

New Records of Chiggers and Ticks from an Oklahoma Amphibian and Reptile

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Little is known about ectoparasites of Oklahoma herpetofauna. Larval chigger mites, *Hannemania dunni* Sambon and *Eutrombicula alfreddugesi* (Oudemans) have been reported from amphibians (Loomis 1956; Anthony et al. 1994) and various lizards (Crossley 1960) in Oklahoma, respectively. In addition, the blacklegged tick (*Ixodes scapularis* Say) has been reported from five-lined skinks, *Plestiodon fasciatus* and ground skinks, *Scincella lateralis* from McCurtain County (McAllister et al. 2013a, 2014). Here we report additional records for these ectoparasites from one species of amphibian and one species of reptile from Oklahoma.

Between March 2013 and October 2014, 37 juvenile and adult (mean \pm 1SD snout-vent length [SVL] = 60.0 ± 12.8 , range = 29-75 mm) dwarf American toads, *Anaxyrus americanus charlesmithi*, and 10 juvenile and adult (55.3 ± 5.8 , 48-67 mm SVL) prairie lizards, *Sceloporus consobrinus* were collected by hand from wooded areas in Beavers Bend State Park (34.13527°N, 94.687796°W), Hochatown (34.17124°N, 94.751863°W), and Lukfata (34.005396°N, 94.759438°W), McCurtain County. Ectoparasites were collected, preserved in 70% ethanol, and processed and identified using appropriate guides (Brennan and Goff

1977; Loomis and Wrenn 1984; Durden and Keirans 1996). *Hannemania* chiggers were carefully removed from encapsulations on hosts using dissecting scissors and fine forceps and stored in vials of 70% ethanol until they could be cleared in lactophenol and slide-mounted in Hoyer's medium (Walters and Krantz 2009). Voucher ectoparasites are deposited in the General Ectoparasite Collection in the Department of Biology at Georgia Southern University (accession nos. L3641, 3643, 3689-90, 3695). Host vouchers are deposited in the Arkansas State University Museum, Herpetological Collection (ASUMZ), State University, Arkansas.

Two of 29 (7%) *A. a. charlesmithi* (male 51 mm, female 82 mm SVL) collected in September 2013 were found to be infested with two and six larval *H. dunni*, respectively. These chiggers were found within the dermis of these hosts (Fig. 1). One male *S. consobrinus* (53 mm SVL) collected in June 2014 was infested with 52 larval *E. alfreddugesi* (Fig. 2); two additional lizards (male 50 mm SVL, female 48 mm SVL) collected in September and October 2014 were infested with fewer *E. alfreddugesi*. Two of 8 (25%) *S. consobrinus* (female 48 mm, male 55 mm SVL) collected in May 2014

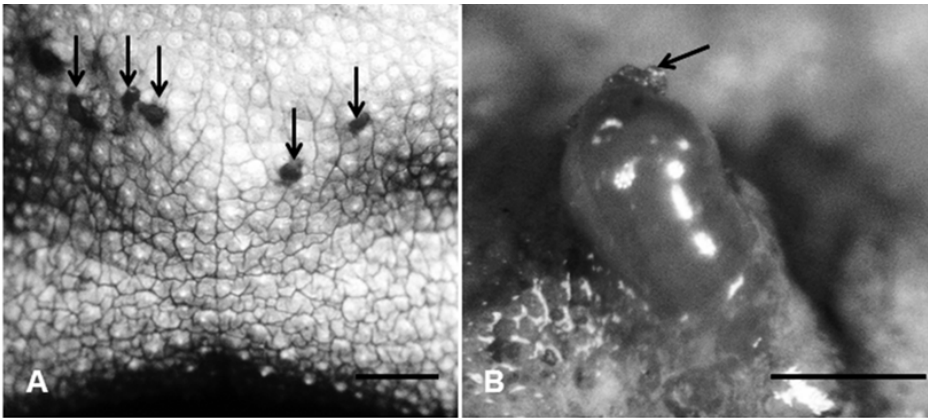


Figure 1. *Hannemania dunnii* chiggers from *Anaxyrus americanus charlesmithi*. A. Encapsulated chiggers (arrows) in dermis of venter. Scale bar = 5 mm. B. Closer view of engorged chigger teased from encapsulation showing legs (arrow). Scale bar = 2 mm.

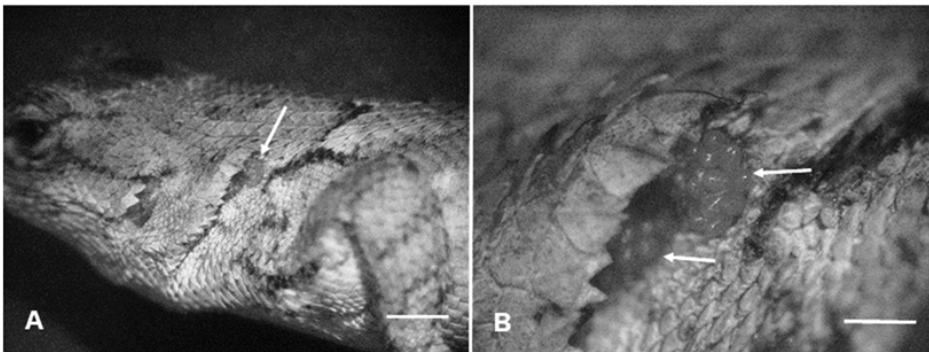


Figure 2. *Eutrombicula alfreddugesi* chiggers on *Sceloporus consobrinus*. A. Lateral view showing chiggers on neck region (arrow). Scale bar = 5 mm. B. Close-up showing two groups of chiggers (arrows). Scale bar = 2.5 mm.

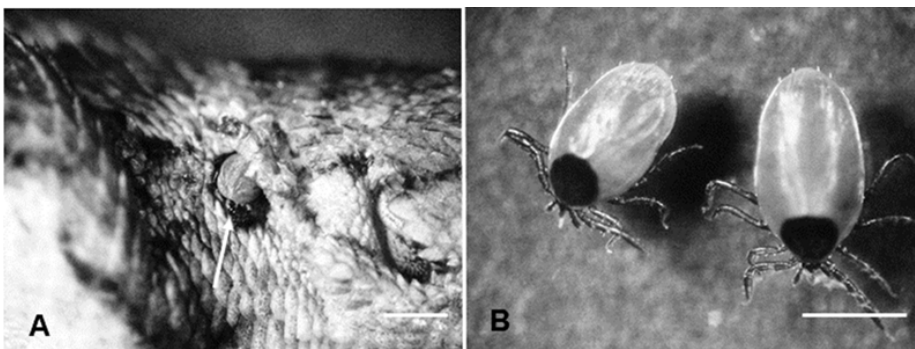


Figure 3. *Ixodes scapularis* from *Sceloporus consobrinus*. A. View of engorged tick (arrow) near ear opening. Scale bar = 2 mm. B. Two nymphal ticks removed from host. Scale bar = 2 mm.

harbored two nymphs each of *I. scapularis* (Fig. 3).

Arthropoda: Acarina: Ixodidae

Hannemania dunni Sambon, 1928

This chigger has been reported from a variety of amphibians, including both anurans and caudates (Walters et al. 2011). The geographic range includes Alabama, Arkansas, Georgia, Kansas, North Carolina, Oklahoma, Texas, Virginia and West Virginia (Walters et al. 2011; McAllister et al. 2013b). Loomis (1956) previously reported *H. dunni* from Ouachita dusky salamander, *Desmognathus brimleyorum*, Woodhouse's toad, *Anaxyrus woodhousii*, Blanchard's cricket frog, *Acris blanchardi* and southern leopard frog, *Lithobates sphenoccephalus utricularius* from Le Flore and Woods counties, Oklahoma; we add a new host for *H. dunni* and an additional record from Oklahoma. This chigger has been reported to adversely affect the nasolabial groove chemosensory structure in plethodontid salamanders but the effect on *A. a. charlesmithi* is not known at this time.

Trombiculidae

Eutrombicula alfreddugesi (Oudemans, 1910)

This is a widely-ranging chigger that parasitizes a large variety of vertebrates including amphibians and (primarily) reptiles (both lizards and snakes) (Walters et al. 2011). It has been previously reported on herpetofauna from Alabama, Arkansas, California, Colorado, Delaware, Florida, Georgia, Illinois, Indiana, Kansas, Maine, Michigan, Minnesota, North Carolina, Nebraska, New York, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee and Texas (Walters et al. 2011). In much of eastern and central North America, *E. alfreddugesi* is the primary pest chigger that parasitizes humans, often causing red, pruritic skin lesions at attachment sites (Loomis and Wrenn 1984).

Arthropoda: Acari: Ixodidae

Proc. Okla. Acad. Sci. 94: pp 40-43 (2014)

Ixodes scapularis Say, 1821

Several species of lizards within the families Anguillidae, Dactyloidae, Phrynosomatidae, Scincidae and Teiidae are known to be hosts of larval and nymphal stages of *I. scapularis* (for summary see McAllister et al. 2013a). It has been reported previously on various lizards from Alabama, Florida, Georgia, Mississippi, Missouri, New York, North Carolina, Oklahoma, South Carolina, Tennessee and Texas (see McAllister et al. 2013a). This tick has significant medical and veterinary importance as a zoonotic vector of the causative agent of Lyme Disease (= Lyme borreliosis) (Nicholson et al. 2009). We report *I. scapularis* for the third time on a lizard from the state.

Acknowledgments

The Oklahoma Department of Wildlife Conservation provided a scientific collecting permit to C. T. McAllister. We thank S. E. Trauth (ASUMZ) for expert curatorial assistance.

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Submitted July 16, 2014 Accepted November 5, 2014