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## Vertebrate Natural History Notes From Arkansas, 2015

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# Vertebrate Natural History Notes From Arkansas, 2015

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## Vertebrate Natural History Notes from Arkansas, 2015

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### Abstract

Many important details of vertebrate biology are unknown to the scientific community because the observations are not part of a larger theoretical study. Yet, knowledge of such details not only fills gaps in understanding but also creates a framework for hypothesis building. We have collected observations of importance that can add to the growth of knowledge. Compiled here are important recent observations representing all vertebrate classes in Arkansas.

### Introduction

Although vertebrates are a commonly studied group of animals, the distribution and natural history of many species within Arkansas is still not well understood or documented. We have been developing a series of articles to update the state of knowledge of the natural history of Arkansas's vertebrates (e.g. Tumilson et al. 1992, Tumilson and Robison 2010, Connior et al. 2011, 2012, 2013, 2014b). We augment current literature with new records of distribution and provide notes on the natural history of selected vertebrates from Arkansas. Herein we include previously unreported records of distribution, reproduction, parasites, and other aspects of natural history of the vertebrates of Arkansas.

### Methods

We collected fishes by use of  $3.1 \times 1.8$  m or  $6.1 \times 1.8$  m seines with 3.2 mm mesh. Specimens of fishes, amphibians and reptiles were preserved in 10% formalin and stored in 45% isopropanol. We report localities as section (Sec.) township (T), and range (R),

or as latitude and longitude values.

Bat records are based on identification of specimens sent to the Arkansas Department of Health for rabies testing or from field records of mist-netting activities (Arkansas Game and Fish Commission [AGFC] cave bat database records and AGFC mist netting operations), with release of captured animals on site following data collection. Observers names (initials if one of the authors) are provided in select accounts.

All vertebrate voucher specimens (physical or photographic) are deposited in the Southern Arkansas University Vertebrate Collection (SAU) in Magnolia or the vertebrate collections at Henderson State University (HSU). Voucher ectoparasite specimens are deposited in the General Ectoparasite Collection in the Department of Biology at Georgia Southern University.

### Results and Discussion

#### CLASS ACTINOPTERYGII

##### *Cyprinidae – Carps and Minnows*

*Cyprinella galactura* (Cope) – Whitetail Shiner. Five specimens of *C. galactura* were collected by HWR and CTM on 23 July 2014 from Crooked Creek at Kelly's Slab, ca. 12.9 km W of Yellville, Marion Co. (Sec. 6, T18N, R16W), including 2 tuberculate males and 3 gravid females. Pflieger (1997) reported that this shiner spawns from early June to mid-August in Missouri. In Arkansas we have little information on breeding times of this cyprinid. The discovery of these breeding specimens infers a similar spawning period for *C. galactura* in Arkansas.

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*Hybopsis amblops* (Rafinesque) – Bigeye Chub. McAllister et al. (2009, 2010) reported a new occurrence of the Pallid Shiner, *Hybopsis amnis*, from the lower Strawberry River, Lawrence Co., Arkansas. However, subsequent examinations by one of the authors of the original paper (WCS) revealed the single specimen (North Carolina State Museum 47146) to be *Hybopsis amblops*, a species previously known from the Strawberry River system (Robison and Buchanan 1988), though most records are from more upland portions of the system.

*Notropis sabiniae* Jordan and Gilbert – Sabine Shiner. Green and Beadles (1974) surveyed the fishes of the Current River, but did not report *N. sabiniae*. Two specimens of *N. sabiniae* were taken on 4 April 2014 from the Current River over a sandbar at Cox Road NW of Biggers, Randolph Co. (Sec. 26, T20N, R2E). These specimens represent the first documented record of the uncommon Sabine Shiner from the Current River system (Robison and Buchanan 1988).

*Opsopoeodus emilae* Hay – Pugnose Shiner. This common lowland shiner was not listed by Green and Beadles (1974) in their study of the fishes of the Current River in Arkansas. On 4 April 2014 a single specimen of *O. emilae* was collected over a sandbar on the Current River at Cox Road NW of Biggers, Randolph Co. (Sec. 26, T20N, R2E). Because the river was high and turbid at the time from recent rains, this specimen may represent a waif from a nearby tributary stream. This specimen is the first documented record of the Pugnose Shiner from the Current River system (Robison and Buchanan 1988).

*Pimephales tenellus* (Girard) – Slim Minnow. Robison and Buchanan (1988) mapped the statewide distribution of the Slim Minnow. Two specimens of this rarely encountered cyprinid were collected from the Spring River at Imboden, Lawrence Co. (Sec. 15, T18N, R2W) on 16 June 1999 by HWR. Previous surveys had not detected this species in the Spring River system (Winters, 1985; Robison and Buchanan, 1988), so this is the first report of its occurrence.

*Pteronotropis hubbsi* (Bailey and Robison) – Bluehead Shiner. On 5 July 1996, RT collected this species at 3 locations in Ashley Co., which represents a new county record (Robison and Buchanan 1988). Two locations were near the Saline River: at a slough off of Saline River, 14.5 km (ca. 9 mi.) NW of Crossett, Sec. 4, T17S, R9W; and Thompson Creek, 11.3 km (7 mi.)

NW of Crossett, Sec. 11, T17S, R9W. On 11 April 1997, specimens also were taken from the Ouachita River 10.5 km (6.5 mi.) W of Crossett off U.S. Hwy 82, Sec. 14, T18S, R10W. The AGFC currently treats this fish as a Species of Special Concern.

***Esocidae – Pikes and Mudminnows***

*Esox niger* Lesueur – Chain Pickerel. Robison and Buchanan (1988) stated the Chain Pickerel was most abundant in streams and lakes of the Coastal Plain lowlands in southern and eastern Arkansas, although it did penetrate somewhat above the Fall Line in streams of the Ouachita Mountains and to a lesser extent in streams above the Ozark Mountains boundary. They also noted this species was virtually absent from most of the Ozarks and the upper Arkansas River drainage. We report 2 new records of *E. niger* in northern Arkansas. The first is a single specimen (363.2 mm TL) collected from the lower Strawberry River at AR St. Hwy 361 in Lawrence Co. ca. 3.2 km E of Saffell (Sec. 30, T15N, R2W) on 20 June 1996. The discovery of *E. niger* is noteworthy as it is the first documented occurrence of this species from the Strawberry River system (Robison and Harp 1971, Robison and Beadles 1974) and brings to 110 the number of fish species recorded from the Strawberry River system, making it one of the richest river systems in the central United States. The second recent record in NE Arkansas is of a single specimen taken on 21 April 2014 using a "Missouri Trawl" in the Little River drainage (35.997797°N, -90.090248°W), Mississippi Co. (Robert Hrabik, *pers. comm.*).

***Ictaluridae – Catfishes***

*Noturus eleutherus* Jordan – Mountain Madtom. Six adult (46-52 mm TL) Mountain Madtoms were collected from the Little Missouri River at the Nubbin Hill Access, Nevada Co. on 27 November 2014 by CTM using a backpack electroshocker. This represents the first record of *N. eleutherus* from this upstream region of the Little Missouri River as previous records are 26 km to the southeast near the northern end of White Oak Lake (Robison and Buchanan 1988). Habitat consisted of rock and gravelly substrate without aquatic vegetation in midstream (depth = 0.9 m) over a moderately flowing river without riffles.

***Aphredoderidae – Pirate Perch***

*Aphredoderus sayanus* (Gilliams) – Pirate Perch. We report 2 new populations of *Aphredoderus sayanus*. Pirate Perch are typically lowland fishes (Robison and Buchanan 1988), thus its discovery in an

upland habitat is surprising. On 5 April 2014, 6 specimens were collected from a dense population of *A. sayanus* in a large spring at Spring Mill off AR St. Hwy 69 in James Switch, Independence Co. (Sec. 27, T14N, R7W). An additional specimen running mill was captured on 6 April 2014 off AR St. Hwy 31 in Mill Creek at Floyd Baptist Church, White Co.

#### **Fundulidae – Topminnows**

*Fundulus catenatus* (Storer) – Northern Studfish. *Fundulus catenatus* is an upland topminnow that typically feeds on insects and small molluscs (Robison and Buchanan 1988). Few observations are available of the foods of this topminnow in Arkansas. On 23 July 2014, an adult female *F. catenatus* (110 mm TL) was captured by HWR and CTM from Crooked Creek at Kelly's Slab, ca. 12.9 km W of Yellville, Marion Co. (Sec. 6, T18N, R16W). The stomach contained a 45 mm TL Duskystripe Shiner, *Luxilus pilsbryi*. This appears to be the first report of *F. catenatus* feeding on another fish. A single crayfish (*Orconectes* sp.) was found in stomachs of each of 2 additional *F. catenatus* from the same site. One specimen of a terrestrial hemipteran, *Melanolestes picipes* Herrich-Schaeffer (Family Reduviidae), was in one of the stomachs. The female *F. catenatus* was full of ripe eggs indicating imminent spawning.

*Fundulus chrysotus* (Gunther) – Golden Topminnow. The Golden Topminnow is not collected commonly in southern Arkansas. We report 3 new populations of this lowland species. Two *F. chrysotus* were taken on 7 April 2014 off AR St. Hwy 11 from Long Lake (an oxbow) at Woodville, Lincoln Co. (Sec. 10, T7S, R6W). Five additional specimens of *F. chrysotus* were collected on 27 June 2014 from Cane Creek Lake at the boat ramp, Lincoln Co. (33.916525°N, -91.76517°W). On 29 June 2014, 5 *F. chrysotus* were taken from Silver Lake (an old oxbow off Arkansas River) at AR St. Hwy 212, NE of Dumas, Desha Co. (Sec. 30, T8S, R3W).

#### **PERCIDAE – True Perches**

*Ammocrypta clara* Jordan and Meek – Western Sand Darter. Green and Beadles (1974) surveyed the fishes of the Current River, but did not list *A. clara* among the fishes. A single specimen of this uncommon darter was captured on 4 April 2014 from the Current River at a sandbar off Cox Road NW of Biggers, Randolph Co. (Sec. 26, T20N, R2E). This is the first documented occurrence of *A. clara* occurring in the Current River system (Robison and Buchanan

1988).

*Etheostoma artesia* (Hay) – Redspot Darter. The Redspot Darter was elevated from subspecies designation (*E. whipplei artesia*) by Piller et al. (2001). This lowland darter is a rather uncommon percid in southern Arkansas, inhabiting streams of the Coastal Plain. On 15 September 1995, a single specimen was captured by HWR and SAU students from Bayou Bodcau at a gravel road bridge 8.0 km N of Stamps, Lafayette Co. (Sec. 17, T15S, R24W). This specimen is the first record of this darter from the Bayou Bodcau drainage system in southern Arkansas.

#### **CLASS AMPHIBIA**

##### **Ranidae – True Frogs**

*Lithobates areolatus circulosus* (Rice and Davis) – Northern Crawfish Frog. The Northern Crawfish Frog inhabits extreme northwestern Arkansas through the Arkansas River Valley and to the southeastern corner of the state (Trauth et al. 2004). Knowledge regarding its ecology and reproduction are limited due to its secretive habits. In southeastern Arkansas (the campus of UAM in Drew Co.), males arrived at the breeding areas as early as January after rains, and females and amplexant pairs were observed on 23 February (Bacon and Anderson 1976). At that location, the height of the breeding season was during February though a few individuals called through March (Bacon and Anderson 1976). Trauth et al. (1990) reported calling males from late February to early April, but did not disclose any locality information. We report on breeding biology in northwestern Arkansas during late winter 2015. MBC discovered several breeding areas in the vicinity of Maysville (Benton Co.) after rains on 14 March 2015. Only 2 sites were sampled (Figure 1), since all land in the area is privately owned.

At Site 1, several males were calling but only 1 female was seen on 14 March. At a nearby locale (Site 2), 2 amplexic pairs were observed on 15 March. On 16 March, 2 amplexic pairs and ~15 males were calling at Site 1 and males but no amplexic pairs were observed at Site 2. Numerous other breeding choruses were heard in the nearby area including across the Oklahoma border. The area around Maysville is a matrix of pastureland and agricultural land and seems to provide ample habitat to support a large population of crawfish frogs. At this area, the breeding season seems to occur in March. Bragg (1953) reported crawfish frogs breeding in adjacent northeastern Oklahoma during March and April.

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Figure 1. A) *Lithobates areolatus* breeding site near Maysville (Benton Co.), Arkansas in a cattle pasture (Site 1). B) *Lithobates areolatus* breeding site near Maysville (Benton Co.), Arkansas in a roadside ditch (Site 2). Note: these images were taken on 2 April 2015, ca. 2 weeks after the breeding choruses were observed, and the water level is lower than during the breeding event.

## CLASS REPTILIA

### Dactyloidae – Anoles

*Anolis carolinensis* (Voigt) – Northern Green Anole. On 3 June 2014, MBC discovered an adult male (SVL 63 mm) from South Arkansas Community College West Campus, 0.5 km S Center of El Dorado, Union Co., that had a bifurcated tail (Figure 2). Tail bifurcation, although rare, is known to occur in various lizards (see Trauth et al. 2014 and references therein). However, this is the first report of tail bifurcation of a lizard occurring in Arkansas.

*Thamnophis proximus proximus* (Say) – Western ribbon snake. An adult female (HSU Collection 1744, snout-vent length [SVL] = 535 mm) was captured 30 June 2014 from Long Lake at Woodville off AR St. Hwy 11, Lincoln Co. (34.123155°N, -91.690684°W). A total of 17 embryos was found and 13 removed from embryo sacs and measured: mean SVL =  $132.5 \pm 2.2$

SD), range 130-137 mm. The remaining yolk masses were approximately 20 mm in diameter.

Trauth et al. (1994) reported a mean clutch size of 19.5 ( $n = 17$ , range 8-34 eggs) for Arkansas specimens, which was higher than reported in adjoining states. In Louisiana, Oklahoma and Texas, Fitch (1985) reported an average litter size of 11.6 ( $n = 4$ , range 4-24). In Texas, litters of 4-27 (mean 10-15) were reported (Werler and Dixon 2000). Our count from this individual snake is consistent with the higher clutch size reported for Arkansas specimens.



Figure 2. *Anolis carolinensis* exhibiting a bifurcated tail from Union Co., Arkansas.

*Nerodia cyclopion cyclopion* – Mississippi Green Water Snake. An adult female *N. c. cyclopion* (SVL = 750 mm) was captured by hand on 30 June 2014 from Cane Creek State Park off AR St. Hwy 11, Lincoln Co. (33.9166°N, -91.7657°W). A total of 13 embryos was found, and 3 were removed from the embryo sacs and each measured about 50 mm SVL. Intact embryo sacs ranged between 25-28 mm in diameter.

Based on only 3 specimens, Trauth et al. (1994) reported an average clutch size of 18.3 (range 8-34) for this uncommon snake in Arkansas. However, in the adjoining states of Louisiana, Oklahoma and Texas, Fitch (1985) reported a smaller average litter size of 11.6. Our count from this individual snake is consistent with the higher clutch size reported for Arkansas specimens.

### Emydidae – Box and Freshwater Turtles

*Terrapene triunguis* (Agassiz) – Three-toed Box Turtle. Forms, excavated in soil or leaf litter, are used by box turtles to conceal themselves. One unusual form was discovered by MBC from vic. El Dorado, Union Co. that was used by at least 2 individual three-toed box turtles. On 4 September 2014, an adult male (carapace length [CL] 114.8 mm) was discovered occupying a form excavated in a metal hubcap filled



with leaf litter (Figure 3). On 12 September and again on 14 September 2014, another male (CL 102.2 mm) was found using the same form. Forms are not defended by resident turtles and multiple turtles may use the same form on sequential days (Dodd 2001). We suspect that this form was occupied by these turtles because the hubcap retained water and provided a moist environment in an otherwise more arid habitat.



Figure 3. Adult male Three-toed Box Turtle, *Terrapene triunguis* using an abandoned hubcap as a form.

## CLASS AVES

### *Hirundinidae* – Swallows and Martins

*Petrochelidon pyrrhonota* (Vieillot) – Cliff Swallow. The known breeding range of Cliff Swallows in Arkansas is extended northward in deltaic eastern Arkansas by 2 new county records (Connior et al. 2011). An expanded breeding range has been augmented by construction of concrete bridges that provide suitable attachment surfaces for mud nests (Tumilson 2007, 2009).

Jefferson Co.: On 3 July 2014, several dozen nests of Cliff Swallows were found under an overpass E of Pine Bluff, where US Hwys 425 and 63 intersect (GPS 34.20137°N, -91.96698°W).

Arkansas-Monroe counties: A check under the AR St. Hwy 1 bridge over the White River near St. Charles on 30 October 2014 revealed several nests of Cliff Swallows. These occurred on all-concrete construction at the tops of support pylons.

## CLASS MAMMALIA

### *Soricidae* – Shrews

*Blarina brevicauda* (Say) – Northern Short-tailed Shrew. A single adult female flea (*Doratopsylla*

*blarinae*) was collected from an adult *B. brevicauda* in Searcy Co. on 30 Aug. 2014. This appears to be the first report of an ectoparasite from *B. brevicauda* from Arkansas. However, this flea is a common ectoparasite of shrews and has been collected from the same host species in Missouri (Kollars et al. 1997) and from *B. carolinensis* from Arkansas (Connior et al. 2014a).

*Blarina carolinensis* (Bachman) – Southern Short-tailed Shrew. Three pregnant females collected 7-15 February 2013 in Union Co. had embryo counts of 2, 3, and 4. Connior et al (2014b) reported 3 embryos from a single female from this population. Embryo counts for this species range from 2-6 (McCay 2001).

### *Sciuridae* – Squirrels

*Tamias striatus* (L.) – Eastern Chipmunk. One pregnant female collected from Marion Co. on 18 February 2013 contained 4 embryos. This coincides with spring breeding occurring in February, and reported average embryo counts of 4 to 5 (Snyder 1982).

### *Cricetidae* – New World Mice

*Peromyscus attwateri* J.A. Allen – Texas Mouse. Little is known regarding reproduction of Texas mice in Arkansas, excepting Cockrum's (1952) report of lactating females in April and October from northwestern Arkansas. We collected 1 pregnant female from Searcy Co. that contained 4 embryos on 31 August 2014.

The flea *Orchopeas leucopus* was also collected from this population from 3 individuals on 17 January 2015. Although *O. leucopus* is a common flea of *Peromyscus* spp. and some other small mammals, this is the first report of this species from *P. attwateri*. In fact, only 1 species of ectoparasite, the laelapid mite *Androlaelaps fahrenheitzi* (reported under the synonym *Haemolaelaps glasgowi*), has been reported from *P. attwateri*, from Kansas (Long 1961) with no collections from Arkansas.

*Peromyscus leucopus* (Rafinesque) – White-footed Mouse. Three pregnant females with embryo counts of 3, 3, and 4 were collected vic. Mull, Marion Co. on 18 February 2013, which are typical litter sizes. We also collected the following ectoparasites from individuals in this population: an American dog tick (*Dermacentor variabilis*) larva and 2 fleas (*Orchopeas leucopus* and *Eptedia wenmanni*). Immature stages (larvae and nymphs) of *D. variabilis* are common parasites of small mammals in eastern North America (Kollars et al. 1997) and this tick recently was reported from Arkansas by McAllister et al. (2013) from *Sciurus*

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*niger*. Both fleas, *O. leucopus* and *E. wenmanni* and the tick, *D. variabilis*, have been reported previously from *P. leucopus* (Durden and Wilson 1991, Whitaker and Mumford 2009).

*Ochrotomys nuttalli* (Harlan) – Golden Mouse. Two pregnant females collected from Union Co. had embryo counts of 2 (7 February 2013) and 3 (5 February 2013), consistent with Linzey's (1968) mean litter size of 2.65. The tick, *D. variabilis*, the flea, *Ctenophthalmus pseudagyrtis*, and the laelapid mite, *Androlaelaps fahrenheitzi* were collected from individuals in this population. These are common ectoparasites and have been reported previously from golden mice in other states, but these are the first ectoparasite records from this host in Arkansas (see Durden 2008 for review). Connor et al. (2014a) recently reported the flea *C. pseudagyrtis* from the shrew *Blarina carolinensis* and the eastern mole, *Scalopus aquaticus* in Arkansas.

*Sigmodon hispidus* Say and Ord – Hispid Cotton Rat. One adult male collected 9 February 2015 from Marion Co. was parasitized by immatures of the tick, *D. variabilis*, and adults of the flea, *C. pseudagyrtis*. Both of these species have been reported previously from *S. hispidus* (Clark and Durden 2002, Kollars et al. 1997) and from Arkansas.

*Neotoma floridana* (Ord) – Eastern Woodrat. One female collected in Polk Co. on 21 January 2012 was pregnant (embryo count was not recorded but the largest embryo was 19.8 mm in length). This provides evidence that woodrats reproduce during the winter at least in southern Arkansas. A single species of chigger mite, *Euschoengastia peromysci* was collected from this Polk Co. population, and a single species of laelapid mite, *A. fahrenheitzi*, was collected from a woodrat from Union Co. on 8 February 2013. This chigger species has not been recorded previously from Arkansas but it has been recorded as an ectoparasite of *N. floridana* from some other states (Walters et al. 2011). *Androlaelaps fahrenheitzi* is a common laelapid mite that parasitizes many species of North American mammals (Whitaker et al. 2007) and has been reported from eastern woodrats in other states previously (Durden et al. 1997).

*Microtus pinetorum* (Le Conte) – Woodland vole. One adult female captured in a pitfall trap in IZard Co. on 3 April 2008 had 2 young traveling with her; each weighed 4 g and were 45 mm in total length. These

young probably were only ~1-2 weeks old based on developmental and size descriptions of woodland voles (Smolen 1981).

**Vespertilionidae – Vesper Bats**

The following represent new county records of bats in Arkansas.

*Corynorhinus rafinesquii* (Lesson) – Rafinesque's Big-eared Bat. Conway Co.: a pregnant adult female captured by DBS on 22 May 2014 in a mist net set over a road in Sec. 4, T7N, R17W.

Faulkner Co.: 3 new records, including a male submitted for rabies testing from Conway on 2 September 1982, an adult male submitted for rabies testing from Greenbrier on 17 June 2002, and an adult male brought by a cat to a house in Mayflower and submitted for rabies testing on 25 July 2014.

*Corynorhinus townsendii ingens* Handley – Ozark Big-eared Bat. Boone Co.: 1 male bat observed by G. O'Hagan in a cave in Sec. 32, T20N, R18W on 14 May 1979. He observed another male in a cave in Sec. 10, T19N, R19W on 14 May 1979.

Franklin Co.: a single bat observed by WL Puckette in a crevice cave in Sec. 8, T11N, R27W on 11 June 1996, and a single bat he observed in another crevice cave in Sec. 12, T11N, R28W on 24 July 1996.

*Eptesicus fuscus* (Palisot de Beauvois) – Big Brown Bat. Arkansas Co.: an adult male submitted from St. Charles for rabies testing on 6 June 2013.

Grant Co.: new records are from individuals submitted for rabies testing. An adult male from 6 May 2002 and an adult female from 3 September 2002 originated from Sheridan. Also submitted from Grant Co. were an adult female collected 10 January 2012 and an adult female collected 10 April 2012.

Miller Co.: specimens submitted for rabies testing included an adult male submitted on 21 July 2005 and an adult male from Texarkana submitted on 28 March 2006.

*Lasiurus noctivagans* (Le Conte) – Silver-haired Bat. Boone Co.: an adult female submitted for rabies testing on 12 January 2012.

Monroe Co.: an adult female from Holly Grove submitted on 3 January 2008.

*Lasiurus borealis* (Müller) – Eastern Red Bat. Poinsett Co.: individuals submitted for rabies testing included an adult female and 3 juvenile females from Trumann sent 28 June 1991, and 1 juvenile female



submitted on 2 July 2008.

*Lasiurus seminolus* (Rhoads) – Seminole Bat. Saline Co.: 1 rabid adult male from Benton, submitted for rabies testing on 3 October 2002.

Scott Co.: during the Southeastern Bat Diversity Network Ouachita Bat Blitz, MK Clark captured 1 adult male in a mist net set over a pond on 1 August 2005 in Sec. 8, T2N, R28W.

Woodruff Co.: an adult female from Augusta submitted for rabies testing on 23 August 2002.

*Myotis austroriparius* (Rhoads) – Southeastern Myotis. Miller Co.: an adult female submitted for rabies testing on 28 June 2005.

Ouachita Co.: this bat was found by DAS and DBS in an old water well in Sec. 20, T11S, R18W, which sheltered this species on numerous occasions – 8 January 1999 (1 male), 17 December 1999 (1 male), 28 December 2009 (1 male and 2 females), and 22 March 2010 (2 males, 2 females, and 1 bat that escaped before its sex could be determined).

Pulaski Co.: an adult female was submitted for rabies testing on 1 August 2008.

*Myotis grisescens* A. H. Howell – Gray Bat. Cleburne Co.: an adult male submitted from Tumbling Shoals for rabies testing on 5 September 2013.

Franklin Co.: 2 of these bats were observed by WL Puckette in a crevice cave in Sec. 8, T11N, R27W on 3 January 1997, and he observed 2 in the same cave on 28 December 2004.

Marion Co.: 2 individuals were observed by G. O'Hagan in Blue Heaven Cave on 7 October 1978, and he captured 8 males in a mist net placed in the entrance of this cave on 13 June 1980. A maternity colony of an estimated 12,000 bats was observed by MJ Harvey in Summer Cave on 14 July 1982.

Izard Co.: 5 individuals were observed by DBS in a cave in Sec. 22, T16N, R8W on 7 March 2007.

*Myotis septentrionalis* (Trouessart) – Northern Long-eared Bat. Pulaski Co.: an adult female found alive hanging on an outside wall of the Arkansas Department of Health headquarters building in Little Rock was submitted for rabies testing on 4 September 2014.

Sevier Co.: an adult female brought to a cat owner's porch in Gillham, submitted for rabies testing on 24 July 2014.

*Myotis sodalis* Miller and G. M. Allen – Indiana Bat. Franklin Co.: on 2 January 1998, WL Puckette

observed 110 individuals of this Federally endangered species in a crevice cave in Sec. 8, T11N, R27W. He observed another individual in a nearby crevice cave in this section on this same date.

Marion Co.: on 10 November 1979, 5 of these bats were observed by G. O'Hagan in Elm Cave.

Sharp Co.: on 5 August 1980 a single male was observed by MJ Harvey in Morris Cave.

*Perimyotis subflavus* F. Cuvier – Tricolored Bat. This bat is now known from several new counties based on both submission for rabies testing and records gleaned from journals of mist-netting activities.

Carroll Co.: a juvenile female from Berryville was submitted for rabies testing on 10 September 1993, and another female was submitted on 18 September 2001. Also, a female from Green Forest submitted for rabies testing on 10 August 1999 was rabid.

Crawford Co.: a single Tricolored bat was observed by WL Puckette in a crevice cave in Sec. 11, T12N, R33W on 24 December 1996.

Faulkner Co.: an adult male was submitted for rabies testing on 30 September 1993, an adult female was submitted on 6 November 2002, another adult female on 17 September 2003, and a rabid adult female on 11 June 2004. All of these originated from Conway. Also, an adult female was submitted from Faulkner Co. on 31 May 2005.

Lafayette Co.: an adult male was captured by DAS inside a water well in Sec. 10 T17S, R23W on 2 January 2014.

Logan Co.: On 4 December 2004 DAS observed a male Tricolor Bat in a shelter cave, and on 22 January 2005 he found 3 in one crevice cave and 9 in another crevice cave on 12 March 2005, all on Magazine Mountain in Sec. 21, T6N, R25W (Saugey 2005).

Scott Co.: mist netting produced several records of this bat. On 1 August 2005, a juvenile female, an adult male, and a juvenile male were captured over a creek in Sec. 4, T2N, R30W, by L. Gatens as part of the Southeastern Bat Diversity Network Ouachita Bat Blitz. During the same bat blitz and on the same date, a juvenile female was captured by J. Szewcak in a mist net set over a creek in Sec. 12, T2N, R31W. An adult male was captured by DBS over a creek in Sec. 15, T4N, R27W on 2 August 2005. A juvenile male, an adult male, and a Tricolored Bat that escaped before its sex could be determined were captured by J. Szewcak during the bat blitz, over a creek in Sec. 28, T4N, R27W on 2 August 2005.

Van Buren Co.: 2 juvenile males were captured by DBS over the Little Red River in Sec. 26, T11N,

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R16W on 8 August 2005. An adult male was submitted for rabies testing on 15 April 2008.

Yell Co.: 1 adult male was captured by JL Jackson on 5 August 2003, during the Southeastern Bat Diversity Network Ouachita Bat Blitz, over a stream in Sec. 13, T2N, R25W. Also during the bat blitz, 1 adult female was captured over a stream in Sec. 14, T2N, R25W, by DA Miller on 6 August 2003.

**Mollosidae – Free-tailed Bats**

*Tadarida brasiliensis* (I. Geoffroy) – Brazilian Free-tail Bat. Cleburne Co.: an adult male was submitted for rabies testing on 12 August 2011.

Jefferson Co.: rabies testing of individuals submitted from a school in Pine Bluff on 10 April 2013 revealed 1 rabid adult male, 9 non-rabid adult females, and 11 non-rabid adult males.

Pope Co.: an adult female was submitted on 29 May 2009, an adult female was submitted on 7 February 2012, and an adult male from Russellville was submitted on 19 March 2014.

Union Co.: an adult female was submitted for rabies testing on 9 March 2009.

**Mustelidae – Weasels and allies**

*Mustela frenata* Lichtenstein – Long-tailed Weasel. Sealander and Heidt (1990) indicated that this species occurs statewide, but did not indicate any specimen records and commented that it is rare. A male specimen was captured in a chicken house near Rye, Bradley Co., in December 2013. Standard measurements were: total length, 420 mm; tail length, 140 mm; hind foot length, 43 mm; and ear length, 22 mm.

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