

2017

Vertebrate Natural History Notes from Arkansas, 2017

R. Tumlison

Henderson State University, tumlison@hsu.edu

C. T. McAllister

Eastern Oklahoma State College

H. W. Robison

M. B. Connior

Northwest Arkansas Community College

D. B. Sasse

Arkansas Game and Fish Commission

See next page for additional authors

Follow this and additional works at: <https://scholarworks.uark.edu/jaas>



Part of the [Biodiversity Commons](#)

Recommended Citation

Tumlison, R.; McAllister, C. T.; Robison, H. W.; Connior, M. B.; Sasse, D. B.; Cloutman, D. G.; Durden, L. A.; Bursey, C. R.; Fayton, T. J.; Schratz, S.; and Buckley, M. (2017) "Vertebrate Natural History Notes from Arkansas, 2017," *Journal of the Arkansas Academy of Science*: Vol. 71, Article 8.

<https://doi.org/10.54119/jaas.2017.7117>

Available at: <https://scholarworks.uark.edu/jaas/vol71/iss1/8>

This article is available for use under the Creative Commons license: Attribution-NoDerivatives 4.0 International (CC BY-ND 4.0). Users are able to read, download, copy, print, distribute, search, link to the full texts of these articles, or use them for any other lawful purpose, without asking prior permission from the publisher or the author.

This Article is brought to you for free and open access by ScholarWorks@UARK. It has been accepted for inclusion in *Journal of the Arkansas Academy of Science* by an authorized editor of ScholarWorks@UARK. For more information, please contact scholar@uark.edu, uarepos@uark.edu.

Vertebrate Natural History Notes from Arkansas, 2017

Erratum

In Fig. 2, we reported unknown plant seeds eaten by 6 of 37 (16%) Western Starhead Topminnows (*Fundulus blairae*) in southwestern Arkansas. We have since determined that this is in error and the food item is actually statoblasts (“floatoblasts”) of a species of plumatellid bryozoan (see Wood 2009). The reticulated pattern across the central part of the statoblast (see fig. referenced above) is a distinctive feature of *Plumatella vaihirieae* Hastings, 1929. Bryozoans have been considered to be of little relative importance in the diet of freshwater fishes. Interestingly, fredericellid bryozoans were reported to compose as much as 75% by volume of sunfish (*Lepomis* spp.) diet at Bull Shoals Reservoir, Arkansas (Applegate 1966). In addition, bryozoans made up 35% of the diet of Bluegill (*L. macrochirus*) in DeGray Reservoir (Bryant and Moen 1976). This is the first time bryozoans have been reported to be eaten by *F. blairae* or, to our knowledge, any other species of topminnow. Acknowledgments We thank Dr. Tim Wood (Wright St. University, Dayton, OH) for confirming the identity of this bryozoan. Literature Cited Applegate RL. 1966. The use of a bryozoan, *Fredericella sultana*, as food by sunfish in Bull Shoals Reservoir. *Limnology and Oceanography* 11:129–130. Bryant HE and TE Moen. 1976. Food of Bluegill and Longear Sunfish in DeGray Reservoir, Arkansas, 1976. *Proceedings of the Arkansas Academy of Science* 34:31–33. Wood TS. Bryozoans. In: Thorp JH and AP Covich, editors. Chapter 13. Ecology and Classification of North American Freshwater Invertebrates. Academic Press (London). p 505–523.

Authors

R. Tumilson, C. T. McAllister, H. W. Robison, M. B. Connior, D. B. Sasse, D. G. Cloutman, L. A. Durden, C. R. Bursey, T. J. Fayton, S. Schratz, and M. Buckley

Vertebrate Natural History Notes from Arkansas, 2017

R. Tumilson^{1*}, C.T. McAllister², H.W. Robison³, M.B. Connor⁴, D.B. Sasse⁵, D.G. Cloutman⁶,
L.A. Durden⁷, C.R. Bursey⁸, T.J. Fayton⁹, S. Schratz¹⁰, and M. Buckley¹¹

¹Department of Biology, Henderson State University, Arkadelphia, AR 71999,

²Division of Science and Mathematics, Eastern Oklahoma State College, Idabel, OK 74745

³9717 Wild Mountain Drive, Sherwood, AR 72120,

⁴Life Sciences, Northwest Arkansas Community College, One College Drive, Bentonville, AR 72712

⁵Arkansas Game and Fish Commission, 213A Highway 89 South, Mayflower, AR 72106

⁶P. O. Box 197, Burdett, KS 67523

⁷Department of Biology, Georgia Southern University, Statesboro, GA 30458

⁸Department of Biology, Pennsylvania State University-Shenango, Sharon, PA 68421

⁹Gulf Coast Research Laboratory, University of Southern Mississippi, 703 E. Beach Drive, Ocean Springs, MS 39564

¹⁰Department of Biology, P.O. Box 599, Arkansas State University, State University, AR 72467

¹¹Department of Biology, P.O. Box 599, Arkansas State University, State University, AR 72467

*Correspondence: tumlison@hsu.edu

Running Title: Vertebrate Natural History Notes, 2017

Abstract

Because meaningful observations of natural history are not always part of larger studies, important pieces of information often are unreported. Small details, however, can fill gaps in understanding and also lead to interesting questions about ecological relationships or environmental change. We have compiled recent observations of foods, reproduction, record size, parasites, and distribution of 30 species of fishes, new records of distribution and parasites of 2 species of amphibians, and new records of distribution, parasites, reproduction and anomalies of 11 species of mammals.

Introduction

Human alteration of environments and introduction of non-native species constantly alters relationships and life history parameters of species studied by vertebrate field biologists. Distribution and natural history of many species within Arkansas is becoming better documented, but much remains to be discovered and reported. We have developed a series of articles to update the state of knowledge of the natural history of Arkansas's vertebrates (see Tumilson 2016 and references therein). Herein, we include previously unreported records of distribution, parasites, reproduction, food habits, disease, and other aspects of natural history of the vertebrates of Arkansas. Voucher specimens are deposited in the vertebrate collections at Henderson State University (HSU).

Methods

Some fishes were collected by use of 3.1×1.8 m or 6.1×1.8 m seines with 3.2 mm mesh, or by use of a backpack electroshocker. Goldeyes 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. Vouchers of parasites were deposited in the Harold W. Manter Laboratory of Parasitology (HWML), University of Nebraska, Lincoln.

Results and Discussion

CLASS ACTINOPTERYGII

Hiodontidae – Mooneyes and Goldeyes

Hiodon alosoides (Rafinesque) – **Goldeye**. The diet of the Goldeye is variable over its range (Robison and Buchanan 1988). In South Dakota, fish and both terrestrial and aquatic insects dominate the diet (Johnson 1963). No reports of foods consumed by *H. alosoides* are available in Arkansas. On 16 October 2015, 3 Goldeyes (115–125 mm TL) were collected from the Mississippi River at Sans Souci Landing S of Osceola, Mississippi Co. ($35.655432^{\circ}\text{N}$, $89.926073^{\circ}\text{W}$) which had eaten Cottonwood Leaf Beetles, *Chrysomela scripta* Fabricius (Fig. 1). This marks the first report of Goldeye

feeding on terrestrial coleopterans in Arkansas. This fish is listed as a Species of Greatest Conservation Need in Arkansas (Anonymous 2016).



Figure 1. Several elytra of cottonwood leaf beetles removed from stomachs of *Hiodon alosoides*.

Cyprinidae – minnows and carps

***Camptostoma spadiceum* (Girard) – Highland Stoneroller.** This fish is the most recently described stoneroller species in Arkansas and little is known of its biology, particularly reproduction. Cashner et al. (2010) observed that nuptial colors of adult males peaked in March or April. W. J. Matthews (*pers. comm.*) commented that tubercled males were taken in March and up to 25 April, thus indicating a typical spring spawning season. Quite unexpectedly, on 15 November 2015, a tuberculate male (112 mm TL) was collected from Ten Mile Creek near Lonsdale, Saline Co. (34.545274°N, 92.753888°W) which is long after the typical breeding season. A 91 mm TL female with egg sacs was collected on 11 April 2015 from Wingfield Creek at AR St. Hwy 8, Clark Co. (34.187906°N, 93.255394°W). A tubercled male and gravid female were collected from Mill Creek on the campus of Henderson State University, Arkadelphia, AR, on 3 March 2017 (34.133041°N, 93.059936°W) indicating an early start of the breeding season.

***Luxilus chrysocephalus* Rafinesque – Striped Shiner.** Robison and Buchanan (1988) commented that spawning in Arkansas occurred from late spring to early summer. Several recent observations add to the scant information about the reproductive period of this cyprinid in Arkansas. On 10 June 2016, a 118 mm TL tubercled male in full breeding coloration (photographed by CTM) was captured in Butcherknife

Creek, Polk Co. (34.468688°N, 93.992288°W). On 23 May and 28 May 2016, a 99 mm TL male and 4 females (90, 93, 93, and 101 mm TL) with eggs were collected from Abernathy Spring, Polk Co. (34.468108°N, 93.947656°W). Additional females with eggs were taken on 1 May 2015 (90 mm TL female) from Garland Co., Bear Creek (34.534915°N, 93.286449°W) and 2 females (95 mm TL), were captured on 21 May 2016 in Clark Co., Wingfield Creek at AR St. Hwy 8 (34.187906°N, 93.255394°W).

***Notropis atherinoides* Rafinesque – Emerald Shiner.** Little life history information is available on southern populations of *N. atherinoides* and little is known on Arkansas populations. Breeding is believed to occur in Arkansas during late spring and early summer (Robison and Buchanan 1988). On 22 April 2016, a 68 mm TL female with 2 large egg sacs was collected at the Calion Spillway below Calion Lake, Union Co. (33.325312°N, 92.526721°W).

***Luxilus zonatus* (Agassiz) – Bleeding Shiner.** Breeding of this shiner in Arkansas is believed to occur from late April to late June (Robison and Buchanan 1988). Our collection of a ripe female (105 mm TL) with eggs on 8 July 2015 from North Big Creek at AR St. Hwy 354, Sharp Co. (36.157629°N, 91.514177°W) lengthens the known spawning period into early July.

***Lythrurus cf. umbratilus*.** This undescribed form from the upper Ouachita River (see Robison and Buchanan 1988) currently is being studied by HWR and W. C. Starnes. The following information is the first concerning the reproductive period of this Arkansas endemic form. Breeding individuals were collected in June and July as follows: on 8 June 2015, a 58 mm TL male in full breeding coloration was taken from Bear Creek at Bear, Garland Co. (34.534915°N, 93.286449°W). On 2 July 2014, a 63 mm TL male in breeding color and a 49 mm TL female with eggs was collected from the same site. On 21 July 2014, another 82 mm TL female with ova was taken from the same site. On 21 June 2013, a male with nuptial tubercles and breeding color was photographed from Walnut Creek at Camp Clearfork, off US Hwy 270, Garland Co. (34.507°N, 93.395°W).

***Lythrurus umbratilus* (Girard) – Redfin Shiner.** Excepting the undescribed form, Redfin Shiners occur statewide except in the upper White River (Robison and Buchanan 1988). Spawning of *L. umbratalis* in Arkansas appears to be extended from late April to August (Robison and Buchanan 1988). However, variation could exist within subspecies, and the following information refers specifically to *Lythrurus umbratilus cyanocephalus* (Copeland), the Northern

Vertebrate Natural History Notes from Arkansas, 2017

Redfin Shiner, about which nothing is known in Arkansas. On 5 July 2014, a 66 mm TL female *L. u. cyanocephalus* with eggs was collected from the Rolling Fork River off Johnson Bridge Road in Sevier Co., just W of DeQueen (34.064539°N, 94.380613°W).

***Semotilus atromaculatus* (Mitchill) – Creek Chub.** The maximum length for Creek Chubs was given by Trautman (1957) as 303 mm (11.9 in.). This was from Ohio, but no maximum length has been recorded for Arkansas. On 19 February 2017, Rana Tumblison caught a specimen on rod and reel from Spring Creek on the E side of Lake Springdale, Benton Co., AR, that measured 295 mm (11.5 in.). This large individual sets our largest known specimen from Arkansas.

Catostomidae - Suckers

***Moxostoma poecilurum* Jordan – Blacktail Redhorse.** Spawning in Arkansas typically occurs from late April through May (Robison and Buchanan 1988), thus the discovery of a 242 mm TL female with eggs taken on 12 October 2015 from West Tulip Creek, Dallas Co. (33.906488°N, 92.730825°W) was unexpected.

***Moxostoma duquesnei* (Lesueur) – Black Redhorse.** Spawning of this redhorse sucker in Missouri takes place in late April or early May (Pflieger 1997); however, no information currently exists for Arkansas populations. On 5 April 2016, a 382 mm TL female with eggs weighing 75.5 g was taken from below the dam on the White River at Batesville, Independence Co. (35.755847°N, 91.638138°W).

Ictaluridae – Catfishes

***Noturus exilis* Nelson – Slender Madtom.** Spawning of *N. exilis* occurs May through July in Illinois (Mayden and Burr 1981) and from late April to early June in Oklahoma (Vives 1987). Robison and Buchanan (1988) collected ripe females during late April and May in Arkansas. We report ripe females of *N. exilis* in May and July from the state. On 15 May 2015, an 88 mm TL female with eggs was collected from Flint Creek off AR St. Hwy 59 at Gentry, Benton Co. (36.242716°N, 94.487408°W) and 3 females (77, 91, 96 mm TL) with eggs were taken on 5 July 2015 from the North Fork of White Oak Creek at AR St. Hwy 23, N of Ozark, Franklin Co. (35.55574°N, 93.86210°W), and a 102 mm TL female with eggs was collected on 5 July 2015 in Fane Creek off Forest Service Road 1520 at Deepwoods Trail, Franklin Co. (35.69635°N, 93.82716°W).

***Noturus gyrinus* Mitchill – Tadpole Madtom.** This madtom spawns in June or July in Missouri

(Pflieger 1997); however, little is known about Arkansas spawning times except that small young have been found in early July (Robison and Buchanan 1988). It appears that the breeding season may begin somewhat earlier in Arkansas. On 11 April 2015, a 61 mm TL female with eggs was collected from an unnamed pond at 34.11700°N, 93.0073°W, on AR St. Hwy 51, 3.6 km E of Arkadelphia, Clark Co.

Esocidae – Pickerel

***Esox americanus* Gmelin – Redfin Pickerel.** In Canada, Crossman (1962) reported that *E. americanus* usually feeds on fishes and only occasionally on aquatic insects and crayfish. In Lake Ouachita, Garland Co., AR, this predator mostly consumed fishes, but also took freshwater shrimp (*Palaemonetes kadiakensis*) commonly (Tumblison et al. 2007). On 10 July 2016, 2 individuals (109, 143 mm TL) collected in Locust Bayou at US Hwy 278NE, Calhoun Co. (33.557459°N, 92.675849°W), were found to have eaten *Orconectes* crayfishes of the subgenus *Pennides*.

Apherododeridae – Pirate Perch

***Apherododerus sayanus* Gilliams – Pirate Perch.** No reports of foods eaten by *A. sayanus* in Arkansas are available; however, Forbes and Richardson (1920) in Illinois and Flemer and Woolcott (1966) in Virginia reported this species feeds primarily on insects. In North Carolina, Shepherd and Huish (1978) reported a diet of Cladocera, dipteran larvae, isopods, and amphipods. We found 2 specimens of *A. sayanus* (83, 90 mm TL) to have fed on scuds (*Hyalella azteca*) on 23 April 2016 at Spring Mill (Big Spring) off AR St. Hwy 69, S of Cushman, Independence Co. (35.828214°N, 91.724288°W).

In Arkansas, this species spawns in May and early June (Robison and Buchanan 1988). On the same date and site above, we collected 2 male *A. sayanus* (55-58 mm TL) full of sperm which appears to push back the date of spawning into late April in the state.

Fundulidae – Topminnows

***Fundulus blairae* Wiley and Hall – Western Starhead Topminnow.** Little is known of the biology of this fundulid (Robison and Buchanan 1988). On 9 July 2016, a 37 mm TL female with eggs was collected 8 km W of Horatio off AR St. Hwy 24, at a private pond near the Rolling Fork backwater, Sevier Co. (33.954089°N, 94.427058°W).

This fish is listed as a Species of Greatest Conservation Need in Arkansas (Anonymous 2016), but no information regarding food habits is known for *F.*

blairae. Examination of foods of *F. blairae* (32-41 mm TL) from this same site, collected on 27 August and 4 September 2016, revealed that 6 of 37 (16%) consumed unidentified seeds (Fig. 2).

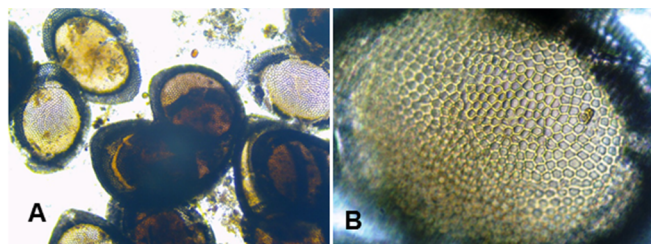


Figure 2. Unidentified seeds found in the stomach of *Fundulus blairae*. A. Several seeds. B. Close-up of single seed.

***Fundulus catenatus* (Storer) – Northern Studfish.** Surprisingly, little is known about the biology of this common and widespread topminnow in Arkansas (Robison and Buchanan 1988). Rice (1942) reported it was a surface feeder eating primarily insects and small crustaceans; however, nothing in Arkansas has been published on feeding habits. On 22 November 2016, a 73 mm TL *F. catenatus* was taken from Ten Mile Creek off US Hwy 70 near Lonsdale, Saline Co. (34.545274°N, 92.753888°W) and found to have a small species of cicada in its stomach contents, which marks the first report of this organism being eaten by this species. Earlier, on 21 April 2016, 2 ants were found in the gut of a *F. catenatus* taken from the Caddo River off Manford Road at Caddo Gap, Montgomery Co. (34.399855°N, 93.621693°W).

Robison and Buchanan (1988) reported this topminnow had a protracted spawning period breeding from May through August, although nothing specific is known about its reproductive biology in Arkansas. On 1 May 2015, a 75 mm TL female with eggs was taken from Walnut Creek off Hickorynut Mountain Road, Garland Co. (34.533903°N, 93.371055°W), and a 65 mm TL female with eggs was found in nearby Bear Creek, Garland Co. (34.534915°N, 93.286449°W).

***Fundulus chrysotus* (Gunther) – Golden Topminnow.** Very little is known regarding the reproductive biology of this killifish (Robison and Buchanan 1988), rendering the following observations important to understanding the biology of this species in Arkansas. On 22 April 2016, we found 3 females (42-50 mm TL) with mature eggs below the Calion Spillway at Calion Lake, Union Co. (33.325312°N, 92.526721°W). On 11 July 2016, we collected a 50 mm TL female with eggs which was being pursued by

several adult males (65-82 mm TL) in full breeding coloration at Cane Creek Lake at Cane Creek State Park, E of Star City, Lincoln Co. (33.916812°N, 91.765855°W).

***Fundulus dispar* (Agassiz) – Starhead Topminnow.** While spawning of *F. dispar* occurs in late spring to early summer (Robison and Buchanan 1988), nothing specific is known of its reproductive biology in Arkansas. On 22 April 2016 below the Calion Spillway at Calion Lake, Union Co. (33.325312°N, 92.526721°W), we collected a 44 mm TL female containing eggs.

Cottidae – Sculpins

***Cottus caroliniae* (Gill) – Banded Sculpin.** Cooper (1975) reported foods consumed by *C. caroliniae* in North Fork River in Missouri. She found crayfish were the most important food item, whereas in northeastern Oklahoma, Tumilson and Cline (2002) found other small aquatic invertebrates to dominate the diet. Herein we report a male *C. caroliniae* (126 mm TL) collected on 17 November 2012 from Flint Creek off Fairmount Road at Springtown, Benton Co. (36.252632°N, 94.440359°W) which had a midget crayfish (*Orconectes nana*) in its gut. This crayfish is listed as a Species of Greatest Conservation Need in Arkansas (Anonymous 2016). Tumilson and Cline (2002) also found sculpins to consume the Oklahoma salamander (*Eurycea tynerensis*), another species of conservation concern.

Adults in breeding condition have been taken from the White River in Arkansas in mid-February (Robison and Buchanan 1988). We collected a 118 mm TL female containing mature eggs much later, on 17 November 2015, at the same Flint Creek locality listed previously.

Centrarchidae – Sunfishes

***Lepomis cyanellus* Rafinesque – Green Sunfish.** On 13 October 2016, 2 adult *L. cyanellus* were collected from Pickles Gap Creek, Faulkner Co. (35.12551°N, 92.400955°W), that were noticeably emaciated and possessed unknown white growths on their bodies, particularly their dorsal fins (Fig. 3). Subsequent examination of these growths revealed the ciliate *Epistylis* sp. McAllister et al. (2016c) recently reported an *Epistylis* sp. from *L. cyanellus* from Ten Mile Creek, Saline Co. We document a second occurrence of this ciliate in green sunfishes, and add a new drainage, the Arkansas River, to its distribution on fishes in the state.

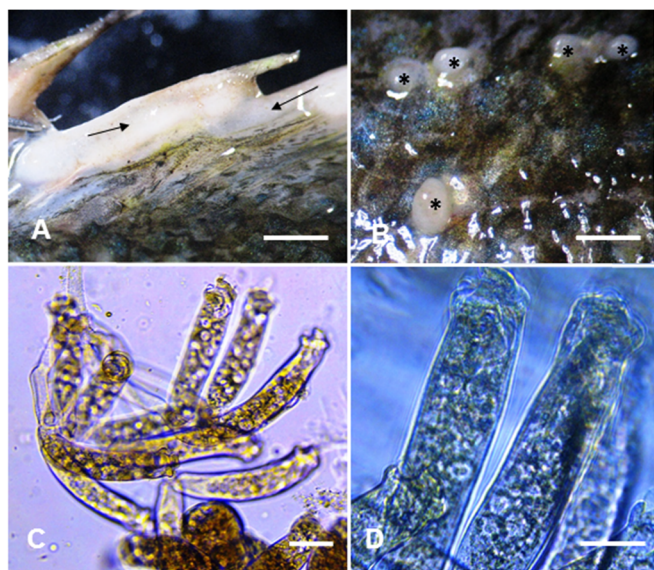


Figure 3. *Epistylus* sp. on *Lepomis cyanellus*. A. Whitish growth (arrows) on dorsal fin between spines. B. Pustule-like growths (asterisks) on side of fish. C. Colonies showing group of zooids, unstained. D. Close-up of 2 elongate zooids, unstained. Scale bars A-B = 2 mm, C-D = 100 μ m.

Percidae – Darters

***Etheostoma chlorosoma* (Hay) – Bluntnose Darter.** In Texas, spawning occurs from early January to late March (Hubbs 1985). Reproductive season in Arkansas has not been studied, but is believed to be in the spring. On 11 April 2015, 2 females (48, 52 mm TL) with eggs were taken from Saline Bayou off AR St. Hwy 51 in Clark Co. (34.11654°N, 93.030523°W).

In addition, 5 of 5 (100%) *E. chlorosoma* (47-51 mm TL) collected on 11 April 2015 from an unnamed pond in Clark Co. (34.1170°N, 93.0073°W) possessed the monogenean, *Aethycteron chlorosomus* (Harrises and Vickery, 1970) on their gills (HWML 139318). Mean intensity was 14.4 ± 2.6 (range = 12-18) worms. This parasite was previously known from *E. chlorosoma* and Speckled Darter (*E. stigmaeum*) from Mississippi (Harrises and Vickery 1970). We document a new state record for *A. chlorosomus*, the first time the parasite has been reported from west of the Mississippi River, and the third time the genus *Aethycteron* has been reported from an Arkansas fish (McAllister et al. 2016a; Cloutman and McAllister 2017).

***Etheostoma collettei* Birdsong and Knapp – Creole Darter.** Little is known about the biology of this darter (Robison and Buchanan 1988), but HWR (*unpubl. obs.*) has found it feeds mainly on aquatic insects. However, a new category of food items is herein added to its food habits as on 22 November 2016

at Ten Mile Creek off US Hwy 70 near Lonsdale, Saline Co. (34.545274°N, 92.753888°W), 2 individuals (52, 58 mm TL) were found with aquatic mites in their gut, marking the first time this food item has been recorded for this species.

***Etheostoma euzonum* (Hubbs and Black) – Arkansas Saddled Darter.** Little is known of the life history of this species (Robison and Buchanan 1988); however, the spawning season in Arkansas extends at least from late March through May (Hubbs 1985). A large male in breeding coloration was captured on 24 April 2016 from the Middle Fork of the Little Red River just W of Shirley, Van Buren Co. (35.651965°N, 92.320282°W). Robison and Buchanan (1988) only showed 2 localities for this darter in the Little Red River system, thus it is rare in this watershed and this locality and its capture are noteworthy.

***Etheostoma fragi* Distler – Strawberry River Darter.** Little information is available on the biology of this state endemic darter. On 24 April 2016, 4 males in full breeding coloration and running milt were collected from the upper Strawberry River at AR St. Hwy 295 near Byron, Fulton Co. (36.32119°N, 91.938493°W). This observation establishes the Strawberry River Darter as another spring spawner. This fish is listed as a Species of Greatest Conservation Need in Arkansas (Anonymous 2016).

***Etheostoma radiosum* (Hubbs and Black) – Orangebelly Darter.** Scalet (1972, 1973a,b) provided much information on the life history of *E. radiosum* in Oklahoma; however, no information is available for this species in Arkansas. Spawning typically occurs from late February to mid-April in Oklahoma. We found males in breeding color in the Rolling Fork River off Johnson Bridge Road in Sevier Co. just W of DeQueen (34.064539°N, 94.380613°W) and females with eggs on 1 May 2015, 4 March 2016 and 28 May 2016. Additional reproductive data are: 3 females (35-43 mm TL) from Walnut Creek off Hickorynut Mountain Road, Garland Co. (34.533903°N, 93.371055°W) with eggs on 1 May 2015; one 50 mm TL female from Bear Creek at Bear, Garland Co. (34.534915°N, 93.286449°W) with eggs on the same date; and one 50 mm TL female from Abernathy Spring, Polk Co. (34.468108°N, 93.947656°W) with eggs on 28 May 2016.

***Etheostoma* cf. *spectabile* – Ozark Darter.** Ceas and Page (1997) separated the *E. spectabile* complex of "orangethroat darters" into several species. This undescribed member of the complex is currently being studied by P. A. Ceas (St. Olaf College, Northfield, MN). Little is known about its biology or natural history. On 23 April 2016 at Spring Mill (Big Spring),

S of Cushman off AR St. Hwy 69, Independence Co. (35.828214°N, 91.724288°W), 3 individuals (58-74 mm TL) were collected which were eating scuds (*H. azteca*) and a 64 mm TL female was taken at the same location and date which contained mature eggs.

***Etheostoma squamosum* Distler – Plateau Darter.**

In Arkansas, the breeding season of *E. squamosum* extends from March to May (Hubbs and Armstrong 1962). We extend this season to mid-May in the state as 7 females (55-70 mm TL) with eggs were collected on 15 May 2015 from Flint Creek off AR St. Hwy 59 at Gentry, Benton Co. (36.242716N, 94.487408W).

***Percina nasuta* (Bailey) – Longnose Darter.** Little is known of the life history of this uncommon darter in Arkansas. A single male *P. nasuta* was taken from the Middle Fork of the Little Red River just W of Shirley, Van Buren Co. (35.651965°N, 92.320282°W) on 24 April 2016. Robison and Buchanan (1988) observed spawning in the upper White River in mid-May. This male specimen was running milt and thus indicates spawning was in progress, thereby extending the spawning season in Arkansas. This fish is listed as a Species of Greatest Conservation Need in Arkansas (Anonymous 2016).

Channidae - Snakeheads

***Channa argus* (Cantor) – Snakehead.** Any collection of this undesirable, introduced Asian species is noteworthy, thus, we document 2 specimens (330, 440 mm TL) collected on 15 October 2015 off AR St. Hwy 238, SE of Brinkley at Big Piney Creek/Lake Greenlee, Monroe Co. (34.875159°N, 91.166584°W). Neither specimen was found to harbor helminth parasites.

CLASS AMPHIBIA

Proteidae – Mudpuppy

***Necturus louisianensis* Viosca – Red River Mudpuppy.** During 1971, one of us (DGC) collected an adult *N. louisianensis* from Lake Fort Smith, Crawford Co. (35.664627°N, 94.153304°W) whose gills were infested with the monogenean, *Sphyranura oligorchis* Alvey (Fig. 4) (HWML 139186). Alvey (1933) originally described *S. oligorchis* from the common mudpuppy, *N. maculosus* from Pennsylvania and it has also been reported from common mudpuppies from a fish hatchery in Wisconsin (Anonymous 2011). We document the first report of *S. oligorchis* in Arkansas, as well as the first time, to our knowledge, from the Red River Mudpuppy.

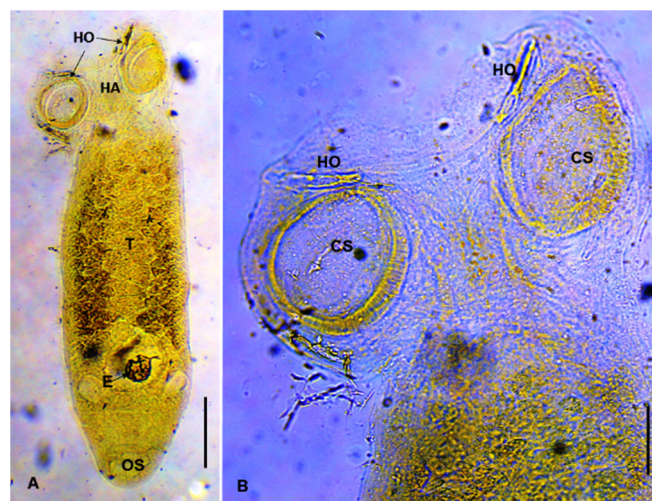


Figure 4. *Sphyranura oligorchis* from *Necturus louisianensis*. A. Whole specimen showing egg (E), haptor (HA), hooks (HO), and oral sucker (OS). Scale bar = 175 μ m. B. Closeup of same showing caudal suckers (CS) and hooks (HO). Scale bar = 50 μ m.

Hylidae – Tree Frogs

***Hyla squirella* Bosc in Daudin – Squirrel Treefrog.** This small hylid frog, found throughout the southeastern United States, was only recently discovered in Arkansas, in Union Co. (Fulmer and Connior 2013; Connior et al. 2014). The closest known record was circa 80 km away in nearby Ouachita Parish, Louisiana (Dundee and Rossman 1989). We report a photovouchered new record of the squirrel treefrog, collected by E. Burke on 10 March 2017 from adjacent Ashley Co. at Overflow NWR (33.148202°N, 91.597677°W).

CLASS MAMMALIA

ORDER SORICOMORPHA

Soricidae - Shrews

***Blarina carolinensis* (Bachman) – Southern Short-tailed Shrew.** On 14 May 2016, Bill and Vanessa Bateman found a dead piebald specimen of *B. carolinensis* near their home in Alpine, Clark Co., AR (Fig. 5). Among shrews, only albino least shrews (*Cryptotis parva*) have been reported in Arkansas previously (Sealander 1981).

ORDER LAGOMORPHA

Leporidae – Hares and Rabbits

***Sylvilagus floridanus* (JA Allen) – Cottontail Rabbit.** Larvae of bot flies (*Cuterebra* sp.) cause myiasis in the animals they infest, and near maturity appear as large, darkened maggots visible through a hole

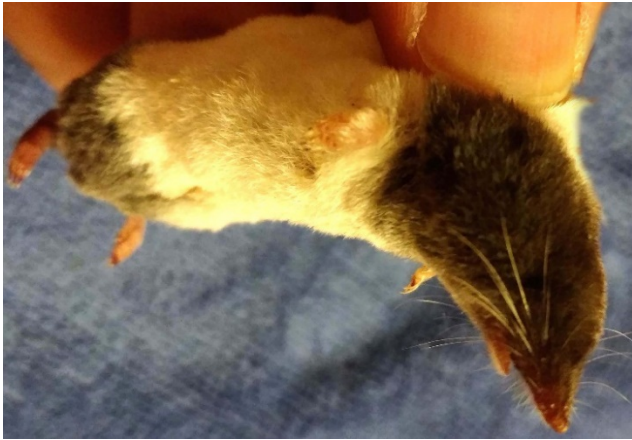


Figure 5. Piebald specimen of *Blarina carolinensis* from Clark Co., 14 May 2016. Photo by B. and V. Bateman.

in the skin of the host. Though bot flies in rabbits may be common (reported in 24% of cottontails in Virginia [Jacobson et al. 1978] and up to 50% in Wisconsin [Haas and Dicke 1958]), they have not been reported in cottontails in Arkansas. We found a bot fly in the neck of a cottontail collected 8 October 2016 in Hot Spring Co., on Rainbow Road W of Bismarck. We expect such parasitism to be common, but no reports are available of frequency or occurrence in Arkansas.

ORDER CHIROPTERA

Vespertilionidae – Vesper Bats

Corynorhinus rafinesquii (Lesson) – **Rafinesque's Big-eared Bat.** Little is known of the reproductive biology of this bat in Arkansas (Sealander and Heidt 1990). On 5 June 2016, investigation of a dilapidated abandoned house located in Ouachita Co. near the intersection of AR St. Hwy 57 and Ouachita Co. Rd. 517 (33.566888°N, 93.094835°W) revealed a nursery colony of at least 5 female *C. rafinesquii*, each attending a single volant offspring. At the time, a black rat snake (*Pantherophis obsoletus*) was found over a door, attempting to prey on the colony.

Myotis sodalis Miller and GM Allen – **Indiana Bat.** We report previously undocumented museum specimens of this endangered species: a male and female collected during February 1935 in Izard Co. at Calico Rock (Univ. Michigan Museum of Zoology 75494, 75495). A new county record was observed on 2 November 2016, when a juvenile female was captured after flying into glass doors in Jonesboro, Craighead Co. (35.83801°N, 90.70072°W). The bat was banded and released.

Myotis grisescens AH Howell – **Gray Bat.** A new county record is represented by two adult male gray bats

captured on 13 April 2016 in a bridge over the Mulberry River, Johnson Co.

Eptesicus fuscus (Palisot de Beauvois) – **Big Brown Bat.** A post-lactating female was captured in a mist net set in a bottomland hardwood forest on 10 July 2015. This new county record for Prairie Co. was taken at the southern end of the Cache River NWR (34.79655°N 91.37780°W).

A new county record representing Hempstead Co. was obtained on 16 July 2016 when 6 female, 1 male, and 1 unsexed individual were captured in a mist net placed over a firelane on the Hope Upland Wildlife Management Area, Sec. 31, T11S, R24W.

Cricetidae – New World Mice

Peromyscus attwateri Allen – **Texas Deermouse.** A specimen captured on 15 May 2016 from 13 km NE Berryville, Carroll Co., partially fills a distributional hiatus in northwestern Arkansas (Sealander and Heidt 1990). The habitat was a rocky cedar glade.

ORDER CARNIVORA

Felidae – Cats

Lynx rufus (Schreber) – **Bobcat.** An adult male *L. rufus* was collected in Hot Spring Co. on 25 November 2013 on AR St. Hwy 84, 4.8 km E jct. AR St. Hwys 7 and 84 in Bismarck. It was found to be infested with 11 blacklegged ticks (*Ixodes scapularis* Say; 4 males, 7 females). This is the second time *I. scapularis* has been reported from a bobcat in Arkansas but the first time a specific locality has been provided (see McAllister et al. 2016b).

Canidae – Canids

Canis latrans Say – **Coyote.** A juvenile male *C. latrans* was collected on 11 October 2016 from 8.5 km S of Arkadelphia, Clark Co. (34.05167°N, 93.09928°W). This coyote was infested with 12 Gulf Coast ticks (*Amblyomma maculatum* (Koch); 10 males, 2 females). Adults feed on a variety of large mammals such as deer and cattle whereas immatures feed on smaller mammals and on birds (Cooley and Kohls 1944, Teel et al. 2010). Although there are previous records of this tick on domestic dogs (*C. familiaris*) in the state (McAllister et al. 2016b), this is the first time this tick has been found on *C. latrans* from Arkansas.

Mustelidae – Weasels and allies

Taxidea taxus (Schreber) – **American Badger.** In recent years, badgers have established populations in northeastern Arkansas and reproduction has been reported in Crittenden Co. (Tumilson and Sasse 2015).

We have a recent report of a male badger injured by a collision with a car on 16 December 2016 on AR St. Hwy 50 and Woollard Road in Crittenden Co. (35.25642°N, 90.32569°W). The animal was caught and photographed by a person who commented that he often sees badgers along the highway. Though this observation is only 7.3 km (4.5 mi.) NW of the nearest reported location in the county, it further documents the presence and distribution of this rare mustelid, which is listed as a Species of Greatest Conservation Need in Arkansas (Anonymous 2016).

Other than new records of distribution, little is known about biology of badgers in Arkansas. Examination of an adult female *T. taxus* collected on 11 June 2014 from 5.5 km WNW of Marion, Crittenden Co. (35.22627°N, 90.25420°W) revealed several nematodes, *Physaloptera torquata* Leidy (HWML 99823) in its stomach and colon. Although *P. torquata* has been reported previously from badgers from Iowa, Kansas, Minnesota, South Dakota, and Texas (see Pence and Dowler 1979), this is the first time the parasite has been reported from a badger in Arkansas.

ORDER ARTIODACTYLA

Cervide – Deer

***Odocoileus virginianus* (Zimmerman) – White-tailed Deer.** White-tailed deer very rarely possess upper canine teeth, though they are present in elk. On 16 October 2016, N. R. Cain harvested a buck N of Crystal Springs, Garland Co., estimated by tooth wear to be 3-4 years old, with bilateral presentation of upper canine teeth (Fig. 6). This condition is considered to be atavistic.



Figure 6. Skull of *O. virginianus* from Garland Co. with atavistic appearance of upper canines. Inset shows detail of the tooth.

Acknowledgments

Bill and Vanessa Bateman provided the image and information about the piebald shrew. Kory Roberts provided the observation of the Rafinesque's Big-eared

Bats. Kimberley Strickland collected the ticks from the bobcat and coyote. Allison Surf and Nicholas Cain provided information about the deer with canines. We thank D. Herzog, R. Hrabik, and D. Ostendorf (Missouri Department of Conservation, Jefferson City, MO) for providing a Missouri Trawl for collection of *H. alosoides*. Also, we thank J.V. Rippey, Jr. (Conway, AR), D. A. Neely (Tennessee Aquarium, Chattanooga, TN), U. Thomas (Chicago, IL), K. R. Benjamin, and personnel at the Ozark National Forest Office (Ozark, AR) for assistance in collecting several fishes. The Arkansas Game and Fish Commission issued Scientific Collecting Permits to RT, CTM, and HWR. The USDA Forest Service (Ouachita and Ozark/St. Francis National Forests) issued a Scientific Collecting Permit to CTM.

Literature Cited

- Alvey CH.** 1933. *Sphyrnura oligorchis* n. sp. from *Necturus maculosus*. Journal of Parasitology 20:140.
- Anonymous.** 2011. Mudpuppies presenting an interesting challenge for Genoa NFH. U.S. Fish and Wildlife Service, Region 3 FieldNotes, 1 February 2011. 2 p.
- Anonymous.** 2016. Arkansas endangered, threatened, regulated, and species of greatest conservation need (28 January 2016). Arkansas Game and Fish Commission, Little Rock, AR. 8 p.
- Cashner RC, WJ Matthews, E Marsh-Matthews, PJ Unmack, and FM Cashner.** 2010. Recognition and redescription of a distinctive stoneroller from the southern Interior Highlands. Copeia 2010:300-311.
- Ceas PA and LM Page.** 1997. Systematic studies of the *Etheostoma spectabile* complex (Percidae; subgenus *Oligocephalus*), with descriptions of four new species. Copeia 1997:496-522.
- Cloutman DG and CT McAllister.** 2017. *Aethycteron robisoni* n. sp. (Monogenea: Ancyrocephalidae) from the Sunburst Darter, *Etheostoma mihileze* Mayden (Perciformes: Percidae). Systematic Parasitology 94:145-150.
- Connor MB, T Fulmer, CT McAllister, SE Trauth, and CR Bursey.** 2014. Ecology of the squirrel treefrog (*Hyla squirella*) in southern Arkansas. Journal of the Arkansas Academy of Science 68:52-56.
- Cooley RA and GM Kohls.** 1944. The genus *Amblyomma* (Ixodidae) in the United States. Journal of Parasitology 30:77-111.
- Cooper HR.** 1975. Food and feeding selectivity of two cottid species in an Ozark stream [MS thesis]. State University (AR): Arkansas State University. 45 p.

Vertebrate Natural History Notes from Arkansas, 2017

- Crossman EJ.** 1962. Predator-prey relationships in pikes (Esocidae). *Journal of the Fisheries Research Board of Canada* 19:979-980.
- Dundee HA and DA Rossman.** 1989. *The Amphibians and Reptiles of Louisiana*. Louisiana State University Press (Baton Rouge). 316 p.
- Flemer DA and WS Woolcott.** 1966. Food habits and distribution of the fishes of Tuckahoe Creek, Virginia, with special emphasis on the bluegill, *Lepomis m. machrochirus* Rafinesque. *Chesapeake Science* 7:75-89.
- Forbes SA and RE Richardson.** 1920. *The fishes of Illinois*. 2nd ed. Illinois Natural History Survey. Urbana, IL. 357 p.
- Fulmer T and MB Connior.** 2013. Geographic distribution: *Hyla squirella*. *Herpetological Review* 44:620-621.
- Haas GL and RJ Dicke.** 1958. On *Cuterebra horripilum* Clark (Diptera: Cuterebridae) parasitizing cottontail rabbits in Wisconsin. *Journal of Parasitology* 44:527-540.
- Harrises AE and RL Vickery.** 1970. Additional species of Ancyrocephalinae (Trematoda: Monogenea) from darters of southern Mississippi. *American Midland Naturalist* 84:437-443.
- Herzog D and RA Hrabik.** 2012. Missouri Trawler. Available at: <http://mdc.mo.gov/conmag/2013/01/missouri-trawler>. Accessed 27 December 2015.
- Hubbs C.** 1985. Darter reproductive seasons. *Copeia* 1985:56-68.
- Hubbs C and NE Armstrong.** 1962. Developmental temperature tolerance of Texas and Arkansas-Missouri *Etheostoma spectabile* (Percidae: Osteichthyes). *Ecology* 43:742-744.
- Jacobson HA, BS McGinnes, and EP Catts.** 1978. Bot fly myiasis of the cottontail rabbit, *Sylvilagus floridanus mallurus* in Virginia with some biology of the parasite, *Cuterebra buccata*. *Journal of Wildlife Diseases* 14:56-66.
- Johnson DH.** 1963. The food habits of the goldeye of the Missouri River and Lewis and Clark Reservoir, South Dakota [MA thesis]. Vermillion (SD): University of South Dakota. 36 p.
- Mayden RL and BM Burr.** 1981. Life history of the slender madtom, *Noturus exilis*, in southern Illinois (Pisces: Ictaluridae). *University of Kansas Museum of Natural History, Occasional Papers* 93:1-64.
- McAllister CT, DG Cloutman, TJ Fayton, and HW Robison.** 2016a. *Aethycteron moorei* (Monogeneoidea: Dactylogyrida: Ancyrocephalidae) from the Fantail Darter, *Etheostoma flabellare* (Perciformes: Percidae): new distributional records for Arkansas and Oklahoma. *Proceedings of the Oklahoma Academy of Science* 96:53-57.
- McAllister CT, LA Durden, and HW Robison.** 2016b. The ticks (Arachnida: Acari: Ixodida) of Arkansas. *Journal of the Arkansas Academy of Science* 70:141-154.
- McAllister CT, HW Robison, and SE Trauth.** 2016c. An *Epistylus* sp. (Ciliophora: Peritrichia: Epistylididae) infestation on green sunfish, *Lepomis cyanellus* (Perciformes: Centrarchidae), from Arkansas. *Journal of the Arkansas Academy of Science* 70:281-283.
- Pence DB and RC Dowler.** 1979. Helminth parasitism in the badger, *Taxidea taxus* (Schreber, 1778) from the western Great Plains. *Proceedings of the Helminthological Society of Washington* 46:245-253.
- Pflieger WL.** 1997. *The fishes of Missouri*. Missouri Department of Conservation, Jefferson City, MO. 372 p.
- Rice LA.** 1942. The food of sixteen Reelfoot Lake fishes in 1941. *Journal of the Tennessee Academy of Science* 17:4-13.
- Robison HW and TM Buchanan.** 1988. *Fishes of Arkansas*. University of Arkansas Press (Fayetteville). 536 p.
- Scalet CG.** 1972. Food habits of the orangebelly darter, *Etheostoma radiosum cyanorum* (Osteichthys: Percidae). *American Midland Naturalist* 87:515-522.
- Scalet CG.** 1973a. Reproduction of the orangebelly darter, *Etheostoma radiosum cyanorum* (Osteichthyes: Percidae). *American Midland Naturalist* 89:156-165.
- Scalet CG.** 1973b. Stream movements and population density of the orangebelly darter, *Etheostoma radiosum cyanorum* (Osteichthyes: Percidae). *Southwestern Naturalist* 17:381-387.
- Sealander JA.** 1981. Albino least shrews (*Cryptotis parva*) and a new locality record for the southeastern shrew (*Sorex longirostris*) from Arkansas. *Southwestern Naturalist* 26:70.
- Sealander JA and GA Heidt.** 1990. *Arkansas mammals: their natural history, classification, and distribution*. University of Arkansas Press (Fayetteville). 308 p.

- Shepherd ME** and **MT Huish**. 1978. Age, growth, and diet of the pirate perch in a coastal plain stream in North Carolina. Transactions of the American Fisheries Society 107:457-459.
- Teel PD, HR Ketchum, DE Mock, RE Wright, and OF Strey**. 2010. The Gulf Coast tick: a review of the life history, ecology, distribution, and emergence as an arthropod of medical and veterinary importance. Journal of Medical Entomology 47:707-722.
- Trautman MB**. 1957. The fishes of Ohio. Ohio State University Press (Columbus). 638 p.
- Tumlison R** and **GR Cline**. 2002. Food habits of the banded sculpin (*Cottus carolinae*) in Oklahoma with reference to predation on the Oklahoma salamander (*Eurycea tynnerensis*). Proceedings of the Oklahoma Academy of Science 82:111-113.
- Tumlison R** and **DB Sasse**. 2015. New records and life history observations of the American badger (*Taxidea taxus*) in Arkansas. Journal of the Arkansas Academy of Science 69:153-156.
- Tumlison R, C Carroll, and M Greenwood**. 2007. Summer food habits of young grass pickerel (*Esox americanus*), warmouth (*Lepomis gulosus*), and logperch (*Percina caprodes*) from a cove in Lake Ouachita, Garland County, Arkansas. Journal of the Arkansas Academy of Science 61:134-136.
- Tumlison R, CT McAllister, HW Robison, MB Connior, DB Sasse, DA Saugey, and S Chordas III**. 2016. Vertebrate natural history notes from Arkansas, 2016. Arkansas Academy of Science 70:248-254.
- Vives SP**. 1987. Aspects of the life history of the Slender Madtom, *Noturus exilis*, in Northeastern Oklahoma (Pisces: Ictaluridae). American Midland Naturalist 117:167-176.