

# **FINAL PERFORMANCE REPORT**



**Federal Aid Grant No. F21AP00895 (E-76-R-7)**

**Cooperative Surveys and Coordination of Federally-listed and  
Candidate Species in Oklahoma**

**Oklahoma Department of Wildlife Conservation**

**January 1, 2021 - December 31, 2021**

## FINAL PERFORMANCE REPORT

**State:** Oklahoma

**Grant Number:** F21AP00895 (E-76-R-7)

**Grant Program:** Cooperative Endangered Species Conservation Fund, Traditional Conservation Grants Program

**Grant Title:** Cooperative Surveys and Coordination of Federally-listed and Candidate Species in Oklahoma

**Grant Period:** January 1, 2021 – December 31, 2021

**Project Leader:** Kurt Kuklinski (January – February); Curtis Tackett (March – December)

### **Executive Summary:**

ODWC staff utilized the “Cooperative Surveys and Coordination of Federally-listed and Candidate Species in Oklahoma” grant (E-76-R-7) to complete important work regarding federally-listed Threatened and Endangered (T&E) species during 2021. Staff participated in planning and coordination of collaborative surveys for T&E species, reviewed multiple USFWS Federal Register Notices regarding T&E species Status Assessments, listing decisions, and critical habitat definitions, and communicated appropriately throughout ODWC for comment and response to notices. ODWC also contributed to the WAFWA Endangered Species working group virtual meeting and provided an update on Oklahoma at-risk species status, projects, and survey efforts. ODWC staff assisted USFWS Tulsa ESFO with multiple surveys and monitoring efforts directed at T&E species. Significant fieldwork effort was expended by ODWC staff to complete annual population monitoring surveys for Arkansas River Shiner and Leopard Darter, freshwater mussel community surveys, and bat emergence surveys at OPNWR.

### **Objectives:**

To assist ESA Section 10 federally-permitted biologists from federal agencies, including (but not limited to) the U.S. Fish and Wildlife Service, U.S. Forest Service, and U.S. Army Corps of Engineers with both routine and short-term projects aimed at monitoring, researching, and surveying federally-listed and candidate species across the state of Oklahoma. Emphasis will be placed on the Interior Least Tern, Northern Long-eared Bat, Gray Bat, Ozark Big-eared Bat, Arkansas River Shiner, Leopard Darter, Neosho Mucket, Rabbitsfoot, Ouachita Rock Pocketbook, American Burying Beetle, and Rattlesnake Master-borer Moth.

### **Summary of Progress:**

Each year, biologists from the Oklahoma Department of Wildlife Conservation (ODWC)’s Wildlife Diversity Program assist staff from various partnering agencies in conducting monitoring and recovery projects for species either designated as federal candidates or those federally-listed as threatened or endangered under the Endangered Species Act. Such projects may range from inter-agency routine monitoring efforts (e.g. Leopard Darter, Arkansas River Shiner) while others may be relatively short-term and specific (e.g. genomics studies or

population augmentations). All such activities are conducted with federally-permitted biologists on site, most often a U.S. Fish and Wildlife Service (USFWS) biologist.

The Canadian and Cimarron Rivers in central and northwest Oklahoma support breeding populations of the recently de-listed Interior Least Tern (*Sterna antillarum*) and threatened Arkansas River Shiner (*Notropis girardi*). The Least Tern and the Arkansas River Shiner are found, or are potentially present, in both the Cimarron and the Canadian Rivers where they require similar riverine habitat conditions that are maintained by periodic flooding events – long reaches of shallow, braided river channel with numerous barren sandbars and islands. The riverine habitat used by both species has declined in quality as a result of the alteration of the historic flooding cycles in both river systems by human manipulations to the rivers and their tributaries such as reservoir construction, dredging, channel straightening and dewatering. These changes have resulted in a reduction in the frequency and magnitude of flooding events that scour the vegetation within the flood plain and redistribute sediments to form sandbars. These alterations in surface flows have created a pathway for invasive species, such as the saltcedar (*Tamarix* spp.). When the need and opportunity arises, biologists from ODWC plan to monitor nesting Interior Least Terns throughout various locations in Oklahoma. In addition, ODWC personnel occasionally assist the U.S. Army Corps of Engineers (USACE) with the monitoring of Interior Least Tern nesting colonies throughout the Arkansas River watershed in accordance with the species recovery plan.

Our knowledge of the population sizes and trends for Arkansas River Shiners and Least Terns are generally incomplete and limited in large part because of the poor access that biologists have to their habitat most of which is privately owned and not easily reached by public roads or other access points. Several opportunities exist for accessing the Cimarron and Canadian rivers via state-owned lands such as the Packsaddle Wildlife Management Area, and the recently acquired Cimarron Bluff and Cimarron Hills WMAs. This project provides funding to assist ODWC personnel in periodically surveying these areas to assess and monitor the populations of federally listed and candidate species. Additionally, the USFWS Oklahoma Ecological Services Field Office (ESFO) currently monitors Arkansas River Shiner populations at several bridge crossings on the Canadian River. This project provides funding to ODWC to assist the Service with this annual monitoring effort.

The Little River system in southeastern Oklahoma and southwestern Arkansas supports all of the known populations of the federally threatened Leopard Darter (*Percina pantherina*). The Leopard darter is an intermittent spawner and was likely never high in abundance, even historically. Habitat loss from anthropogenic activities has caused overall population declines, with reservoir construction having the greatest impact. Reservoir impoundments prevent the movement of Leopard Darters between the populations in each of the major tributaries of the Little River (e.g. Glover River and Mountain Fork River) and therefore isolate and hinder gene flow between populations. Critical Habitat is designated for this species in portions of the Little River, Glover Creek, and the Mountain Fork River within McCurtain and Pushmataha counties, OK, and in Polk County, AR (50 CFR 17.95(e)). Among the priority tasks identified in the Leopard Darter Recovery Plan are the identification of important Leopard Darter habitat and monitoring of the remaining populations. Staff from both the Tulsa ESFO and the U.S. Forest Service (USFS) have monitored Leopard Darters for more than 20 years at traditional (fixed) locations as well as

rotational sites. It is important to continue this effort and to conduct surveys at other sites that potentially support this species. In December 2016, the USFWS drafted a plan titled “A Plan of Artificial Gene-flow for the Threatened Leopard Darter, *Percina pantherina*” to address both genetic drift and declining effective population sizes ( $N_e$ ) of fragmented Leopard Darter populations throughout the Little River watershed. One component of the plan involves exploring the possibility of augmenting currently extant populations of *P. pantherina* that have declined in past years due to a combination of anthropogenic and/or environmental factors (e.g. Cossatot River). While the plan does suggest capturing adult fish as one possible pathway, USFWS has initially opted to obtain larval Leopard Darters during the known spawning period (February – April). Larval fish are captured out of select access points along the Glover and upper Little Rivers and transported to the Tishomingo National Fish Hatchery for identification. This project provides funding to ODWC to assist the USFWS in monitoring Leopard Darter populations, assessing their current distribution, and providing support in the capture of larval and adult fish for the implementation of the artificial gene flow plan.

The Ozark Plateau National Wildlife Refuge (OPNWR) owned by USFWS in Adair County is managed with a focus on federally-listed bats, including the threatened Northern Long-eared Bat (*Myotis septentrionalis*), endangered Gray Bat (*M. grisescens*), and endangered Ozark Big-eared Bat (*Corynorhinus townendii ingens*). The Sally Bull Hollow Unit of the OPNWR contains three entrances to a cave system called the Duncan-Fields Cave System. This particular cave is an important winter hibernaculum for *M. septentrionalis* and is thought to currently house one of the largest concentrations of the species rangewide. Since 2015, biologists from both the Refuge and an environmental consulting firm have deployed mistnets and harp traps at the three cave entrances on the Sally Bull Hollow Unit during “spring emergence” and “fall swarming” periods in March and September. This grant allows ODWC staff to further assist USFWS and consulting firm staff with mistnet deployment, banding, and data recording of federally-listed and declining bats on the OPNWR.

As part of a 2016 programmatic Section 7 consultation, the Tulsa District of USACE has formalized an agreement to designate a 3,110-acre portion of the Ft. Gibson Wildlife Management Area as a mitigation property for the endangered American Burying Beetle (*Nicrophorus americanus*, ABB). USACE has committed to assisting ODWC in habitat management and overall enhancement of the property for the benefit of *N. americanus*. One of the commitments set forth by USACE is to conduct a biannual survey for ABBs to monitor both the presence and relative abundance of the species. This grant allows both Wildlife Diversity Program and Regional ODWC staff to assist USACE with ABB trap deployment and data recording, as needed. ODWC did not assist with any ABB surveys during 2021.

With the federal listing of two freshwater mussel species, the Neosho Mucket (*Lampsilis rafinesqueana*) and the Rabbitsfoot (*Quadrula cylindrica*), interest has increased among various state and federal agencies to conduct cooperative conservation and recovery projects for these species. Such projects may have a focus on genomic analysis while others concern captive propagation techniques for eventual population augmentation. While most of the activity may be primarily restricted to a lab setting or aquaculture facility, assistance from ODWC is occasionally requested to assist with mussel searches and collections. This grant allows ODWC

staff to assist USFWS biologists and other partners with various mussel projects that may require assistance in surveying and/or handling of federally-listed mussels in the field.

The Rattlesnake Master-borer Moth (*Papaipema eryngii*) is a moth species that was designated as a federal Candidate species in 2013. This species relies completely on Rattlesnake Master (*Eryngium yuccifolium*), a plant that is often associated with moist soils in tallgrass prairies and woodlands. The only state record for *P. eryngii* is from Osage County on the Tallgrass Prairie Preserve owned by The Nature Conservancy. Through the State Wildlife Grants Program, ODWC funded a project with the University of New Hampshire from 2014 – 2017 for the purposes of assessing the current presence and distribution of the species on the Tallgrass Prairie Preserve. No individuals of *P. eryngii* were found during the duration of the project; however, Arkansas Game and Fish Commission recently funded a project in which *P. eryngii* was documented on various sites within the Arkansas River Valley ecoregion, an area that continues into east-central Oklahoma. This project allows ODWC staff to conduct passive roadside surveys for patches of *E. yuccifolium* in June – August of 2021 so that individual plant stems can be examined for possible presence of *P. eryngii* larvae. No surveys were conducted during 2021.

#### 2021 Planning and Coordination Activities:

ODWC personnel from the Wildlife Diversity Program attended a collaborative virtual ESA Section 6 meeting with USFWS Tulsa Ecological Services Field Office (ESFO) to plan and coordinate projects for 2021/2022. WD Program staff attended the virtual Ozark Karst and Bat Conservation Meeting during October to discuss all cave related conservation efforts with USFWS, Rogers State University, The Nature Conservancy, AR Game and Fish Commission and others. Staff attended a Neosho Mucket propagation meeting with the Neosho National Fish Hatchery staff and ODWC Streams Program to discuss future propagation planning efforts for mussels and smallmouth bass in both OK and MO. Quarterly WAFWA endangered species interstate working group conference calls/webinars were attended, and updates on ODWC projects were presented. Program staff coordinated with and provided comments and information to the USFWS on listing petitions, proposed listings and species status assessments for the following species during 2021; alligator snapping turtle, longnose darter, peppered chub, American bumble bee, variable cuckoo bumble bee, southern plains bumble bee, pyramid pigtoe, western chicken turtle, lesser prairie chicken, frosted elfin, plains spotted skunk, Kiamichi crayfish, little brown bat, tricolored bat, northern long-eared bat, hall's bulrush, and the eastern black rail.

#### 2021 T&E Field Surveys:

*Arkansas River Shiner:* ODWC Wildlife Diversity Program staff assisted USFWS Tulsa ESFO staff to complete June and October population monitoring surveys for Arkansas River Shiner on the South Canadian River from Roll, OK downstream to Ada, OK. Survey methods are 15 seine hauls per site and associated water quality and habitat data is also collected. A sub sample of all fish are vouchered for lab enumeration. All survey data is maintained by the Tulsa ESFO species lead Daniel Fenner.

Some notable species collected during surveys are as follows:

*Notropis gerardii*

*Hybognathus placitus*

*Cyprinodon rubrofluviatilis*

*Fundulus zebrinus*  
*Cyprinella lutrensis*  
*Gambusia affinis*  
*Pimephales notatus*  
*Pimephales promelas*  
*Pimephales vigilax*  
*Notropis stramineus*  
*Lepomis megalotis*  
*Dorosoma cepedianum*  
*Ictalurus punctatus*

*Leopard Darter*: ODWC Wildlife Diversity Program staff assisted USFWS Tulsa ESFO and Tishomingo FWCO with annual Leopard Darter population monitoring. The field crew conducted snorkel count surveys at various sites in the Little River, Glover River, and the Upper Mountain Fork River in southeast OK. The field crew also surveyed various sites within the Cossatot River drainage in southwest AR. In addition to the snorkel surveys for population monitoring, the field crew also assisted the Tishomingo FWCO and the National Fish Hatchery staff with some adult Leopard Darter broodstock collections for propagation efforts at the Federal Hatchery.

*Freshwater Mussels*: Wildlife Diversity Program staff and Streams Program staff conducted freshwater mussel community surveys on the upper Verdigris River above Oologah Lake during September. All mussels were identified and released unharmed on location.

Survey results are as follows.

Site: 36.894603, -95.608503

*Quadrula metanevra* – 195

*Quadrula quadrula* – 15

*Quadrula pustulosa* – 1

*Amblema plicata* – 10

*Tritogonia verrucosa* – 38

*Obliquaria reflexa* – 14

*Lampsilis cardium* – 4

*Potamilus ohiensis* - 1

*Pleurobema sp.* – 1 (swabbed)

*Megaloniais nervosa* – 3

*Bat Surveys*: ODWC Wildlife Diversity Program staff assisted the USFWS ESFO staff, USFWS Refuge staff, and Environmental Solutions and Innovations (ESI) with routine bat emergence fall swarming surveys on the Ozark Plateau National Wildlife Refuge during September. Staff assisted with mist net and harp trap set up, bat enumeration, and data recording for evening surveys at three cave entrance locations of the Duncan-Fields Cave System. All specific bat survey data was provided to the USFWS from ESI via contract.

**Significant Deviations:**

There were no significant deviations from the grant approach or objectives. COVID-19 impacts and subsequent restrictions did limit some collaborative fieldwork efforts between ODWC and other agencies during 2021.

**Equipment Purchased:**

No equipment exceeding \$5,000 in cost was purchased.

**Overmatch Statement:**

Final expenditures for this grant were higher than anticipated. All expenses incurred were within the scope of work as described in the project statement. More ODWC resources (personnel) were needed to complete grant objectives than Section 6 funding could support at the 75/25 cost share ratio.

**Prepared by:** Curtis Tackett, Threatened and Endangered Species Biologist  
Oklahoma Department of Wildlife Conservation

**Date Prepared:** February 14, 2022

**Approved by:** Russ Horton, Assistant Chief of Wildlife  
Oklahoma Department of Wildlife Conservation

Andrea K. Crews, Federal Aid Coordinator  
Oklahoma Department of Wildlife Conservation