

2014

## Natural History Notes and Records of Vertebrates from Arkansas

M. B. Connior

*South Arkansas Community College, mconnior@nwacc.edu*

R. Tumlison

*Henderson State University*

H. W. Robison

C. T. McAllister

*Oklahoma State College*

D. A. Neely

*Tennessee Aquarium*

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### Recommended Citation

Connior, M. B.; Tumlison, R.; Robison, H. W.; McAllister, C. T.; and Neely, D. A. (2014) "Natural History Notes and Records of Vertebrates from Arkansas," *Journal of the Arkansas Academy of Science*: Vol. 68 , Article 24.

Available at: <http://scholarworks.uark.edu/jaas/vol68/iss1/24>

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## Natural History Notes and Records of Vertebrates from Arkansas

M.B. Connior<sup>1\*</sup>, R. Tumilson<sup>2</sup>, H.W. Robison<sup>3</sup>, C.T. McAllister<sup>4</sup>, and D.A. Neely<sup>5</sup>

<sup>1</sup>Health and Natural Sciences, South Arkansas Community College, El Dorado, AR 71730

<sup>2</sup>Department of Biology, Henderson State University, Arkadelphia, AR 71999

<sup>3</sup>9717 Wild Mountain Drive, Sherwood, AR 72120

<sup>4</sup>Division of Science and Mathematics, Eastern Oklahoma State College, Idabel, OK 74745

<sup>5</sup>Tennessee Aquarium, Chattanooga, TN 37402

\*Correspondence: mconnior@southark.edu

Running Title: Natural History Notes and Records of Vertebrates from Arkansas

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. However, recently several new distribution and natural history notes have been published in a continuing series regarding Arkansas's vertebrates (e.g. Tumilson and Robison 2010, Connior et al. 2011, Connior et al. 2012, Connior et al. 2013). Thus, we continue to augment current literature with new records of distribution and provide notes on the natural history of selected vertebrates from Arkansas. All specimens (physical or photographic) are deposited in the vertebrate collections at Arkansas State University (ASUMZ), Henderson State University (HSU), or Auburn University (AUM; currently unaccessioned with DAN field numbers).

### CLASS ACTINOPTERYGII

*Noturus exilis* Nelson – Slender Madtom. The slender madtom is widely distributed throughout the White and Arkansas River systems and inhabits small to medium-sized, permanent, spring-fed streams (Robison and Buchanan 1988). Robison and Buchanan (1988) reported collecting “ripe females” during late April and May. However, nothing is known on the size of the embryo clusters during nesting in Arkansas. On 16 June 2013, CTM and MBC collected two embryo clusters from Flint Creek, near Springtown, Benton Co. that had 86 embryos and 39 embryos with a wet weight on 1.78 g and 0.84 g, respectively. MBC also collected an individual embryo cluster that had 154 embryos with a wet weight of 3.12 g from Water Creek, near Mull, Searcy Co. on 14 June 2013. Vives (1987) reported a single egg cluster from the same Flint Creek in Oklahoma that contained 44 embryos. Other studies reported an average clutch size of 72 embryos with a maximum clutch size of 124 in 5

clusters from the North Fork White River in Missouri (Burr and Mayden 1984) and 51 embryos with a maximum clutch size of 74 from southern Illinois (Mayden and Burr 1981). It is interesting to note that we report the largest embryo count from four states.

*Noturus gyrinus* (Mitchill) – Tadpole Madtom. Five specimens of *N. gyrinus* were taken by DAN, HWR, and CTM on 24 October 2013 from Rolling Fork River at Johnson Bridge Rd. (Co. Rd. 12) W of Union, Sevier Co. (34.0647°N, 94.3801°W), representing only the second time this species has been reported from the Rolling Fork River system (Robison and Buchanan 1988).

*Fundulus blairae* Wiley and Hall - Western Starhead Topminnow. Two specimens of *F. blairae* were taken by DAN, HWR, and CTM on 24 October 2013 from Rolling Fork River at Johnson Bridge Rd. (Co. Rd. 12) W of Union, Sevier Co. (34.0647°N, 94.3801°W), representing the first documentation of this topminnow from the Rolling Fork River system (Robison and Buchanan 1988).

*Fundulus chrysotus* (Gunther) – Golden Topminnow. Robison and Buchanan (1988) noted that the golden topminnow was “strictly a lowland species inhabiting oxbow lakes, sluggish areas of creeks, and swampy backwater overflows of rivers”, and their distribution map documented collections from the Mississippi Alluvial Plain and Gulf Coastal Plain in Arkansas. Updated records (McAllister et al. 2006) largely represented localities well within these same physiographic regions with the exception of specimens from the Arkansas River in Crawford Co., and a new record from Hot Spring Co. in the Ouachita River drainage. The Hot Spring Co. record extended the range along the Ouachita drainage only slightly

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from previous records in Clark Co., but to the edge of the Gulf Coastal Plain. This fish had been reported from the Saline River drainage only as far north as Bradley Co. (Robison and Buchanan, 1988) until a new record from Grant Co. extended the known range upstream (McAllister et al. 2010). We report a new county record from Hurricane Creek (34.61282°N; 92.52614°W) in Saline Co. near Bryant (HSU 3491) collected by M. Benson on 6 April 2013. This location is near the interface of the Gulf Coastal Plain and Ouachita Mountain provinces. Additionally, four specimens of *F. chrysotus* were collected on 24 October 2013 from a remnant oxbow off the Little River, at the first bridge S of the Little River on St. Hwy. 41, Little River Co. (33.9087°N, 94.3968°W) and represent the first record from the Little River system in Arkansas (Robison and Buchanan 1988).

*Lepomis symmetricus* Forbes – Bantam Sunfish. The Bantam Sunfish is a rare lowland species of the Coastal Plain in Arkansas (Robison and Buchanan, 1988). A single specimen of this species was collected on 24 October 2013 from a remnant oxbow off the Little River, at the first bridge S of the Little River on St. Hwy. 41, Little River Co. (33.9087°N, 94.3968°W). The water was tannin stained with no current over a mud substrate with abundant vegetation (*Myriophyllum*, *Utricularia*, *Nuphar*). These specimens represent the first record of this sunfish documented from the Little River system in Arkansas (Robison and Buchanan 1988).

*Aphredoderus sayanus* Gilliams – Pirate Perch. Five specimens of *A. sayanus* were collected by DAN, HWR, and CTM on 24 October 2013 from Rolling Fork River at Johnson Bridge Rd. (Co. Rd. 12) W of Union, Sevier Co. (34.0647°N, 94.3801°W) and represent the first record from the Rolling Fork River system (Robison and Buchanan 1988).

*Esox niger* LeSueur – Chain Pickerel. One juvenile specimen of *E. niger* was collected by DAN, HWR, and CTM on 24 October 2013 from Rolling Fork River at Johnson Bridge Rd. (Co. Rd. 12) W of Union, Sevier Co. (34.0647°N, 94.3801°W) and represents the first documented record of the Chain Pickerel from the Rolling Fork River system (Robison and Buchanan 1988).

*Etheostoma spectabile pulchellum* Distler– Plains Orangethroat Darter. The form of the Orangethroat Darter inhabiting the Little River system is known as

*E. spectabile pulchellum* (Distler 1968, Robison and Buchanan 1988). Eleven specimens of *E. s. pulchellum* were collected by DAN, HWR, and CTM on 24 October 2013 from Rolling Fork River at Johnson Bridge Rd. (Co. Rd. 12) W of Union, Sevier Co. (34.0647°N, 94.3801°W) and although rather common in the Little River system, this collection is the first documented report of this species from the Rolling Fork River.

*Percina phoxocephala* Nelson – Slenderhead Darter. Robison and Buchanan (1988) showed only six records of *P. phoxocephala* for the entire state of Arkansas. Two specimens of *P. phoxocephala* were collected on 24 October 2013 from mainstem Little River at Little River Country Club at Billingsley's Corner, Little River Co. (33.9265°N, 94.4143°W). The collection of this darter species is particularly noteworthy as it is only the second report of *P. phoxocephala* from the Arkansas portion of the Little River system (Robison and Buchanan 1988) and the seventh in the entire state.

### CLASS AMPHIBIA

*Eurycea tynerensis* Moore and Hughes – Oklahoma Salamander. *Eurycea tynerensis* is comprised of both the metamorphic and paedomorphic types (Bonett and Chippendale 2004). Life history mode is correlated with streambed habitat and microstructure (Tumblison and Cline 2003, Bonett and Chippendale 2006). Most populations exhibit a single life history mode with metamorphosing populations existing in poorly sorted clastic material and paedomorphic populations in streams containing large chert gravel (Bonett and Chippendale 2006). Herein, we report on a population occurring near Mull, Marion Co. that contained both life history modes. Ireland (1976) reported that larvae from NW Arkansas transform to adults at 38-42 mm snout-vent length (SVL). Of 17 individuals that were collected on 31 Dec 2013, 15 were paedomorphic (39.7 ± 6.1, range 23-47 mm SVL) with the remaining 2 being metamorphic. The 2 metamorphic individuals (41, 47 mm SVL) that were collected were found under large rocks at the periphery of the streambed. Interestingly, one of the paedomorphic individuals exhibited an unknown fungal infection (Fig. 1). Another population located at 3 km S Mull, near Water Creek, Searcy Co. contained mainly paedomorphic individuals; however, one (adult male SVL 43 mm) of eight individuals collected on 7 March 2014 exhibited

the metamorphic body type.

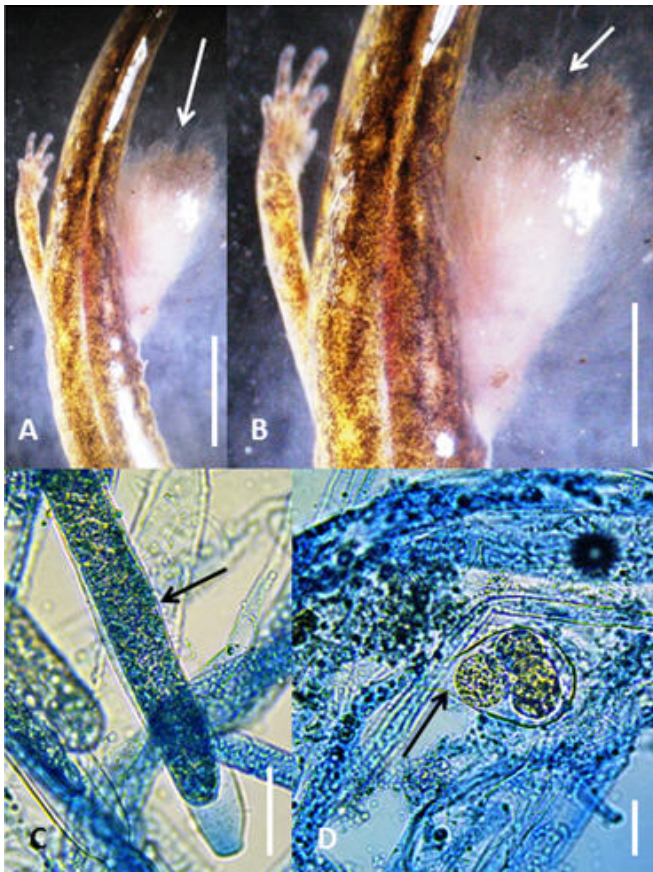


Figure 1. *Eurycea tynerensis* with unknown fungal infection. (A) Specimen showing infection (arrow) on left hind leg and foot; scale bar = 5mm. (B) Closer view of same specimen showing complete involvement of limb (arrow); scale bar = 2.5 mm. (C) Photomicrograph showing fungal filament (arrow); scale bar = 50  $\mu\text{m}$ . (D) Photomicrograph showing oogonium (arrow); scale bar = 25  $\mu\text{m}$ .

*Ambystoma talpoideum* (Holbrook) – Mole Salamander. On 9 Jan 2014, an adult female was collected crossing Jackson Street, 1 km N of Jct. between Jackson St. and US 167, 8 km S El Dorado, Union Co. This individual possessed an extra digit (6 total) on its hind limb (Fig. 2). Although polydactyly has been reported for other ambystomatids, including *A. tigrinum* and *A. macrodactylum* (Johnson et al. 2003), this is the first report to our knowledge of polydactyly in *A. talpoideum*.

*Lithobates sylvaticus* Le Conte– Wood Frog. On 7 March 2014, a large population of wood frogs was discovered in a cattle pond near Mull, Marion Co. This area is also a known locale for the Ozark highlands leech, *Macrobdella diploptertia*. An adult

male wood frog (SVL 59 mm) was trapped in a funnel trap that also contained an adult *M. diploptertia*. Upon collection, two wounds were discovered (one on the abdomen and one on the dorsum) from where a leech had attached and consumed a bloodmeal. This is the first report of a *M. diploptertia* feeding on a wood frog; however, other ranid frogs including *L. catesbeianus*, *L. clamitans*, and *L. palustris* were reported as hosts at this same location (Connior and Trauth 2010).

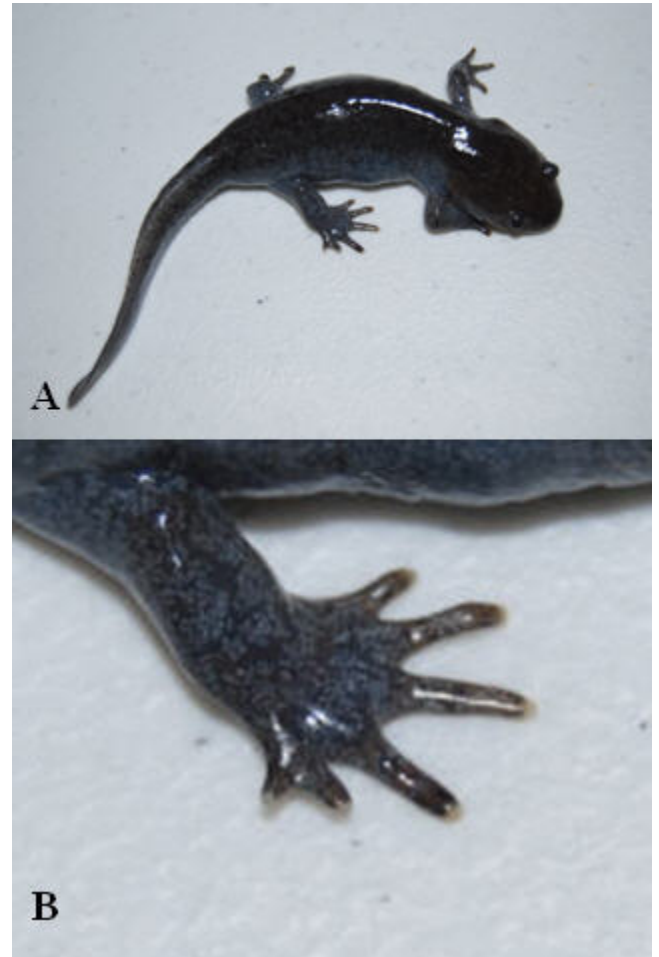


Figure 2. *Ambystoma talpoideum* exhibiting polydactyly. A) Entire specimen B) close-up showing the extra digit on the hindlimb.

## CLASS REPTILIA

*Anolis carolinensis* (Voigt) - Northern Green Anole. On 24 Feb 2013, MBC discovered an adult male (SVL 65 mm) from 2 km N of Junction City, Union Co., that was missing the lower half of the hind limb at the knee area (Fig. 3). It is unclear if this amputation was the result of a congenital defect or an injury, such as a failed predation attempt.

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Figure 3. *Anolis carolinensis* from Union Co. Arkansas showing missing lower left hind limb.

## CLASS MAMMALIA

### *Sorex longirostris* Bachman - Southeastern Shrew.

The southeastern shrew is collected only rarely in Arkansas, and has been documented from only a few counties in the interior Highlands region (Garland and Heidt 1989). On 7 May 2013, a southeastern shrew (HSU 703) was taken in a pitfall trap set to catch beetles in the Iron Springs Picnic Area, St. Hwy 7, N of Jessieville, Garland Co. Standard measurements are: total length 80 mm, tail length 33 mm, hind foot length 10 mm, ear length 5 mm. This specimen represents a new county record for Arkansas. The southern short-tailed shrew, *Blarina carolinensis*, was taken in the same pitfall.

*Blarina brevicauda* (Say)– Northern short-tailed shrew. The northern short-tailed shrew is known only from the Ozark Plateau and Boston Mountains in northern Arkansas (Pfau et al. 2011). On 6 March 2014, a single adult *B. brevicauda* was found dead in a small decorative pond 3 km S Mull, near Water Creek, Searcy Co. This is a new county record filling a distributional hiatus from adjacent Newton and Van Buren Cos. (Pfau et al. 2011).

*Blarina carolinensis* (Say) – Southern Short-tailed shrew. On 11 Feb 2013, a single female, containing 3 embryos, was collected from the vicinity of El Dorado, Union Co. This embryo count falls within the reported range for litter sizes of 2-6 (McCay 2001) and the breeding season of February to October reported by Sealander and Heidt (1990).

*Cryptotis pava* (Say) – Least Shrew. On 8 November 2013, a single adult female *Cryptotis parva* was collected from 3.2 km ESE Bruno, Marion Co. that contained 4 embryos. This is similar to the reported mean of 4.9 (Whitaker 1974) and falls within

the reported breeding season for Arkansas of February to November (Sealander and Heidt 1990). This is a new county record filling a distributional hiatus between nearby Newton and Stone cos. (Pfau et al. 2011).

Three adult specimens were collected in a pitfall trap set (7 April - 23 May 2013) in a Baird's pocket gopher burrow system near Gillham in Sevier Co. This least shrew was a non-target species captured in a pitfall trap targeting pocket gopher insect inquilines, which was set in a burrow and completely sealed off from the surface. Other vertebrates (*i.e.*, reptiles [Connior et al. 2008, Connior and Chordas 2012] and small mammals [e.g. *Peromyscus maniculatus* Connior et al. 2011]) have been captured in pocket gopher burrows and mounds in Arkansas. Although Vaughan (1961) reported catching eastern moles, *Scalopus aquaticus* (Soricomorpha), this is the first documented record of a shrew (Soricomorpha) being captured inside a pocket gopher burrow.

*Tamias striatus* (Linnaeus)- Eastern Chipmunk. Searcy Co.: ~5 km W Harriet; State Hwy 27. DOR. 10 Nov 2013. 35.974857°N; 92.571149°W. Sealander and Heidt (1990) reported that chipmunks had been seen in Searcy Co, but this is the first museum record. Recently, Sasse (2003) reported chipmunks from adjacent Marion Co. to the north.

*Castor canadensis* Kuhl- Beaver. Citing Bradt (1939), Sealander and Heidt (1990) noted that beaver in Arkansas have offspring from April through June. That reference actually recorded observations from the northern United States, but more recent research demonstrated an earlier breeding season in the south (Baker and Hill 2003). The earliest estimated date of birth in Mississippi was mid-February (Wigley et al. 1983). We obtained 4 fetuses from a beaver trapped 23 February 2014 from Bayou Meto in northern Pulaski Co., which were well furred and near parturition (Fig. 4). Birth would have occurred in February or early March, thus this reproductive observation is the earliest reported for Arkansas.

## Acknowledgments

Brian Baldwin provided the specimen of the southeastern shrew. Allison Surf provided the specimens of the beaver. We wish to thank Dr. SE Trauth (ASU) for curatorial assistance. We also thank Dr. RS Pfau for species confirmation on the *Cryptotis parva* from Sevier Co. The Arkansas Game and Fish

Commission issued Scientific Collecting Permits to CTM, MBC, HWR and RT.



Figure 4. Four fetuses from a beaver trapped 23 February 2014 from Bayou Meto in northern Pulaski County, AR.

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