

Potential Longnose Darter Population in the Kiamichi River of Oklahoma

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One of Oklahoma's rarest fish species (Robison 1992; Miller and Robison 2004), the Longnose Darter, *Percina nasuta* (Bailey 1941), is historically known to have occurred in only two river systems in Oklahoma: Lee Creek and the Poteau River (Cross and Moore 1952; Lindsey et al. 1983; Wagner et al. 1985) (Figure 1). In Oklahoma, Longnose Darters are designated as a state-endangered species and are considered of conservation concern throughout their range (Jelks et al. 2008; ODWC 2016). The Poteau River and its tributaries hosted a population of Longnose Darters that was recorded in some of the first historical expeditions in this region (Jordan and Gilbert 1886; Cross and Moore 1952), but construction of Wister Reservoir in 1949 may have contributed to its decline in this system (Lindsey et al. 1983; Wagner et al. 1985). Only one specimen has been observed in the Poteau River since impoundment of Wister Reservoir; a single Longnose Darter upstream near the Oklahoma-Arkansas border in 2015 (OWRB 2015). The only other known instance of Longnose Darters in the Poteau River system post-impoundment of Wister Reservoir involved translocation of 164 individuals from Lee Creek into Blackfork Creek (O'Donnell 1991, 1992) where prior populations were thought to be absent. Subsequent surveys in 2016 for Longnose Darters in Blackfork Creek failed to find any (C. Holley, Oklahoma State University, unpublished data), suggesting that the population in Lee Creek remains the only robust population in Oklahoma (Burns & McDonnell Engineering Company 1990; Gatlin and Long 2011).

While developing a range-wide ecological

niche model for Longnose Darters to identify areas outside of Lee Creek and the Poteau River in Oklahoma with potentially suitable habitat, we compiled a record of all the Longnose Darter occurrence locations in Oklahoma (Figure 1). During this process, three disparate records of Longnose Darter occurrence in the Kiamichi River, outside of the known range of the species (Miller and Robison 2004), were identified and scrutinized. To scrutinize these

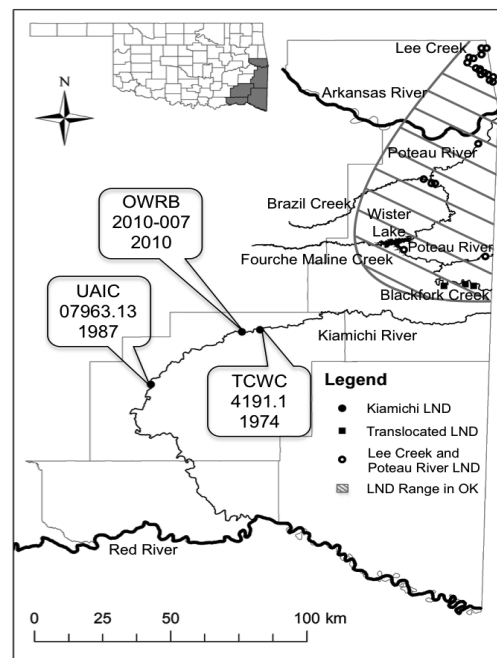


Figure 1. Distribution of Longnose Darter (*Percina nasuta*; LND) in Oklahoma with disparate occurrence records in the Kiamichi River.

specimens housed in museum collections, we either obtained the specimens via loan or asked the curator to measure certain aspects. We used measurements from dichotomous keys for Oklahoma (Miller and Robison 2004) and Arkansas (Robison and Buchanan 1988) that were diagnostic and easy to measure. The Oklahoma key indicates that Longnose Darters have “width of snout less than ¾ its length” (Miller and Robison 2004) and the Arkansas key uses snout “length 9 percent or more of standard length” (Robison and Buchanan 1988). If a population of Longnose Darters exists in the Kiamichi River, it would represent a significant extension of the range in Oklahoma, outside the Arkansas River watershed.

The earliest occurrence of Longnose Darter in the Kiamichi River was field identified in 1974 and is housed at Texas A&M University’s Biodiversity Research and Teaching Collection (specimen number: TCWC 4191.1). This specimen was received on a specimen loan and measured by the authors. According to both keys, this specimen is a Longnose Darter (Table 1; Figure 2).

The second record came from 1987 and is housed at the University of Alabama’s Ichthyological Collection (catalogue number: UAIC 07963.13). This catalogue number constitutes a lot of five specimens, which were measured by the curator. All five specimens key out as Longnose Darters with the Fishes of Oklahoma key, but not using the Fishes of Arkansas key (Table 1). Furthermore, tissue samples from these specimens (GenBank KM209995, KM 210049; Benson et al. 2012) were used in a genetic analysis (Robison et al. 2014) that considered them to be Slenderhead

Darters *Percina phoxocephala*.

The third and most recent record of Longnose Darter was obtained from a website of fishes collected during routine monitoring by the Oklahoma Water Resources Board (OWRB) (<http://owrb.maps.arcgis.com/apps/webappviewer/index.html?id=33cca35f06e64c4f8f84fc9bf0228218>), but no voucher specimen was kept (L. Kimmel, University of Central Oklahoma; pers. comm.). As a result, we cannot independently verify the accuracy of this record, but other vouchered specimens from this database (2015P-033 from Poteau River and OWRB2013-006 from Lee Creek) were measured according to the characteristics identified in Table 1 and verified as Longnose Darters, making this record from the Kiamichi River credible. Related, the Poteau River specimen is the first record in this river since impoundment of Wister Reservoir suggesting this population is not extirpated. Whether this specimen represents a remnant population since impoundment or is a result of the translocation from Lee Creek into Blackfork Creek is unknown.

From these records, it seems plausible that a previously undiscovered population of Longnose Darters occurs in the Kiamichi River. This new information, if correct, would benefit management agencies that are tasked with monitoring endangered species. However, because of disagreement in species identification between dichotomous keys and the paucity of records of this species in the Kiamichi River, it is also plausible that these specimens represent anomalies or a misidentification of other common species known to inhabit the system, such as Slenderhead Darter. Because Longnose Darter

Table 1. Table of Longnose Darter (*Percina nasuta*) occurrence records in the Kiamichi River of Oklahoma with identifying characteristics from the Fishes of Oklahoma (Miller and Robison 2004) and Fishes of Arkansas (Robison and Buchanan 1988) taxonomic keys.

Date	Collection	Specimen #	Snout Length/SL (>9 %)	Snout Width/Snout Length < 0.75
1974	TCWC 4191.1	1	9.4*	0.48*
1987	UAIC 07963.13	1	6.8	0.49*
1987	UAIC 07963.13	2	7.3	0.48*
1987	UAIC 07963.13	3	7.5	0.53*
1987	UAIC 07963.13	4	6.1	0.64*
1987	UAIC 07963.13	5	7.4	0.52*
2010	OWRB 2010-007	1	NA	NA

**Percina nasuta* according to taxonomic key

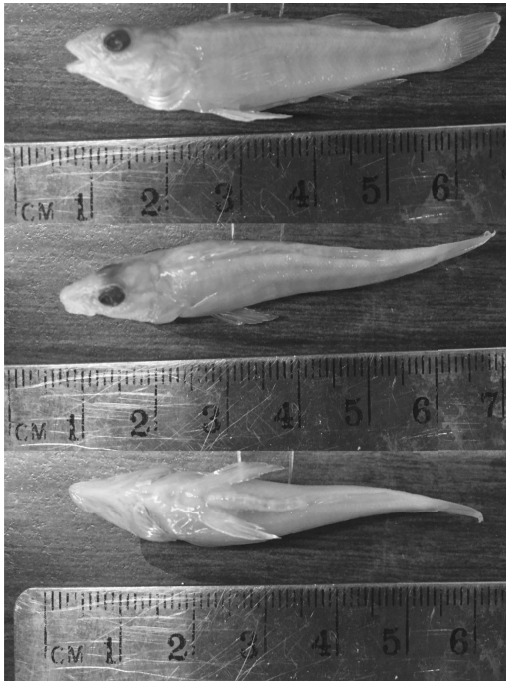


Figure 2. Photographs of a Longnose Darter (*Percina nasuta*) specimen (TCWC 4191.1) from the Kiamichi River of Oklahoma. Photograph courtesy of Heather Prestridge (Texas A&M University).

is state-endangered, correctly documenting their extant range is crucial for proper management. Surveys for Longnose Darters in the Kiamichi River near these collection records would thus be beneficial as would curation of specimens in museum collections that are accessible for verification.

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