

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Insecta Mundi

Center for Systematic Entomology, Gainesville,
Florida

March 1999

Cave-dwelling Nesticidae (Araneae) in the southeastern United States: new distribution records and notes on their bionomics

Will Reeves

Clemson University, Clemson, SC

Follow this and additional works at: <https://digitalcommons.unl.edu/insectamundi>



Part of the [Entomology Commons](#)

Reeves, Will, "Cave-dwelling Nesticidae (Araneae) in the southeastern United States: new distribution records and notes on their bionomics" (1999). *Insecta Mundi*. 330.

<https://digitalcommons.unl.edu/insectamundi/330>

This Article is brought to you for free and open access by the Center for Systematic Entomology, Gainesville, Florida at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Insecta Mundi by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Cave-dwelling Nesticidae (Araneae) in the southeastern United States: new distribution records and notes on their bionomics

Will Reeves

Department of Entomology
Clemson University
114 Long Hall
Clemson, SC 29634

The Nesticidae are a worldwide family of small, sedentary spiders frequently found in leaf litter, debris, houses, and caves. The genus *Gaucelmus* is found only in the Americas, primarily in the Neotropics. *Nesticus*, a Holarctic genus, is well represented in the Appalachian Mountains by obligate cave-dwelling species (Gertsch 1984). The genus *Eidmannella* is an American genus recently introduced by humans to Europe and Hawaii (Gertsch 1984). The natural history, including fecundity and prey types, of cave spiders are poorly documented. Here I report a range extension of *Gaucelmus augustinus* Keyserling and natural-history information for *N. georgia* Gertsch and *N. barri* Gertsch in the southeastern United States.

Gertsch (1984) summarized the distribution of *G. augustinus* in his revision of the genus. *Gaucelmus augustinus* is a morphologically variable species ranging from The Bahamas, Florida and Georgia west to Texas and south to Panama (Gertsch 1984). In the United States it lives primarily in caves but surface populations also occur (Peck 1970, 1989).

Holler (1992) reported 36 caves from a survey in the Coastal Plain of South Carolina, but no thorough biological surveys of the invertebrate fauna of these caves have been conducted. On 7 July 1998, I collected two specimens (1 juvenile and 1 female) of *G. augustinus* from an unnamed cave near Santee, Orangeburg Co., South Carolina (33.33° N, 80.27° W). Females, juveniles, and egg sacs were in webs hanging from the walls and ceiling of the cave in total darkness, and I collected two as voucher specimens. Female *G. augustinus* killed immature *Oxidus gracilis* (Koch) and Culicidae in the field. These specimens represent a new record for South Carolina and the northeastern limit of the species in North America.

The right legs of a female were removed and the segments measured in mm. First leg measurements: femur (F): 6.46, patella (P): 1.41, tibia (T): 6.39, metatarsus (M): 5.49, tarsus (Ta): 2.25, total (Tot):

22.00. Second leg: F: 5.02, P: 1.10, T: 4.52, M: 4.06, Ta: 1.93, Tot: 16.63. Third leg: F: 3.16, P: 0.94, T: 2.29, M: 2.35, Ta: 1.45, Tot: 10.19. Fourth leg: F: 5.32, P: 1.10, T: 3.86, M: 3.42, Ta: 1.64, Tot: 15.34. The leg formula was 1243. Compared to Gertsch's (1984) U.S. specimens, this female's legs were smaller than those of a female from Dudley Cave, Florida, but measurements fall within the size range exhibited by females from Texas caves.

A single female of *E. pallida* (Emerton) was collected on October 12, 1998 from the same cave in Orangeburg Co., SC. This species is widespread but previously reported in South Carolina only three times (Gertsch 1984, Gaddy and Morse 1985). This specimen represents a county record. The female *E. pallida* had an egg sac

Nesticus georgia is a troglobite, known only from Dade County, Georgia (Gertsch 1984). No egg-sac data has been published for this species. I collected four egg sacs at the type locality (Sitton's Cave, Dade Co., GA) on 7 and 16 August 1998 that contained 41, 44, 54, and 58 eggs. These counts are greater than the 35 eggs in the egg sac of *N. barri* that I collected from Moody Cave, Jackson County, Alabama, on 15 September 1998. These troglobitic *Nesticus* species have fewer eggs than Wiehle (1953) reported for the Holarctic synanthropic troglophile *N. cellulanus* (Clerck), but fall within the range reported by Nakamura and Kuramoto (1973) for the Japanese troglobite *N. akiyoshiensis* (Uyemura). *Nesticus akiyoshiensis* averages about 50 eggs per sac, with egg counts ranging from approximately 25 to 120 (Nakamura and Kuramoto 1973). Both *N. georgia* and *N. barri* use their spinnerets to carry the egg sacs, indicating some maternal care.

In the field *N. georgia* built webs of tangled dry lines in small ceiling crevices. The spiders hung upside down from small web platforms. I observed juveniles of *N. georgia* ensnaring and killing immature leiodid beetles, *Ptomophagus whiteselli* Barr, and I found the collembolan *Pseudosinella hirsuta* (Delamare-Deboutteville) in a web. I observed adults

ensnaring juvenile cave crickets (Gryllacrididae) in their webs. *Nesticus akiyoshiensis* also feeds on Gryllacrididae in the field but preys most often on myriapods (Nakamura and Kuramoto 1973).

Voucher specimens of *G. augustinus* (adult and juvenile), *E. pallida* (eggs), *N. barri* (eggs and adults), and *N. georgia* (eggs) have been deposited in the Clemson University Arthropod Collection.

Acknowledgments

I thank F. Coyle, M. Hedin, and B. Shear for aiding in identification of the specimens; C. Evans, B. Reeves, and M. Hyatt for field assistance; P. Adler for partially funding the field work and reviewing the manuscript; and A. Wheeler, C. Beard, E. Paysen, C. Evans, F. Coyle, and J. McCreadie for reviewing drafts of the manuscript. This constitutes technical contribution 4456 of the South Carolina Agriculture and Forestry Research System, Clemson University.

Literature Cited

- Gaddy, L.L., and J.C. Morse.** 1985. Common spiders of South Carolina with an annotated checklist. Technical Bulletin 1094 South Carolina Agricultural Experiment Station. 182 pp.
- Gertsch, W. J.** 1984. The spider family Nesticidae (Araneae) in North America, Central America, and the West Indies. Bulletin 31 of the Texas Memorial Museum University of Texas, Austin. 91 pp.
- Holler, C.** 1992. 1992 Santee, S.C. Expedition, No. 2. Der Fledermaus 20:1-3.
- Nakamura, H., and Kuramota, T.** 1973. On the mode of life in cavernicolous spiders, *Nesticus akiyoshiensis* (Uyemura). Akiyoshidai Kagaku Hakubutsukan Haokoku 9:29-37.
- Peck, S. B.** 1970. The terrestrial arthropod fauna of Florida caves. Florida Entomologist 53:204-207.
- Peck, S. B.** 1989. The cave fauna of Alabama: Part I. The terrestrial invertebrates (excluding insects). National Speleological Society Bulletin 51:11-33.
- Wiehle, H.** 1953. Spinnentiere oder Arachnoidea (Araneae). IX: Orthognatha-Cribellatae-Haplogynae-Entelegynae. Die Tierwelt Deutschlands, Jena, Part 42 :1-150, 305.