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Notes on the Natural History of Selected Invertebrates from Arkansas, 2019

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Running Title: Natural History of Invertebrates

The invertebrate fauna are a large component of ecosystems. Yet, invertebrate biologists are few and scattered in Arkansas; thus, the invertebrate fauna of much of the state is poorly known. Herein we document new records of distribution and provide notes on the natural history of selected invertebrates from Arkansas. Field observations and collections were made by the authors and students at Henderson State University (HSU) and Southern Arkansas University (SAU). Invertebrate specimens were preserved in 70% or 90% isopropanol and housed at HSU, SAU, or the United States National Museum (USNM). Digital photography also was used to document species within their habitats (images available from RT).

CLASS TURBELLARIA

Bipalium kewense Moseley 1878. Land Planarian. This land planarian is easily identified by its diagnostic spade-like head and bi-colored body. McAllister *et al.* (2018) provided an updated distribution map of this exotic planarian in Arkansas.

On 4 April 2010 a single adult specimen of *B. kewense* was collected from under a stepping stone in an urban yard in El Dorado, UNION CO. by MBC. Other specimens were collected around this time at the same location. This represents a new county record for Union County; however, these planarians have been reported from adjacent Ashley, Columbia, and Ouachita counties (McAllister *et al.* 2018).

CLASS CRUSTACEA

Cambarus diogenes Girard. Devil Crayfish. Reimer (1963) reported this primary burrower as *C. diogenes diogenes* from 18 counties in Arkansas. While this burrowing crayfish is fairly common in Arkansas, we report 2 new county records in LEE CO.: Burrow ca. 11 km. (6.8 mi.) NE. of Marianna, AR (Sec. 35, T3N, R4E), 20 May 1983, HWR (1 specimen), and ST. FRANCIS

CO.: Burrow in a roadside ditch along St. Hwy. 149, 4 km. (2.5 mi.) S. of Shell Lake, AR (Sec. 31, T16N, R6E), 25 May 1982, HWR (1 ovigerous female).

Cambarus ludovicianus Faxon – Painted Devil Crayfish. Reimer (1963) reported this primary burrower as *C. diogenes ludovicianus* from 28 counties in Arkansas. Tumilson *et al.* (2016) provided additional collections of *C. ludovicianus* from Columbia Co. and the Lafayette-Columbia county line. McAllister *et al.* (2018) added 3 counties (Bradley, Clark, and Dallas) to its range in Arkansas. This primary burrower is common in southwestern and southeastern Arkansas, but herein we report 2 new county records from LINCOLN CO.: Roadside burrow along St. Hwy. 81, 11.3 km. (7 mi.) S. of Star City, AR (Sec. 20, T10S, R7W), 5 May 1977, HWR (1 specimen), and LITTLE RIVER CO.: Burrow ca. 6.4 km. (4 mi.) S. of Foreman, AR on St. Hwy. 41 (Sec. 10, T13S, R32W), 6 June 1979, HWR (1 specimen).

Procambarus clarkii (Girard) - Red Swamp Crayfish. Faxon (1914) was the first to report this species from Arkansas listing the species from Pulaski County. Later, Reimer (1963) collected *P. clarkii* from 9 counties in eastern Arkansas including Clay, Chicot, Craighead, Crittenden, Desha, Greene, Jackson, Mississippi, and Monroe counties. McAllister *et al.* (2018) recently added 4 counties to its state range, notably Lee, Phillips, St. Francis, and Union counties. We report first county records for LINCOLN CO.: Roadside ditch at Garrett Bridge, AR (Sec. 6, T10S, R5W), 23 March 1980, HWR (1 specimen) and POINSETT CO.: Roadside ditch along U.S. Hwy. 63, ca. 6.4 km. (4 mi.) S. of Trumann, AR (Sec. 7, T11N, R6E), 17 April 1978, HWR (1 specimen).

Procambarus tulaneus Penn - Giant Bearded Crayfish. Reimer (1963) reported *P. tulaneus* from only 2 counties in southern Arkansas including Columbia and

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Ouachita. Hobbs and Robison (1988) documented 25 collections of *P. tulane* from 10 counties including Ashley, Columbia, Drew, Hot Spring, Jefferson, Lafayette, Montgomery, Nevada, Ouachita, and Union counties. Tumblison and Robison (2010) added new county records from Bradley and Clark counties. Herein, this crayfish is documented for the first time from DALLAS CO.: (1) Ditch along St. Hwy. 7, ca. 7.2 km. (4.5 mi.) NW of Sparkman, AR (Sec. 6, T9S, R17W), 22 April 1989, HWR (1 specimen) and LINCOLN CO.: Burrow along St. Hwy. 114, 1.6 km. (1 mi.) E of Palmyra, AR (Sec. 15, T10S, R8W), 24 March 1979, HWR (1 specimen).

CLASS CHILOPODA

Hemiscolopendra marginata (Say). Eastern bark centipede. This centipede occurs throughout the Southeastern United States with a northern range limit occurring in northwestern Arkansas (Shelley 2002). Herein, we provide 3 new county records (Fig. 1) to augment the previously known Arkansas distribution map provided by McAllister *et al.* (2012). BENTON CO.: St. Hwy 12 in Gentry, 8 Oct 2012, LK Ramey; CARROLL CO.: Berryville, 27 Apr 2017, MBC; and MARION CO.: vic. Mull, 13 Apr 2018, MBC.

Figure 1. Records of *Hemiscolopendra marginata* in Arkansas. Symbols: dots = historic records; stars = new records.

CLASS ARACHNIDA

Nephila clavipes (Linnaeus 1767) – the golden orbweaver, golden-silk orbweaver, or banana spider.

Nephila is primarily a neotropical genus, and *N. clavipes* is the only species that occurs in North America. It ranges from Central America into United States along the Gulf Coast, occurring primarily in the warmer portions of the subtropical regions (Comstock 1948; Levi 1980; Evans 2007). Preferred habitat tends to be damp areas with open forest and humidity above 80% (Moore 1977).

Nephila clavipes was first documented in Arkansas during 2009 in the Ouachita River bottoms, Felsenthal National Wildlife Refuge (FNWR), in Ashley and Union counties of southeastern Arkansas (Tumblison and Robison 2010). They reported 4 individuals at that time, but by 2015 the population observed in the area increased to 38 (Tumblison *et al.* 2016). A visit to the site in September 2018 revealed no individuals of *N. clavipes*. A part of the winter of 2017 was particularly cold in the area, with lows between -3 and -9°C (16 to 27 °F) for 4 consecutive days between 7-10 January (<https://www.usclimatedata.com/climate/crossett/arkansas/united-states/usa0133/2017/1>). Range expansion by this large tropical spider northward from the southern coastal US has been attributed to climate change (Bakkegard and Davenport 2012), with warming temperatures allowing northward expansion. It appears that several days of significant cold may recede the northern limit of range. Thus, expansion and contraction of the range of *N. clavipes* in southern Arkansas may serve as an index of effects of climate change in the state.

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