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Novel Reproductive Data on Pealip Redhorse, *Moxostoma pisolabrum* (Cypriniformes: Catostomidae), from Northeastern Arkansas

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Cover Page Footnote

The Arkansas Game and Fish Commission issued a Scientific Collecting Permit to CTM and HWR. We thank Dwight Ferguson, commercial fisherman (Black Rock), for collecting the *M. pisolabrum* and providing his site for the processing of fish.

Novel Reproductive Data on Pealip Redhorse, *Moxostoma pisolabrum* (Cypriniformes: Catostomidae), from Northeastern Arkansas

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Running Title: Pealip Redhorse Reproduction

Abstract

Little is known about the natural history of the Pealip Redhorse (*Moxostoma pisolabrum*), particularly on its reproductive biology in Arkansas. We examined 11 female *M. pisolabrum* collected in late February 2020 and 2021 from the Black River, Lawrence County. Egg mass (g) represented 9–14% of the total weight of these gravid females. This is the first time information on female reproduction in this species has been reported from any population of *M. pisolabrum* in the state.

Introduction

The Pealip Redhorse, *Moxostoma pisolabrum* Trautman and Martin, 1951, is a slender sucker with a short head and a distinctive pea-shaped thickening in the middle of the upper lip (Fig. 1). This species was formerly recognized as a subspecies of the Shorthead Redhorse, *Moxostoma macrolepidotum* (Lesueur, 1817). It was elevated to species status by Nelson *et al.* (2004), based on Harris *et al.* (2002). The overall range of this species is watersheds in the Ozark uplands and adjacent areas, in southeastern Kansas, Missouri, Oklahoma, and Arkansas (Miller and Robison 2004;

Robison and Buchanan 2020). In Arkansas, it inhabits clear, gravel-bottomed medium to larger river systems of the state, including the Arkansas, White, and St. Francis drainages (Robison and Buchanan 2020).

Little is known about the reproductive biology of *M. pisolabrum*, including the timing of spawning. Tuberculate males were observed in early March in Crooked Creek, Marion County, Arkansas (Robison and Buchanan 2020). However, nothing is known about reproductive data for females throughout its range. Presumably, reproduction is similar to *M. macrolepidotum* from Kansas and Illinois (Cross 1967; Burr and Morris 1977; Sule and Skelly 1985). In Illinois, *M. macrolepidotum* spawned in mid-May (Burr and Morris 1977). Pflieger (1997) noted that schools of *M. pisolabrum* (reported as *M. macrolepidotum*) were observed on gravelly riffles in the Moreau River of central Missouri during late April. Here, we document novel reproductive information for *M. pisolabrum* from northeastern Arkansas.

Materials and Methods

During 21–22 February 2020 and again between 25–27 February 2021, 11 female *M. pisolabrum* (mean \pm SD total length [TL] = 455.7 \pm 43.4, range 400–540 mm) were collected by a local commercial fisherman with hoop nets from the Black River at Black Rock, Lawrence County (36° 06' 4.3848" N, -91° 05' 7.9224" W). Fish were transferred to large (625 liter) aerated tanks containing habitat water and killed by immersion in a concentrated tricaine methanesulfonate solution. They were weighed on an Ohaus digital scale to the nearest 0.1 g. A mid-ventral incision was made from the lower operculum to the anus. Egg masses were



Figure 1. *Moxostoma pisolabrum* from the Black River. (A) Lateral view showing specimen. (B) Ventral view showing pea-shaped thickening in middle of upper lip (arrow). Photos by CTM.

Pealip Redhorse Reproduction

Table 1. Reproductive data on female *Moxostoma pisolabrum* from the Black River at Black Rock, Lawrence County, Arkansas. Specimens 1-3 were collected in February 2020 and specimens 4-11 were collected in February 2021.

Specimen no.	TL (mm)	Total wt g (lbs)	Egg mass g (lbs)	% of Total wt
1	400	648.6 (1.43)	86.2 (0.19)	13.3%
2	435	907.2 (2.0)	108.9 (0.24)	12.0%
3	464	1,215.6 (2.68)	158.3 (0.35)	13.0%
4	540	1,973.1 (4.35)	231.3 (0.51)	11.7%
5	490	1,274.6 (2.81)	131.5 (0.29)	10.3%
6	485	1,111.3 (2.45)	149.7 (0.33)	13.4%
7	415	707.6 (1.56)	90.7 (0.20)	12.8%
8	405	657.7 (1.45)	77.1 (0.17)	11.7%
9	454	830.1 (1.83)	108.9 (0.24)	13.1%
10	420	743.9 (1.64)	104.3 (0.23)	14.0%
11	505	1,510.5 (3.33)	136.1 (0.30)	9.0%

collected and weighed to the nearest 0.1 g on the same scale. Voucher specimens were photographed.

Results and Discussion

All 11 female *M. pisolabrum* possessed large yolked egg masses (Fig. 2) that ranged in weight from 77.1 to 231.3 g (Table 1). Egg mass accounted for 9 to 14% of body weight, with no apparent relationship to length or weight of the females, though we note our sample size was modest. At the same time, a single tuberculate male *M. pisolabrum* (535 mm TL, 1,388 g) was sexually mature and producing milt.

Although our sample size is modest, we suggest that spawning of *M. pisolabrum* in northeastern Arkansas may occur as early as late February. Additional collections of *M. pisolabrum* in other parts of the state are recommended to add to our knowledge of the natural history of this fish.



Figure 2. Egg mass complement from *Moxostoma pisolabrum*.

Acknowledgments

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Literature Cited

- Burr BM and MA Morris.** 1977. Spawning behavior of the Shorthead Redhorse, *Moxostoma macrolepidotum*, in Big Rock Creek, Illinois. Transactions of the American Fisheries Society 106:80–82.
- Cross FB.** 1967. Handbook of fishes of Kansas. Museum of Natural History, University of Kansas Miscellaneous Publications 45:1–357.
- Harris PM, RL Mayden, HS Espinosa Perez, and F Garcia de Leon.** 2002. Phylogenetic relationships of *Moxostoma* and *Scartomyzon* (Catostomidae) based on mitochondrial cytochrome *b* sequence data. Journal of Fish Biology 61:1433–1452.
- Miller RJ and HW Robison.** 2004. The fishes of Oklahoma. 2nd Edition. University of Oklahoma Press (Norman, OK). 450 p.
- Nelson JS, EJ Crossman, H Espinosa-Pérez, LT Findley, CR Gilbert, R N Lea, and JD Williams.** 2004. Common and scientific names of fishes from the United States, Canada, and Mexico. American Fisheries Society, Special Publication 29 (Bethesda, MD). 386 p.
- Pflieger WL.** 1997. The fishes of Missouri. Missouri Department of Conservation (Jefferson City, MO). 372 p.

Robison HW and TM Buchanan. 2020. Fishes of Arkansas. University of Arkansas Press (Fayetteville, AR). 959 p.

Sule MJ and TM Skelly. 1985. The life history of the Shorthead Redhorse, *Moxostoma macrolepidotum*, in the Kankakee River drainage, Illinois. Illinois Natural History Survey Biological Notes 123:1–15.