

Stephen F. Austin State University

SFA ScholarWorks

Faculty Publications

Forestry

2014

New Host and Location Record for the Bat Bug *Cimex adjunctus* Barber 1939, with a Summary of Previous Records

M. E. Grilliot

J. L. Hunt

C. G. Sims

Chris E. Comer

Follow this and additional works at: <https://scholarworks.sfasu.edu/forestry>



Part of the [Ornithology Commons](#), and the [Zoology Commons](#)

Tell us how this article helped you.

New Host and Location Record for the Bat Bug *Cimex adjunctus* Barber 1939, with a Summary of Previous Records

M.E. Grilliot¹, J.L. Hunt^{1*}, C.G. Sims², and C.E. Comer³

¹Troy University-Montgomery, Department of Arts and Sciences, 126 Church Street, Montgomery, AL 36104

²University of Arkansas at Monticello, School of Mathematical and Natural Sciences, 397 University Drive, Monticello, AR 71656

³Stephen F. Austin State University, Arthur Temple College of Forestry and Agriculture, P.O. Box 6109, SFA Station, Nacogdoches, TX 75962

*Correspondence: huntj@uamont.edu

Running Title: New Host and Location Record for the Bat Bug *Cimex adjunctus* Barber 1939

Abstract

In June 2009, 14 Rafinesque's big-eared bats (*Corynorhinus rafinesquii*) were collected from an abandoned house near Shepherd, San Jacinto County, Texas. Three individuals harbored bat bugs which were subsequently identified as *Cimex adjunctus* Barber 1939. This is the first record of this species from *C. rafinesquii*. In August 2013, 10 *C. rafinesquii* were collected from a maternity colony in Drew County in southeastern Arkansas. Four of the bats harbored bat bugs, which were identified as *C. adjunctus*. This is the first record of this bat bug from Arkansas. A summary of previous state and host records of the insect is provided, as is a summary of parasite records from *C. rafinesquii*.

Results and Discussion

Rafinesque's big eared bat (*Corynorhinus rafinesquii*) roosts in abandoned buildings, caves, hollow trees, and under bridges across the southeastern United States (Jones 1977, Trousdale and Beckett 2004). This bat commonly forms colonies ranging in number from a few individuals to 100 or more.

On 28 June 2009, 14 *C. rafinesquii* were hand-collected from an abandoned house near Shepherd, San Jacinto County, Texas. A maternity colony of *C. rafinesquii* numbering >50 individuals occupied this roost each year from 2005-2009 and in 2012 (surveys were not conducted in other years). Three *Cimex adjunctus* Barber 1939 were found on the torso and uropatagium of 3 lactating adult female bats. No external parasites were noted on 8 additional adult females or 3 juvenile males also captured at the same location and time. Bat bugs were preserved in ethanol and deposited in the Gibson Entomarium in the Biology Department at Stephen F. Austin State

University. This is the first record of *C. adjunctus* from Rafinesque's big-eared bat.

A maternity colony of over 100 individuals of *C. rafinesquii* roosts in the Taylor House, an abandoned antebellum building located at the edge of an agricultural field adjacent to Bayou Bartholomew in Drew County, Arkansas. On August 2, 2013, 10 individuals were captured with a hand net. All of the captured bats were females; 3 were lactating. Four of the bats harbored bat bugs, which were collected and preserved in 95% ethanol. All bats were released unharmed at the point of capture. The preserved bat bugs were sent to the Department of Entomology and Plant Pathology at Auburn University, Alabama, where they were identified as *Cimex adjunctus*. Specimens were deposited in the insect collection of the Museum of Natural History at Auburn. This represents the first record of *C. adjunctus* from Arkansas.

Cimex adjunctus is found over most of the eastern United States and southeastern Canada and has been recorded as far west as Colorado (Usinger 1966). It has previously been reported from *Eptesicus fuscus* in Illinois, Indiana (Webster and Whitaker 2005), Missouri (Bowles et al. 2013), Kansas (Sparks et al. 2003), Michigan (Dood and Kurta 1982), Alabama (Durden et al. 1992), Kentucky, Colorado, Georgia, and Florida (Usinger 1966), from *Lasionycteris noctivagans* in Nebraska (Usinger 1966) and South Dakota (Swier 2003), and from *Nycticeus humeralis* in Kansas (Sparks et al. 2003), Missouri (Bowles et al. 2013), Indiana, Kentucky, North Carolina, South Carolina, West Virginia, Alabama, Florida, and Texas (Usinger 1966). This bat bug is known from *Myotis californicus* in Colorado (Usinger 1966), from *Myotis lucifugus* in Missouri (Palmer and Gunier 1975), Michigan (Dood and Kurta 1988), Pennsylvania (Dick et al. 2003), Tennessee (Reeves et al. 2007), West Virginia (Wilson 1943), Colorado, Indiana, Virginia,

Vermont (Usinger 1966), and Nova Scotia (Poissant et al. 2010), from *Myotis septentrionalis* in Indiana (Ritzi and Whitaker 2003), New Hampshire (Sasse and Pekins 2000), and Nova Scotia (Poissant and Broders 2008), from *Myotis sodalis* in Indiana (Usinger 1966) and Michigan (Dood and Kurta 1982), from *Myotis thysanodes* in South Dakota (Turner and Knox Jones 1968), and from roosts of *Myotis austroriparius* in South Carolina (Reeves 2001). *Cimex adjunctus* was collected from *Tadarida brasiliensis* and its roosts in Georgia (Spears et al. 1999). It has also been recorded from unknown hosts in Ohio, Iowa, Maine, Rhode Island, Delaware, New Jersey, Maryland, New Hampshire, New York (Barber 1939, Usinger 1966), Manitoba, Ontario, Quebec, and Newfoundland (Maw et al. 2000), and from Pennsylvania, where the type specimens were collected (Barber 1939).

Although *C. rafinesquii* is widespread, there are relatively few studies of its behavior and ecology, and few parasites have been recorded. The bat bug *Cimex pilosellus* has been reported from *C. rafinesquii* in Arkansas (Steward et al. 1986). Mites recorded from Rafinesque's big-eared bats include *Chiroptoglyphus*, *Macronyssus*, and *Teinocoptes* (Whitaker et al. 2007). Reported endoparasites include tapeworms (*Vampirolepis* sp.) and two species of nematodes (*Physaloptera* sp. and *Capillaria palmata*—McAllister et al. 2005).

Acknowledgments

We thank Charles Ray of Auburn University for identification of bat bugs. Jack Lassiter and Morris Bramlett of the University of Arkansas at Monticello provided logistical support and permission to access the Taylor House. This project is funded in part by a Faculty Research Grant from the University of Arkansas at Monticello, and a Faculty Development Grant from Troy University-Montgomery.

Literature Cited

Barber HG. 1939. A new bat bug from the eastern United States. *Proceedings of the Entomological Society of Washington* 41:243-246.

Bowles DE, RG Robbins, HJ Harlan and TL Carpenter. 2013. New Missouri county records and review of the distribution and disease vector potential of *Ornithodoros kellyi* (Arachnida: Ixodida: Argasidae) and *Cimex adjunctus* (Insecta: Hemiptera: Cimicidae). *Proceedings of the Entomological Society of Washington* 115:117-127.

Dick CW, MR Gannon, WE Little and MJ Patrick. 2003. Ectoparasite associations of bats from central Pennsylvania. *Journal of Medical Entomology* 40:813-819.

Dood SB and A Kurta. 1982. New records for ectoparasites of Michigan bats. *The Great Lakes Entomologist* 15:217-218.

Dood SB and A Kurta. 1988. Additional records of Michigan bat ectoparasites. *The Great Lakes Entomologist* 21:115-116.

Durden LA, TL Best, N Wilson and CD Hilton. 1992. Ectoparasitic mites (Acari) of sympatric Brazilian free-tailed bats and big brown bats in Alabama. *Journal of Medical Entomology* 29:507-511.

Jones C. 1977. *Plecotus rafinesquii*. *Mammalian Species* 69:1-4.

Maw HEL, RG Footitt, KGA Hamilton and GGE Scudder. 2000. Checklist of the Hemiptera of Canada and Alaska. NRC Research Press, Ottawa, Ontario, Canada. 220 pp.

McAllister CT, CR Bursey and AD Burns. 2005. Gastrointestinal helminthes of Rafinesque's big-eared bat, *Corynorhinus rafinesquii* (Chiroptera: Vespertilionidae), from southwestern Arkansas, U.S.A. *Comparative Parasitology* 72:121-123.

Palmer DB and WJ Gunier. 1975. A preliminary survey of arthropods associated with bats and bat caves in Missouri and two counties of Oklahoma. *Journal of the Kansas Entomological Society* 48:524-531.

Poissant JA and HG Broders. 2008. Ectoparasite prevalence in *Myotis lucifugus* and *M. septentrionalis* (Chiroptera: Vespertilionidae) during fall migration at Hayes Cave, Nova Scotia. *Northeastern Naturalist* 15:515-522.

Poissant JA, HG Broders and GM Quinn. 2010. Use of lichen as a roosting substrate by *Perimyotis subflavus*, the tricolored bat, in Nova Scotia. *Ecoscience* 17:372-378.

Reeves WK. 2001. Invertebrate and slime mold cavernicoles of Santee Cave, South Carolina, U.S.A. *Proceedings of the Academy of Natural Sciences of Philadelphia* 151:81-85.

New Host and Location Record for the Bat Bug *Cimex adjunctus* Barber 1939

- Reeves WK, LA Durden, CM Ritzi, KR Beckham, PE Super and BM Oconnor.** 2007. Ectoparasites and other symbiotic arthropods of vertebrates in the Great Smoky Mountains National Park, USA. *Zootaxa* 1392:31-68.
- Ritzi CM and JO Whitaker.** 2003. Ectoparasites of small mammals from the Newport Chemical Depot, Vermillion County, Indiana. *Northeastern Naturalist* 10:149-158.
- Sasse DB and PJ Pekins.** 2000. Ectoparasites observed on northern long-eared bats, *Myotis septentrionalis*. *Bat Research News* 41: 69.
- Sparks DW, KC Chapman and CM Ritzi.** 2003. Additional ectoparasitic records of bats from Kansas. *Prairie Naturalist* 35:49-52.
- Spears RE, LA Durden and DV Hagen.** 1999. Ectoparasites of Brazilian free-tailed bats with emphasis on anatomical site preferences for *Chiroptonyssus robustipes* (Acari: Macronyssidae). *Journal of Medical Entomology* 36:481-485.
- Steward TW, VR McDaniel and DR England.** 1986. Additional records and hosts for the bat bug *Cimex pilosellus* in Arkansas. *Proceedings of the Arkansas Academy of Science* 40:95-96.
- Swier VJ.** 2003. Distribution, roost site selection, and food habits of bats in eastern South Dakota. M.S thesis, South Dakota State University, Brookings, 104 pp.
- Trousdale AW and DC Beckett.** 2004. Seasonal use of bridges by Rafinesque's big-eared bat, *Corynorhinus rafinesquii*, in southern Mississippi. *Southeastern Naturalist* 3:103-112.
- Turner RW and J Knox Jones.** 1968. Additional notes on bats from western South Dakota. *The Southwestern Naturalist* 13:444-447.
- Usinger RL.** 1966. Monograph of Cimicidae. The Horn-Shafer Company, Baltimore, Md. 585 pp.
- Webster JM and JO Whitaker.** 2005. Study of guano communities of big brown bat colonies in Indiana and neighboring Illinois counties. *Northeastern Naturalist* 12:221-232
- Whitaker JO, BL Walters, LK Castor, CM Ritzi and N Wilson.** 2007. Host and distribution lists of mites (Acari), parasitic and phoretic, in the hair or on the skin of North American wild mammals north of Mexico: records since 1974. Faculty Publications from the Harold W. Manter Laboratory of Parasitology, University of Nebraska, Lincoln.
- Wilson LW.** 1943. Some mammalian ectoparasites from West Virginia. *Journal of Mammalogy* 24:102.