arkansas River shiners were found, number per collection ranged from 1 to 733, with the largest numbers of individuals found in the Canadian River in Oldham County, TX (n=733) and Potter County, TX (n=491). Fourteen collections (at sites where *Notropis girardi* was collected) contained fewer than 25 Arkansas River shiners, but all other collections contained at least 50 shiners (Figure 1).

Figure 1. Number of Arkansas River shiners per collection.



Collections from the Canadian River drainage that lacked Arkansas River shiners had been two and nine species, but number of species in collections with Arkansas River shiners ranged from six to 17 (including Arkansas River shiners; Figure 2).

Figure 2. Box plots comparing number of species in collections where Arkansas River shiners were absent (0) versus present (1) for Canadian drainages only. All data are displayed as dots; heavy bar is median, error bars are 25th and 75th percentiles.



All counts for all species are in Electronic Appendix 1. All measurements of Arkansas River shiners and other selected minnows are in Electronic Appendix 2.

IV. Discussion

Data from the collections processed by SNOMNH suggest that Arkansas River shiners are widespread and at least moderately abundant in the Canadian River drainage, but are absent from the Cimarron River drainage. Where they do occur, Arkansas River shiners are in assemblages with a wide range of species diversity.

Prepared by: William Ray
 Oklahoma Department of Wildlife Conservation

Approved by: _____ Date: _____
 Fisheries Division Administration
 Oklahoma Department of Wildlife Conservation

Approved by: _____ Date: _____
 John D. Stafford, Federal Aid Coordinator
 Oklahoma Department of Wildlife Conservation