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Vertebrate Natural History Notes from Arkansas, 2020

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Cover Page Footnote

The Arkansas Game and Fish Commission (AGFC) issued Scientific Collecting Permits to RT, HWR, and MBC. Thanks are extended to Robert Hrabik, Missouri Conservation Department, for first alerting HWR about the collection of 2 *Perca flavescens* in northern AR and to John Aufderheide and Hamilton Bell for allowing us to cite these records. Information about bats sent to the Arkansas Dept. of Health for rabies testing was supplied by Laura Rothfeldt, Dale Paulson, and David Saugey.

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Vertebrate Natural History Notes from Arkansas, 2020

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Abstract

Smaller details of natural history often go undocumented to science if those details are not parts of larger studies, but small details can provide insights that lead to interesting questions about ecological relationships or environmental change. We have compiled recent important observations of distribution and reproduction of fishes and mammals. Included are new distributional records of mammals, and observations of reproduction in several mammals for which few data exist in Arkansas. A rare record of the long-tailed weasel, a species of special concern in Arkansas, is documented from Newton Co. We also provide evidence that Seminole bats likely reproduce in Arkansas.

Introduction

The constantly changing venues of human-altered environments provide field biologists opportunities to observe adjustments in natural history parameters and relationships among organisms. Although knowledge of distribution and natural history of many species within Arkansas is becoming better documented, much remains to be discovered and reported. We continue to update the state of knowledge of vertebrates of Arkansas vertebrates (see Tumilson *et al.* 2017, references therein, and yearly updates provided in this journal). Here, we include previously unreported

records of distribution and reproduction in vertebrates from Arkansas.

Methods

Fishes were collected with 3.1×1.4 m, 3.1×1.8 m, and 6.1×1.8 m seines (all 3.175 mm mesh), or by hook and line. Fish specimens were documented either by a photo voucher or by specimens housed in the vertebrate collections at the Southern Arkansas University Vertebrate Collection (SAU) in Magnolia, AR. Voucher specimens of fishes were fixed in 10% formalin and preserved in 50% isopropanol. Museum numbers of voucher specimens are reported where available. Localities are reported as GPS (latitude and longitude) coordinates where available, except in the case of new records of bats, for which section, township, and range are reported to protect sensitive specific locality data.

Measurements such as total length (TL) are reported as initially recorded, if they were not taken originally in metric units. This is to avoid distortion by conversion from imprecise to what would appear to be precise distances. Bat records were based on catch/release surveys by expert chiropterologists, or from specimens sent to the Arkansas Department of Health to be tested for rabies.

An internet search through the VertNet Portal produced the reproductive data from the Sam Noble Oklahoma Museum of Natural History.

Results and Discussion

CLASS ACTINOPTERYGII

Hiodontidae – Mooneyes and Goldeyes

Hiodon alosoides (Rafinesque) – **Goldeye**. In Arkansas, the Goldeye is restricted to large rivers, particularly the lower White River and the Mississippi River, although it occurs sporadically in the Red River and in the lower Arkansas River (Robison and Buchanan 2020). Boschung and Mayden (2004) reported that impoundments on large rivers have jeopardized the Goldeye throughout much of its range. On 10 October 1984, a single Goldeye (137 mm TL) was collected from the Red River about 8 km (6 mi.) S of Garland, Miller Co., AR by E. J. Satterwhite. This represents only the fourth record of the Goldeye from the Red River in Arkansas (Robison and Buchanan 2020) and fills in a gap in its known distribution in the Red River.

Percidae - Perches

Perca flavescens (Mitchell) – **Yellow Perch**. The Yellow Perch is native to northern North America, east of the Continental Divide (Robison and Buchanan 2020), and occurs in the Atlantic, Arctic, Great Lakes, and Mississippi River drainages south to Nebraska, Illinois, Ohio, and South Carolina (Page and Burr 2011). It has been widely introduced throughout the United States. Buchanan *et al.* (2000) reported a single specimen of *P. flavescens* collected from the Trimble Creek arm of Bull Shoals Lake in Arkansas in 1999. Floods in 2011 appear to have allowed this fish to escape downstream of Bull Shoals Lake, as specimens were collected in 2011 from the Buffalo River in Marion Co., and the White River in Independence Co. (Connior *et al.* 2013).

On 12 October 2019, 5 specimens of *P. flavescens* (approximate total lengths of 4.5-5 in., 5 in., 6 in., 7 in., and 8 in.) were caught in the White River at “White Hole access” (GPS 36.343518, -92.527367) near Cotter, Marion Co., AR by John Aufderheide and Hamilton Bell. All fish were released after being photographed. The same anglers caught 2 additional specimens (5-6 in.) of the Yellow Perch just upstream of the bend in the White River at Denton Ferry Road, across the river from Stetson's Marina, Baxter Co., AR (GPS 36.351794, -92.534718) on the same date. Current records confirm that this non-native fish has established in the Buffalo and White River drainages in Arkansas.

CLASS MAMMALIA - reproductive data

ORDER RODENTIA

Echimyidae (former Myocastoridae) – Coypu or Nutria

Myocastor coypus (Molina) – **Coypu**. No information exists about field ecology of coypu in Arkansas (Sealander and Heidt 1990). We visited the oxidation ponds 4 km S of Arkadelphia, Clark Co., 47 times from mid-April 2019 through 29 March 2020. Lush vegetation comprised almost entirely of Smooth Bur Marigold (*Bidens laevis*, family Asteraceae) and Floating Marsh Pennywort (*Hydrocotyle ranunculoides*, family Apiaceae) filled one pond of approximately 4.2 ha. We had observed coypu in the pond the previous winter, but we found no coypu through the spring (first trip, 14 April 2019) and summer months of 2019. During this time, we counted up to 16 alligators (*Alligator mississippiensis*), which likely would be the major predators of coypu in the ponds (5 alligators were seen on 14 April).

After onset of colder weather, we saw the first coypu on 14 October, when 16 alligators also were counted. Only 1-2 coypu were seen until 17 November, when 4 coypu and 7 alligators were found. On 27 November and thereafter, alligators were inactive (none seen) but 5 coypu were counted, and on 17 December we observed a female coypu nursing 4 offspring (Fig. 1). About a month later (19 January 2020) approximately 20 coypu were seen. Coypu are known to be nonseasonal breeders, so winter breeding is expected (Woods *et al.* 1992). Density was about 4.2 coypu per ha.



Figure 1. Coypu nursing 4 young on a platform nest in the Arkadelphia oxidation ponds, Clark Co., on 17 December 2019. Photo by RT.

Coypu rested on platform nests constructed of piles of vegetation, which permitted them to get out of the water while distancing themselves from the banks of the pond, and where they rested and fed their offspring. Though numerous offspring were present in the pond, we were able to count only 1 litter of 4 offspring associated with a female on a platform nest. However, several platform nests contained 2-3 coypu, and many of those were juveniles. During our observations, growing juveniles began to occupy their own platform nests.

Foods consumed by the coypu included both of the 2 plants noted, but especially the *H. ranunculoides* which spread across the pond during winter when the *B. laevis* had subsided. In March 2020, with the return of alligators, we noted a decrease in numbers of coypu to almost absence: we could not be sure whether they were consumed by the alligators or dispersed to avoid predation.

CLASS MAMMALIA – reproductive data

The following collects reproductive data on Arkansas mammals gleaned from specimen data in the Sam Noble Oklahoma Museum of Natural History. In some cases, the Arkansas data falls within the range of embryo counts in adjacent states, however, we report them here because no data specific to Arkansas have been reported to date.

ORDER DIDELPHIMORPHIA

Didelphidae - Opossums

Didelphis virginiana Kerr – Virginia opossum. Five opossums collected in Crittenden and St. Francis cos. in early January contained an average of 9.2 young in the pouch (range 6-13). Sealander and Heidt (1990) reported an average of 7-9 young.

ORDER EULIPOTYPHLA

Soricidae - Shrews

Blarina carolinensis (Bachman) – Southern Short-tailed Shrew. One female collected in Sebastian Co. on 22 Jan 1991 contained 6 embryos. Reported embryo counts from Arkansas specimens range from 2-4 (Connior *et al.* 2014a; Tumblison *et al.* 2015).

ORDER LAGOMORPHA

Leporidae - Rabbits

Sylvilagus floridanus (J. A. Allen) – Eastern Cottontail. – Two cottontails collected in Sebastian Co. in early January contained an average of 3.5 embryos (range 3-4). Conaway *et al.* (1974) reported a mean embryo count of 4.1 for the first litter of the year.

ORDER RODENTIA

Geomyidae - Gophers

Geomys breviceps Baird – Baird's Pocket Gopher. Three pocket gophers collected in Pulaski Co. in early January contained an average of 2.3 embryos (range 2-3). Connior *et al.* (2014b) reported an average of 1.8 embryos in northern Louisiana.

Cricetidae – New World Rats and Mice

Oryzomys texensis (Harlan) – Marsh rice rat. Two marsh rice rats collected in Sebastian Co. in early January both contained 2 embryos. This embryo count falls within the range of 2-5 reported by Roehrs *et al.* (2012) from southeastern Oklahoma.

Reithrodontomys fulvescens J. A. Allen – Fulvous Harvest Mouse. Three fulvous harvest mice collected in Sebastian Co. in early January contained an average of 3.7 embryos (range 2-5). Three females reported by Connior *et al.* (2017) also contained an average of 3.7 embryos.

Peromyscus attwateri J. A. Allen – Texas Deermouse. A single Texas deermouse collected in Stone Co. in early January contained 3 embryos. The typical litter size is 3 (Cockrum 1952, Long 1961).

Peromyscus leucopus (Rafinesque) – White-footed Deermouse. Five white-footed deermice collected in Stone Co. in early January contained an average of 2.6 embryos (range 1-4). In northern Arkansas (Marion Co.), 3 females had an average embryo count of 3.3 (Tumblison *et al.* 2015).

Peromyscus maniculatus (Wagner) – North American Deermouse. Five deer mice collected in Sebastian Co. in early January contained an average of 3.8 embryos (range 2-5). Deer mice typically have a litter size of 3-4 (Svihla 1932).

Sigmodon hispidus Say and Ord – Hispid Cotton Rat. Two hispid cotton rats collected in Sebastian Co. in early January contained an average of 4.5 embryos (range 3-6). In northwestern Arkansas (Washington Co.), litter size ranged from 4 to 10, with a mean of 6.6 (Sealander and Walker 1955).

Neotoma floridana (Ord) – Eastern Woodrat. Two woodrats collected in Sebastian Co. in January both contained 2 embryos. Mean litter size is about 3 with a range of 1-7 (Goertz 1970).

Microtus pinetorum (Le Conte) – Woodland Vole. A single female contained 2 embryos in early January in Sebastian Co. In Kansas, 3 females each had 2 embryos (Cockrum 1952).

ORDER CHIROPTERA**Vespertilionidae – Vesper Bats**

***Lasiurus seminolus* (Rhoads) – Seminole Bat.** A female captured on 27 May 2016 in Sec. 7, T8N, R17W, Conway Co., was pregnant. Reproduction by Seminole bats in Arkansas was first inferred based on a recently volant specimen collected 26 July 2011 in Garland Co. (Tumilson *et al.* 2002), and supported by capture of a post-lactating adult female on 24 July 2018 in Hempstead Co. (Tumilson *et al.* 2019). The pregnant specimen herein reported further supports the idea of a reproductive population occurring in Arkansas.

CLASS MAMMALIA – distributional records**ORDER CHIROPTERA**

Unless otherwise indicated, all records of bats are new county records for the species in Arkansas.

Vespertilionidae – Vesper Bats

***Myotis austroriparius* (Rhoads) – Southeastern Myotis.** On 18 August 2018, RR captured an adult male southeastern bat in a mist net placed over a trail in Sec. 6, T6S, R5W, in Jefferson Co. On 1 August 2018, RR captured 4 adult females in a mist net placed on a trail in Sec. 17, T19N, R3E, in Randolph Co.

***Myotis grisescens* A. H. Howell – Gray Myotis.** On 10 September 2019 a male from Maumelle, Pulaski Co., submitted to the Arkansas Department of Health was found to be negative for rabies. This southern extralimital observation is only the second record of this species in Pulaski Co. (Tumilson *et al.* 2016) and like the previous record, was a male found in the late fall and could represent a vagrant migration incident.

***Myotis lucifugus* (Le Conte) – Little Brown Myotis.** On 25 June 2019 a male little brown myotis from Little Rock in Pulaski Co. was submitted to the Arkansas Department of Health and was found to be negative for rabies. While Sealander and Heidt (1990) indicated that a museum specimen was available for this county, no actual record of this specimen or other observations of this species in Pulaski Co. are known to the authors.

***Lasiorycteris noctivagans* (Le Conte) – Silver-haired Bat.** On 20 May 2016 LKB captured an adult male in a mist net in Sec. 23, T9N, R19W, in Pope Co. Also on 20 May 2016, DC captured 4 adult males in a mist net set over a stream in Sec. 9, T8N R17W, in Conway Co. On 9 November 2010, RWP captured an adult male in a mist net placed over a pond in Perry Co., Sec. 36, T2N, R20W.

***Perimyotis subflavus* (F. Cuvier) – Tri-colored Bat.** On 21 July 2016 TI captured an adult male in a

mist net placed on a trail in Sec. 12, T10S, R32W in Sevier Co. On 21 April 2019, MBC found a single tri-colored bat roosting during the day on a concrete underpass of AR Hwy 72 (Fig. 2) in Bentonville (Benton Co.). Although tri-colored bats are known to occupy bridges and culverts, Keeley and Tuttle (1999) reported this species to comprise only 1% of the total number of bats that occupied structures. Because this bat is believed to be very susceptible to white-nose syndrome, records of its roosting patterns are important to understanding the spread and effect of the fungal disease.

***Aeorestes cinereus* (Palisot de Beauvois) – North American Hoary Bat.** On 10 August 2016 ZB captured a juvenile female in a mist net set over a gravel road in Sec. 13, T10N, R23W, in Johnson Co.

On 21 August 2017, RR captured an adult female in a mist net placed over a stream in Sec. 23, T21N, R28W, in Benton Co.

***Lasiurus seminolus* (Rhoads) – Seminole Bat.** On 26 and 27 May 2016, RS captured a single adult female Seminole bat each night in a mist net set over a dirt road in Sec. 7, T8N, R17W, in Conway Co. On 9 November 2010, RWP captured an adult male Seminole bat in a mist net placed over a pond in Perry Co., Sec. 36, T2N, R20W.

Molossidae – Free-tailed Bats

***Tadarida brasiliensis* (I. Geoffroy) – Brazilian Free-tailed Bat.** On 16 August 2018, RR captured an adult male in a mist net placed over a stream in Sec. 7, T5S, R6W, in Arkansas Co. On 15 May 2019, about 200 Brazilian free-tailed bats were discovered by TI and LL roosting under a joint of the Old Clarendon Bridge over the White River in Monroe Co.



Figure 2. Tri-colored Bat (*Perimyotis subflavus*) roosting singly under a concrete overpass, Benton Co. Photo by MBC.

ORDER RODENTIA**Cricetidae – New World Rats and Mice*****Oryzomys palustris* (Harlan) – Marsh *Oryzomys*.**

On 5 June 2017, a marsh oryzomys was collected 1.5 km N Morrilton, Conway Co. (35.19307N, 92.7125471W, WGS 84). The specimen (Arkansas State University Museum of Zoology, ASUMZ mammal catalog 28540) was collected incidentally, crushed within the GI tract of a small western ratsnake (*Pantherophis obsoletus*; ASUMZ herp catalog 33752) that was DOR. This is a new county record for this rodent (Sealander and Heidt 1990).

ORDER CARNIVORA**Mustelidae – mustelids**

***Mustela frenata* Lichtenstein – Long-tailed Weasel.** This carnivorous mustelid is considered rare at local and regional scales, and is classified by the Arkansas Game and Fish Commission as a species of greatest conservation need (Fowler 2015). A recent statewide survey produced a single observation at a heavily sampled site (Johnston *et al.* 2019). As part of a large-scale field research effort on plains spotted skunk (*Spilogale putorius interrupta*), SDH conducted a baited camera trap survey (Higdon and Gompper 2020) in mixed oak-hickory and oak-pine forests in the Ozark National Forest and Gene Rush Wildlife Management Area. During 8,119 trap nights, we photo-captured one long-tailed weasel (Fig. 3) on 9 April 2017 at 0217 hr, resulting in a capture success rate of 0.01%. The site in Newton County (GPS 35.85525, -92.94611) had canopy cover and low-lying understory cover of 62.75% and 96%, respectively. Low rate of capture of long-tailed weasel in our survey reiterates the rarity of the species in the Ozark ecoregion of Arkansas.



Figure 3. Long-tailed Weasel (*Mustela frenata*) photo-captured in Newton Co. on 9 April 2017.

Acknowledgments

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