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## Vertebrate Natural History Notes from Arkansas, 2016

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# Vertebrate Natural History Notes from Arkansas, 2016

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## Vertebrate Natural History Notes from Arkansas, 2016

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### Abstract

Often, interesting and important observations of vertebrate distribution and natural history are not published because they are not part of a larger study. Knowledge of small details, however, not only fills gaps in understanding but also lead researchers to interesting questions about ecological relationships or environmental change. We have compiled recent observations of importance that can add immensely to the growth of knowledge of the biology of vertebrates in Arkansas.

### Introduction

Vertebrate field biology constantly changes as land use alters the environment and non-native species establish among native forms. Distribution and natural history of many species within Arkansas is still not well understood or documented, but 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; Connor *et al.* 2011, 2012, 2013, 2014; Tumilson *et al.* 2015). Herein, we include previously unreported records of distribution, parasites, reproduction, food habits, disease, and other aspects of natural history of the vertebrates of Arkansas. All vertebrate voucher specimens are deposited in the vertebrate collections at Henderson State University (HSU).

### Methods

Some fishes were collected by use of  $3.1 \times 1.8$  m or  $6.1 \times 1.8$  m seines with 3.2 mm mesh, or by use of a

backpack electroshocker. Other fishes were collected by use of the Missouri Trawl (Herzog and Hrabik 2012), which is designed to skim the bottom of streams and rivers where no other gear can be effectively deployed. Specimens were preserved in 10% formalin and stored in 45% v/v isopropanol, or photographic vouchers were taken. Localities are reported as GPS (latitude and longitude) coordinates when available.

Bat records are based on identification of specimens sent to the Arkansas Department of Health (ADH) for rabies testing, or from field records of mist-netting activities by experienced researchers with release of captured animals on site following data collection. Observers names (initials if one of the authors) are provided in appropriate accounts.

### Results and Discussion

#### CLASS ACTINOPTERYGII

##### *Acipenseridae* – Sturgeons

*Scaphirhynchus platorhynchus* (Rafinesque) – Shovelnose Sturgeon. On 16 October 2015, 2 adult and 1 juvenile *S. platorhynchus* were collected in a Missouri Trawl deployed in the Mississippi River at Sans Souci Landing S of Osceola, Mississippi County (35.655427°N, 89.925932°W). This is only the second record of *S. platorhynchus* from this portion of the Mississippi River in Arkansas (Robison and Buchanan 1988). Etnier and Starnes (1993) show 3 records of this sturgeon across from Arkansas on the Tennessee side of the river. Photographic vouchers were taken of these specimens.

##### *Hiodontidae* – Mooneyes

*Hiodon alosoides* (Rafinesque) – Goldeye. Ten

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adult *H. alosoides* were collected on 16 October 2015 in a Missouri Trawl from the Mississippi River at Sans Souci Landing S of Osceola, Mississippi County (35.655427°N, 89.925932°W). There is a pre-1960 record of the Goldeye N of the present site just off the Mississippi River, as well a single record just W of this site, but not in the mainstem river (Robison and Buchanan 1988). There are several records of *H. alosoides* on the Tennessee side of the river across from our site (Etnier and Starnes 1993). Photographic vouchers were taken of the specimens.

**Cyprinidae – Minnows and Carps**

*Chrosomus erythrogaster* (Rafinesque) – Southern Redbelly Dace. Robison and Buchanan (1988) reported a breeding season for *C. erythrogaster* from April through May. On 7 July 2015, 3 females (67, 71 and 75 mm TL) containing ripe eggs were collected by HWR and CTM with backpack electroshocker from Calico Creek at Calico Rock, Izard County (36.122557°N, 92.143797°W). Apparently, this inhabitant of cold springs and spring-fed streams can prolong spawning under favorable environmental conditions.

*Cyprinella venusta* Girard – Blacktail Shiner. A single adult (88 mm TL) of 8 *C. venusta* collected with seine from the Arkansas River at Pendleton Bend Park, Desha County (33.987451°N, 91.362222°W), on 1 July 2014 by CTM and RT was parasitized by the copepod, *Lernaea cyprinacea* L. This is the first report of *L. cyprinacea* from this host. Delco (1962) previously reported a similar species, *L. catostomi* from *C. venusta* in Texas.

*Hybopsis amnis* Hubbs and Greene – Pallid Shiner. On 25 August 2015, 7 adult *H. amnis* were collected from Big Creek (34.847292°N, 91.010262°W), a site located off AR St. Hwy 78, Lee County, by R.A. Hrabik. *Hybopsis amnis* is an uncommon cyprinid in Arkansas where Robison and Buchanan (1988) reported no previous localities for this shiner from Lee County and only 2 records in the upper St. Francis River for all of northeastern Arkansas (McAllister *et al.* 2010). With this present collection, we suggest the pre-1960 disjunct populations in the upper St. Francis River reported by Robison & Buchanan (1988) in extreme northeastern Arkansas may actually still exist. However, additional surveys in the St. Francis upstream of Lee County and to the Missouri border are recommended.

*Lythrurus fumeus* (Evermann) – Ribbon Shiner. Numerous adult *L. fumeus* were collected on 25 August 2015 from Big Creek (34.847292°N, 91.010262°W)

located off AR St. Hwy 78, Lee County by R.A. Hrabik. While common in the Coastal Plain region of southern Arkansas, there are fewer records of *L. fumeus* in northeastern Arkansas and none previously from Lee County (Robison and Buchanan 1988).

*Macrhybopsis hyostoma* (Gilbert) – Shoal Chub. On 16 October 2015, 4 adult *M. hyostoma* were collected from the Mississippi River at Sans Souci Landing S of Osceola, Mississippi County (35.655427°N, 89.925932°W), by use of the Missouri Trawl. While rare in other regions of Arkansas, *M. hyostoma* is more common in the Mississippi River where there are 2 previous records just N of our site (Robison and Buchanan 1988). This chub is common across the Mississippi River along the Tennessee border (Etnier and Starnes 1993). Photographic vouchers were taken of the specimens.

*Macrhybopsis meeki* (Jordan and Evermann) – Sicklefing Chub. Six specimens of the rare large river cyprinid *M. meeki*, were collected from the Mississippi River at Sans Souci Landing S of Osceola, Mississippi County (35.655427°N, 89.925932°W), on 16 October 2015 by use of the Missouri Trawl. There is only one previous record of *M. meeki* in the state: specimens collected near Blytheville in Mississippi County (Carter and Beadles 1983, Robison and Buchanan 1988). On the Tennessee side of the river, Etnier and Starnes (1993) also note a single record for *M. meeki*. Photographic vouchers were taken of the specimens.

*Notropis boops* Gilbert – Bigeye Shiner. On 6 July 2015, a 66 mm TL female *N. boops* was collected by HWR and CTM with backpack electroshocker in the Mulberry River at Campbell Cemetery, Franklin County (35.656272°N, 93.858909°W). This female was full of ripe orange eggs and marks the first documentation of ripe eggs in *N. boops* in the state. Reproduction of *N. boops* has not been studied in Arkansas. In Oklahoma, *N. boops* spawns from late April into August (Lehtinen and Echelle 1979). Tuberculate males have been collected in Arkansas from May to July (Robison and Buchanan 1988).

*Pimephales tenellus* (Girard) – Slim Minnow. A single adult *P. tenellus* parasitized by the copepod *Lernaea cyprinacea* L was collected with backpack electroshocker from the Ouachita River at Rocky Shoals, Montgomery County, on 13 October 2015 by HWR and CTM. This is the first report of *L. cyprinacea* from this host.

*Semotilus atromaculatus* (Mitchill) – Creek Chub. The Creek Chub is a generalized carnivore feeding on a variety of invertebrates including crayfish, molluscs, diatoms and insects, and small fishes (Robison and

Buchanan 1988). No food habits studies have been conducted on this species in Arkansas. On 5 July 2015, a 130 mm TL male *S. atromaculatus* was collected by HWR and CTM with backpack electroshocker in Washita Creek, Johnson County, ca. 3.2 km S of the Mulberry River bridge at AR St. Hwy 103 (35.654197°N, 93.593527°W). Analysis of food items consumed revealed a juvenile cicada, which is a terrestrial insect and marks the first time this prey item has been documented from a Creek Chub.

#### **Catostomidae – Suckers**

*Moxostoma erythrurum* (Rafinesque) – Golden Redhorse. Golden Redhorse are reported to feed on bottom ooze, algae, insect larvae, and small molluscs (Robison and Buchanan 1988). On 22 July 2014, an adult Golden Redhorse was collected with boat electrofisher at Crooked Creek at Kelly's Slab (36.244433°N, 92.716531°W) SW of Yellville, Marion County. Examination of gut contents revealed 2 aquatic mites, *Lebertia* sp. (male and female). This is the first report of mites from the gut contents of the Golden Redhorse.

#### **Ictaluridae – Catfishes**

*Noturus maydeni* Egge – Black River Madtom. The Black River Madtom has been described within the last decade from Arkansas (Egge and Simons 2006) as individuals were formerly considered to be Ozark Madtom (*Noturus albaterrae*). Little is known about the life history of this madtom. On 8 July 2015, a 94 mm TL female *N. maydeni* full of ripe eggs was collected by HWR and CTM with backpack electroshocker from Town Creek at Salem off AR St. Hwy 9, Fulton County (36.37109°N, 91.821027°W). This marks the first documentation of the timing of spawning of this madtom in Arkansas.

#### **Percidae – Perches**

*Etheostoma pulchellum* (Agassiz) – Plains Darter. A gravid female *E. pulchellum* (50 mm TL, 1.41 g weight) was collected on 4 March 2016 by CTM from the Rolling Fork River, Sevier County (34.064667°N, 94.380023°W). It contained 195 ripe eggs which weighed 0.34 g. Nothing is known about spawning in Arkansas; however, in Texas, the spawning season of this darter occurs from mid-October through July (Hubbs and Armstrong 1962, Marsh 1980, Hubbs 1985). Female *E. pulchellum* produce from <50 to up to 200 eggs/season (Hubbs 1985). In addition, male *E. pulchellum* from the same locality possessed well-developed breeding colors.

*Etheostoma* sp. cf. *spectabile* (Agassiz) – Ozark Darter. Recently, the *E. spectabile* complex of “orangethroat” darters has been separated into several species (Ceas and Page 1997). We report here reproductive information that relates to the “Ozark” form, which has not yet been described as a new species, thus we use the available scientific name with this caveat.

In Arkansas, spawning of *E. spectabile* was reported to occur from mid-February to early June (Robison and Buchanan 1988). On 7 July 2015 a 50 mm TL female *E. spectabile* with ripe eggs was collected by HWR and CTM with backpack electroshocker from Calico Creek at Calico Rock, Izard County (36.122557°N, 92.143797°W). This discovery extends the breeding season in the state by a full month.

*Etheostoma whipplei* (Girard) – Redfin Darter. Southern populations of this darter were elevated by Piller *et al.* (2001) to full species (Redspot Darter *Etheostoma artesiae*), leaving the upland populations in the Ouachitas and Ozarks as Arkansas' representatives of *E. whipplei*. On 7 July 2015 a 70 mm TL male *E. whipplei* in well-developed breeding coloration was collected by HWR and CTM with backpack electroshocker from Washita Creek, Johnson County, ca. 3.2 km S of the Mulberry River bridge at AR St. Hwy 103 (35.654197°N, 93.593527°W). Robison and Buchanan (1988) collected breeding adults in mid-March to late April in Arkansas. This documentation extends the possible breeding season to July in Arkansas.

### **CLASS AMPHIBIA**

#### **Plethodontidae – Lungless Salamanders**

*Desmognathus monticola* Dunn – Seal Salamander. The seal salamander was introduced from the eastern United States (Georgia) and has established a breeding population in the Spavinaw Creek drainage in Benton County (Bonett *et al.* 2007, Connior *et al.* 2013a). Between 21 February and 15 November 2015, 29 *D. monticola*, 2 *Eurycea tnyerensis* and 1 *E. longicauda melanopleura* were collected and necropsied for prey items. Snout-vent lengths for the 8 male *D. monticola* averaged 41.6 mm (range 30-64) and for the 18 females averaged 33.2 mm (range 28-42).

Table 1 provides the first report of foods of *D. monticola* in Arkansas. Three *D. monticola* had no food items, and the mean number of items per stomach was 3.8 for the 8 males and 9.8 for the 18 females. The female mean is high due to 66 items (mostly adult

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Chironomids) in 1 stomach and 32 in another (mostly *Lirceus sp.* isopods and adult Chironomids). Even without those specimens considered, the female mean was 4.9 items per stomach.

The majority of the prey items for *D. monticola* were aquatic isopods (Isopoda) and both adult and larval midges (Chironomidae). One native salamander, *E. longicauda*, collected syntopically with the *D. monticola*, had consumed one gastropod and 2 Collembolans (one each of Sminthuridae and Entomobryidae). Two specimens of another native species, *E. tynerensis*, had consumed 15 Chironomidae larvae (plus one adult) and one *Lirceus sp.* isopod. These foods were consistent with those reported by Tumilson *et al.* 1990 for this salamander, and indicate dietary overlap and potential competition between the native species and the recently established non-native *D. monticola*. The impact of this non-native salamander on native species warrants further evaluation.

**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 biology is limited due to its secretive habits. On 13 March 2016, MBC found an adult male crawfish frog near Maysville (Benton Co.) that was completely missing its front left limb (Fig. 1). Tumilson *et al.* (2015) reported on the breeding ecology of this same site, but did not mention any limb malformations of other specimens. The exact cause of the malformation is unknown, but possibly due to an unsuccessful predation attempt early during development (Ballengée and Sessions 2009).

**CLASS MAMMALIA****ORDER CHIROPTERA****Vespertilionidae – Vesper Bats**

Unless otherwise noted, the new county distributional records reported here were gleaned from bats submitted for rabies testing by the Arkansas Department of Health (ADH), Little Rock.

*Myotis grisescens* A. H. Howell – Gray Bat. An adult male was found hanging above the door frame of a fire station in North Little Rock, Pulaski County, on 1 October 2015. A male gray bat was captured by DBS in a mist net over Mud Creek in Sec. 29, T21N, R1E, in Randolph County on 9 August 2015. The next night

4 females and 1 male were captured at the same site.

*Nycticeius humeralis* (Rafinesque) – Evening bat. An adult male was submitted from Waldron, Scott County on 19 August 2015; an adult male was submitted from Forrest City, St. Francis County, on 7 August 2015; a juvenile male was submitted from Ozark, Franklin County, on August 13, 2014.

Table 1. Food items recovered from stomachs of 26 specimens (8 males, 18 females) of *Desmognathus monticola* collected from Spavinaw Creek, Benton County, Arkansas, from February to November 2015.

Food Item	# in males	# in females
<b>Diptera</b>		
Chironomidae (larvae)	10	29
Chironomidae (adults)	1	85
Psychodidae		2
Stratiomyidae		1
Tipulidae	3	3
unidentified adult fly	1	2
<b>Isopoda</b>		
Ascellidae ( <i>Lirceus sp.</i> )	7	41
<b>Coleoptera</b>		
Staphylinidae	1	1
Dytiscidae unid.	1	
Dytiscidae		
( <i>Heterosternuta sp.</i> )	1	1
Dytiscidae ( <i>Neoporus sp.</i> )	1	
Unidentified		1
<b>Collembola</b>		
Entomobryidae	1	2
Sminthuridae		4
<b>Odonata</b>		
Cordulegasteridae		
( <i>Cordulegaster sp.</i> )	2	
<b>Hemiptera</b>		
Veliidae ( <i>Microvelia sp.</i> )	1	
Aphididae		1
Rhyparochromidae		
( <i>Myodocha serripes</i> )		1
Unidentified		1
<b>Homoptera</b>		
Cicadellidae		3
Lepidoptera (larvae)	1	1
Orthoptera		1
Annelida Oligochaeta	1	1
<b>Hymenoptera</b>		
Formicidae	4	
Tricoptera		1
Nematoda		1

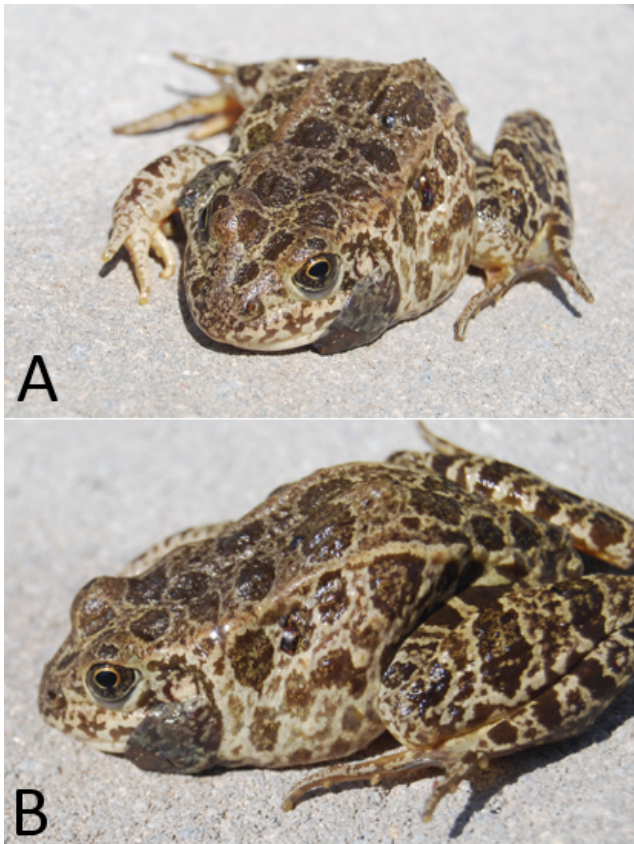


Figure 1. Adult male crawfish frog (*Lithobates areolatus*) collected from the vicinity of Maysville, Benton County, Arkansas, that is missing the left front leg. A. front view. B. side view.

*Lasionycteris noctivagans* (Le Conte) – Silver-haired Bat. A rabid male was submitted from Hagarville, Johnson County, on 8 June 2015.

*Perimyotis subflavus* F. Cuvier – Tricolored Bat. An adult post-lactating female was submitted from Junction City, Union county, on 5 June 2015.

#### Bat rabies

Between 16 June and 3 December 2015, 104 bats were received by the Arkansas Department of Health for rabies testing. Of these, 9 were damaged or decomposed leaving 95 testable samples. Species that tested negative included 20 Evening Bats (*Nycticeius humeralis* (Rafinesque)), 7 Gray Bats (*Myotis grisescens* A. H. Howell), 3 Northern Long-eared Bats (*Myotis septentrionalis* (Trouessart)), and one Silver-haired Bat (*Lasionycteris noctivagans* (Le Conte)). Rabies was detected in the following:

*Eptesicus fuscus* (Palisot de Beauvois). Of 38 tested Big Brown Bats, 4 rabid individuals originated from 2 counties. A rabid juvenile female was collected

16 July 2015 from Fort Smith, Sebastian County. Three rabid specimens originated from Pulaski County: one juvenile female from Little Rock collected 11 August 2015, and from North Little Rock an adult male (16 November 2015) and an adult female (22 October 2015).

*Lasiurus borealis* (Müller). Two of 17 Eastern Red Bats were rabid: an adult female collected 11 August 2015 from Hot Springs, Garland County, and an adult female collected 12 October 2015 from Ashdown, Little River County.

*Lasiurus cinereus* (Palisot de Beauvois). An adult female Hoary Bat collected 3 August 2015 from Cabot, Lonoke County, was rabid.

*Perimyotis subflavus* F. Cuvier. One of 4 Tricolored Bats was rabid. It was an adult female submitted 31 July 2015 from Hot Springs, Garland County.

#### *Molossidae* – Free-tailed Bats

*Tadarida brasiliensis* (I. Geoffroy). Three of 4 Brazilian Free-tail Bats tested positive. An adult male collected 12 August 2015 was submitted from Benton, Saline County. Two adult males from Hot Springs, Garland County, were submitted 19 August 2015 and 2 September 2015.

### ORDER RODENTIA

#### *Sciuridae*– *Sciurid Rodents*

*Marmota monax* Linnaeus – Woodchuck. Carroll County: a photographic voucher of a woodchuck, found killed on the road 3 km W Osage, GPS 36.191974N, 93.444788W, was taken 20 October 2015 by MBC. Both Sealander and Heidt (1990) and Tumilson *et al.* (2007) reported that woodchucks had been seen in Carroll County, but this is the first verified record. Connior *et al.* (2011, 2013) recently reported woodchucks from nearby Marion and Searcy counties.

#### *Muridae*–*Murid Rodents*

*Sigmodon hispidus* Say and Ord – Cotton Rat. Searcy County: about 3 km S jct. AR St. Hwy 14 and Ramblewood Trail, off Ramblewood trail (36.052048°N, 92.594601°W). On 01 January 2016, MBC observed 2 adult cotton rats feeding on corn dispersed by a deer feeder. They had been fairly active around the deer feeder evidenced by the numerous runways in the close vicinity (Figure 2). Cotton rats primarily consume grasses, but are known to consume



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a variety of food items (Schwartz and Schwartz 2002). This is, to our knowledge, the first documented record of cotton rats consuming supplemental corn for wildlife. The direct importance of supplemental deer feed on cotton rats is unknown.



Figure 2. *Sigmodon hispidus* foraging tunnel in Searcy County.

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

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