

## A NEW SPECIES OF *THERIDION* FROM NORTHEASTERN GEORGIA (ARANEAE, THERIDIIDAE)

**John R. Dobyns<sup>1</sup>:** Department of Zoology, Miami University, Oxford, Ohio 45056 USA

**Jason E. Bond:** Department of Biology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061-0406 USA

**ABSTRACT.** A new species of Theridiidae, *Theridion ellicottense*, is described (from one adult male and one de-epigynated female) from the Blue Ridge Province of the southern Appalachian Mountains in northeastern Georgia.

The Family Theridiidae in North America is comprised of 27 genera and 232 described species (Roth 1993) and is relatively well known in terms of the ratio of described to undescribed species (Levi & Levi 1962). This is evidenced by the fact that within the largest genus, *Theridion* Walckenaer 1805, only three species have been described in North America north of Mexico since Levi's 1957 revision (see Gertsch & Reichert 1976; Levi 1980).

This new species is placed within the Theridiidae due to the presence of a tarsal comb and the lack of a colulus. Within the Theridiidae the generic placement of some species can be problematic (Levi & Levi 1962), particularly those species which comprise *Theridion* and *Thymoites* Keyserling 1884. Levi & Levi (1962) indicate that those species belonging to the genus *Theridion* have longer legs, are larger, lack a colulus, and lack the carapace modifications shown by male representatives of the species in the genus *Thymoites*. This new species has long legs (see Table 1), lacks a colulus and lacks carapace modifications. Therefore, we describe here a new species of *Theridion*, *Theridion ellicottense*, found in the southern Appalachians.

### RELATIONSHIPS AND DIAGNOSIS

This new species appears to have affinities to those species which comprise both *Theridion* and *Thymoites*. However, features of the male carapace, pedipalp and chelicerae support our placement of this species in the genus

*Theridion*. We must point out though, that independent of a *Theridion* species phylogeny, our hypothesis of the relationship of *Theridion ellicottense* to others in this genus is speculative. Levi (1957) constructs six species groups within *Theridion*. Based on features listed below, this species is placed in the *sexpunctatum* species group which is comprised of two species, *Theridion cheimatos* Gertsch & Archer 1842 and *Theridion sexpunctatum* Emerton, both known from the southern Appalachians (Levi 1957). Probable synapomorphies for this species group are: 1) the prominent conductor of the male pedipalp, 2) a subducted (hidden) embolus base, and 3) large elongate male chelicerae (Fig. 2). Males of *T. ellicottense* can be distinguished from males of *T. cheimatos* and *T. sexpunctatum* on the basis of features of the conductor (Figs. 3, 4). The conductor of the *T. ellicottense* palp is relatively thin and corkscrew shaped, whereas it is thick and linear in the other two species. As *T. cheimatos* and *T. sexpunctatum* share this feature of the male pedipalp, they may likely be sister species forming the series *ellicottense*—(*cheimatos*—*sexpunctatum*).

### METHODS

All measurements were made with a dissecting microscope equipped with an ocular micrometer scale and are given in millimeters unless otherwise stated as a ratio. Whenever possible measurements were made at 50× and were accurate to 0.02 mm. Dorsal views of the spider were illustrated with the aid of a

<sup>1</sup>To whom all correspondence should be addressed.



Table 1.—Measurements in mm of leg article lengths of male holotype (M) and female paratype (F), *Theridion ellicottense*, new species.

	Leg I		Leg II		Leg III		Leg IV		Pedipalp	
	M	F	M	F	M	F	M	F	M	F
Coxae	0.25	0.21	0.18	0.18	0.20	0.16	0.22	0.20	—	—
Trochanter	0.09	—	0.10	0.13	0.10	0.09	0.09	0.15	—	—
Femur	1.20	—	0.88	0.90	0.66	0.64	0.98	1.06	0.40	0.20
Patella	0.22	—	0.22	0.26	0.04	0.04	0.15	0.20	0.04	0.08
Tibia	1.20	—	0.72	0.64	0.52	0.40	0.82	0.80	0.18	0.14
Metatarsus	1.18	—	0.78	0.66	0.48	0.44	0.72	0.70	—	—
Tarsus	0.52	—	0.45	0.40	0.34	0.36	0.38	0.42	—	0.26
Total	4.66	—	3.33	3.17	2.34	2.37	3.49	3.40		

camera lucida. The male pedipalp was illustrated with the aid of a drawing grid.

*Theridion ellicottense* new species  
(Figs. 1–4)

**Types.**—Male holotype and one female paratype were collected in a cove hardwood forest in Rabun County, Georgia (34°59'46"N, 83°06'54"W) at an elevation between 750–850 m (2 June [holotype] and 4 June [female] 1993; B. Dellinger). Types have been deposited in the U.S. National Museum of Natural History (Washington, DC) collection.

**Etymology.**—The specific name refers to the locality of collection of the type specimen, Ellicott Rock Wilderness Area. This area is named after the explorer and surveyor Andrew Ellicott (1754–1820) who, among other accomplishments, determined the border between North Carolina and Georgia in 1812.

**Male.**—Total length 1.92 mm. Thoracic groove shallow depression. Cephalothorax 0.88 long, length 1.5 times width, dark green with tuning fork-shaped mark directly posterior to cephalic region. Cephalic region slightly raised, extends posteriorly half diameter of PME, anterior eye row slightly recurved, posterior eye row straight. Eyes roughly equal in diameter with AME slightly smaller. Eye diameters: PME 0.07; PLE 0.07; AME 0.05; ALE 0.06. PLE separated by 0.30. Remaining posterior eye row interdistances expressed as PME diameters: PLE-PME 1.0, PME-PME 0.7, PME-AME 0.5. ALE separated by 0.24 mm. Remaining anterior eye row interdistances expressed as ratios of AME diameter: ALE-AME 1.0, AME-AME 1.6.

Clypeus height three times AME diameter. Chelicerae 0.46 long, length 2.5 times width,

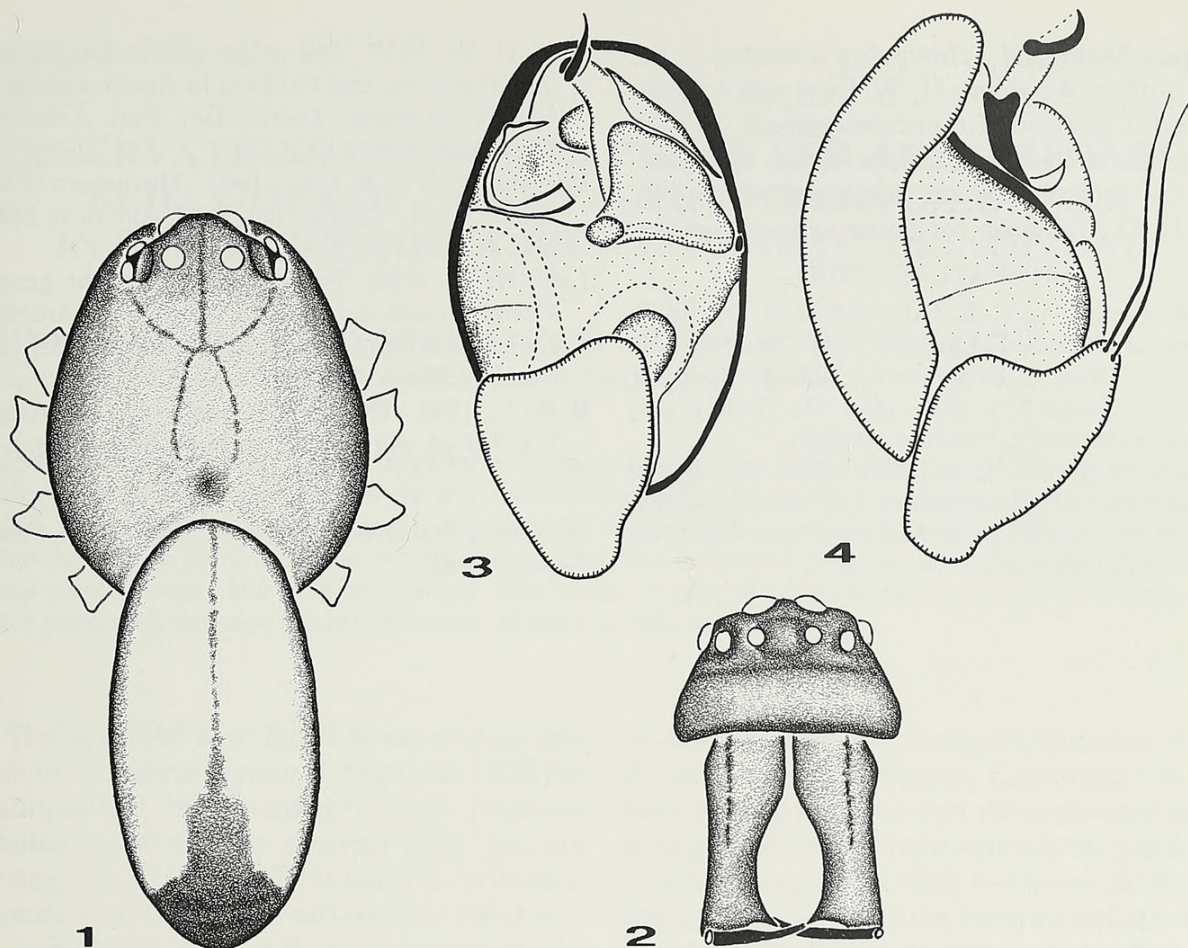
light green with thin dark anterior-lateral stripe (Fig. 2). Cheliceral intermargin with oval opening, promargin provided with one large tooth (Fig. 2). Labium length 0.8 times width. Endite length 2.7 times width. Sternum 0.52 long, length 1.1 times width. Legs pale yellow without distinct markings. Leg formula I-IV-II-III. Coxae IV separated by 0.17.

Abdomen length 2× width. Dorsal surface of abdomen with dark posterior marking and thin dark line extending anteriorly (Fig. 1). No distinct lateral or ventral markings. (The illustration of the male is somewhat stylized. The actual type specimen's abdomen is wrinkled, possibly due to preservation).

Cymbium of male pedipalp length 1.8× width. Conductor distally located, with corkscrew shaped tip. Median apophysis mesally located and sickle-shaped. Thin short embolus with indistinct base (Fig. 3) tucks behind median apophysis. Patella of pedipalp with at least three macrosetae that extend to near tip of conductor. Two of these are visible and illustrated in the lateral view of the palp (Fig. 4).

**Female.**—Total length 2.12 mm. Thoracic groove less pronounced than in male. Cephalothorax 0.82 long, length 1.3× width, dark green without tuning fork mark. Cephalic region as in male. Posterior eye row recurved 0.5 times diameter of PME, anterior eye row slightly recurved. Eyes roughly equal in diameter with AME slightly smaller. Eye diameters: PME 0.08; PLE 0.06; AME 0.05; ALE 0.08. PLE separated by 0.26. Remaining posterior eye row interdistances expressed as ratios of PME diameter: PLE-PME 0.63; PME-PME 0.75; PME-AME 0.50.





Figures 1–4.—*Theridion ellicottense* new species. 1, Male body, dorsal view; 2, Face and chelicerae of male; 3, Left male palp, ventral view; 4, Left male palp, lateral view.

Clypeus height  $3\times$  AME diameter. Chelicerae 0.30 long, length  $2.1\times$  width, lacking anterior lateral stripe of male. Labium length 0.8 times width. Endite length  $2.5\times$  width. Sternum 0.50 long, length  $1.1\times$  width. Legs as in male. Leg formula (leg I missing) IV-II-III (Table 1). Coxae IV separated by 0.20.

Abdomen length  $1.2\times$  width. Dorsum of abdomen like that of male with dark band extending anteriorly from spinnerets, thinning towards anterior  $\frac{1}{3}$  of abdomen. Epigynum was removed and misplaced by an outside party prior to description.

**Natural History.**—Specimens were obtained while using a modified version of a standardized collecting technique (Coddington et al. 1991). Therefore, specific microhabitat information is not known. The collection locality was located in a rich cove forest classified by the US Forest service as a white oak/northern red oak/hickory stand that originated around 1858. Site labels for the specimens indicate that the male was collected on the

“ground” which includes all vegetation and/or structures at or below the knee level of the collector. Therefore, it is likely that the specimen was taken from low lying vegetation (most commonly consisting of *Leucothoe fontanesiana* [Highland Doghobble], *Castanea dentata*, *Lindera benzoin*, *Rubus canadensis*, *Hydrangea radiata*, *Carya glabra*, *Viburnum acerifolium*, *Ilex opaca*, and *Cornus florida*). The female’s collecting label indicates that the specimen was taken “above ground”. This includes vegetation and other structures from the knee level of the collector to as high as the collector can reach.

**Distribution.**—The species is known only from the type locality in the mountains of northeastern Georgia.

**Other material examined.**—None.

#### ACKNOWLEDGMENTS

These specimens were collected during a study that was supported by a Highlands Biological Station Grant-in-Aid and a Ralph M.



Sargent Memorial Scholarship awarded to the first author. We thank H. W. Levi and J. Beatty, and F. A. Coyle for encouragement, B. Dellinger for collecting the specimens, K. Patterson for information on dominant vegetation, and H. D. Cameron for nomenclatural advice.

#### LITERATURE CITED

- Coddington, J. A., C. E. Griswold, D. S. Davila, E. Penaranda & S. F. Larcher. 1991. Pp. 1:44-60. *In* The Unity of Evolutionary Biology. Proc. IV Intern. Congr. Sys. Evol. Biol. (E. Dudley, ed.) Discorides Press, Portland, Oregon.
- Gertsch, W. J. & S. E. Reichert. 1976. The spatial and temporal partitioning of a desert community, with descriptions of new species. *American Mus. Novit.*, 2604:1-25.
- Levi, H. W. 1957. The spider genera *Enoplognatha*, *Theridion*, and *Paidisca* in America north of Mexico (Araneae: Theridiidae). *Bull. American Mus. Nat. Hist.*, 112:1-123.
- Levi, H. W. & L. R. Levi. 1962. The genera of the spider family Theridiidae. *Bull. American Mus. Nat. Hist.*, 127:1-71.
- Levi, H. W. 1980. Two new spiders of the genera *Theridion* and *Acheearanea* from North America (Araneae: Theridiidae). *Trans. American Micros. Soc.*, 99:334-337.
- Roth, V. 1993. The Spider Genera of North America, 3rd ed. *American Arachnol. Soc.* 203 pp.

*Manuscript received 8 August 1995, revised 4 January 1996.*



Dobyns, John R and Bond, Jason E. 1996. "A New Species of Theridion from Northeastern Georgia (Araneae, Theridiidae)." *The Journal of arachnology* 24(3), 89–92.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/221119>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/226449>

**Holding Institution**

Smithsonian Libraries and Archives

**Sponsored by**

Biodiversity Heritage Library

**Copyright & Reuse**

Copyright Status: In Copyright. Digitized with the permission of the rights holder

Rights Holder: American Arachnological Society

License: <https://creativecommons.org/licenses/by-nc-sa/4.0/>

Rights: <https://www.biodiversitylibrary.org/permissions/>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.