

A New Species of the Genus *Nesticella* (Araneae: Nesticidae) from Taiwan

I-Min Tso¹ & Hajime Yoshida²

¹ *Department of Biology, Tunghai University, Taichung 40704, Taiwan, The Republic of China*

² *7-16, Kagota 2 Chome, Yamagata-shi, Yamagata, 990-2484 Japan
E-mail: araneae@mb.infoweb.ne.jp*

Abstract — A new species of the spider family Nesticidae is described from Taiwan under the name, *Nesticella taiwan* sp. nov.

Key words — *Nesticella taiwan*, Nesticidae, new species, Taiwan

The family Nesticidae is a small but widely distributed cribellate and its members resemble Theridiidae in both morphology and behavior. Morphologically, nesticid spiders resemble theridiids in exhibiting a row of serrated bristles on forth tarsus, but differ from them by a rebordered labium and a toothed fang furrow (Kaston 1978). Behaviorally, nesticid spiders also build space webs and hanging inverted in the web. However, while theridiids build their webs in a variety of habitats, nesticids can only be found in enclosed habitats such as caves (Hedin 1997).

Although the family Nesticidae is widely distributed in Europe, Asia, Africa and America (Song et al. 1999) and is documented in eastern China and Japan (Yaginuma 1986), it has not been recorded from Taiwan. Recently, from a long term ecological research in which pitfall traps were used to investigate ground invertebrate fauna in Huisun Forest Area (24°04'N, 121°01'E), one species of this family was obtained. It is a member of the genus *Nesticella* and is recognized as a new species.

The genus *Nesticella* was established by Lehtinen and Saaristo in 1980. In that paper, the genus *Howaia* was also established, but it was synonymized with the genus *Nesticella* by Wunderlich in 1986. This genus is mainly distributed in the tropical areas of Asia to Africa. In East Asia, six species, *Nesticella quelpartensis* (Paik & Namkung 1969), *N. brevipes* (Yaginuma 1970), *N. mogera* (Yaginuma 1972), *N. okinawaensis* (Yaginuma 1979), *N. odonta* (Chen 1984) and *N. yui* Wunderlich & Song 1994, have been recorded (Platnick 1997; Song et al. 1999). The new species is the seventh one of this genus from this area.

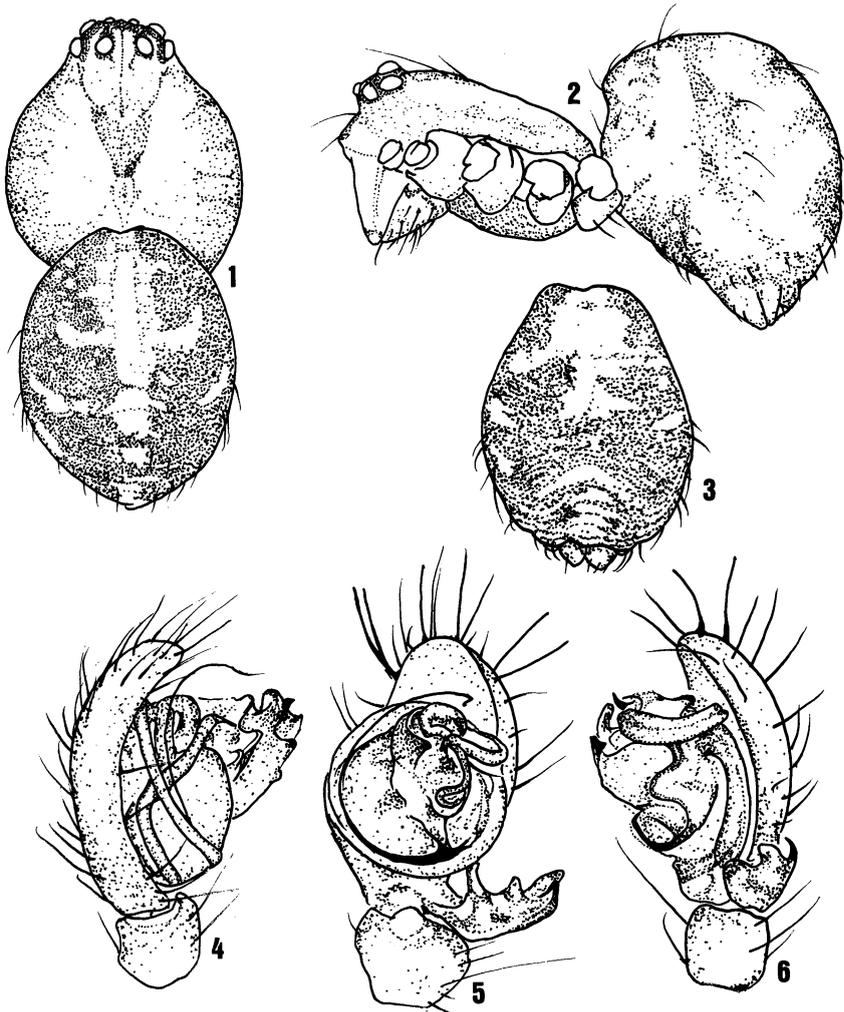
The type specimens of the new species are deposited in the collection of the Department of Biology, Tunghai University, Taichung.

Abbreviations used in this paper are as follows: ALE, anterior lateral eye(s); AME, anterior median eye(s); MOA, median ocular area; PLE, posterior lateral eye(s); PME, posterior median eye(s).

Nesticella taiwan sp. nov.

(Figs. 1–11)

Male (holotype). Total length 2.16 mm. Carapace length 1.16 mm; width 1.00 mm. Abdomen length 1.11 mm; width 0.89 mm. First leg: femur 1.95 mm; patella and

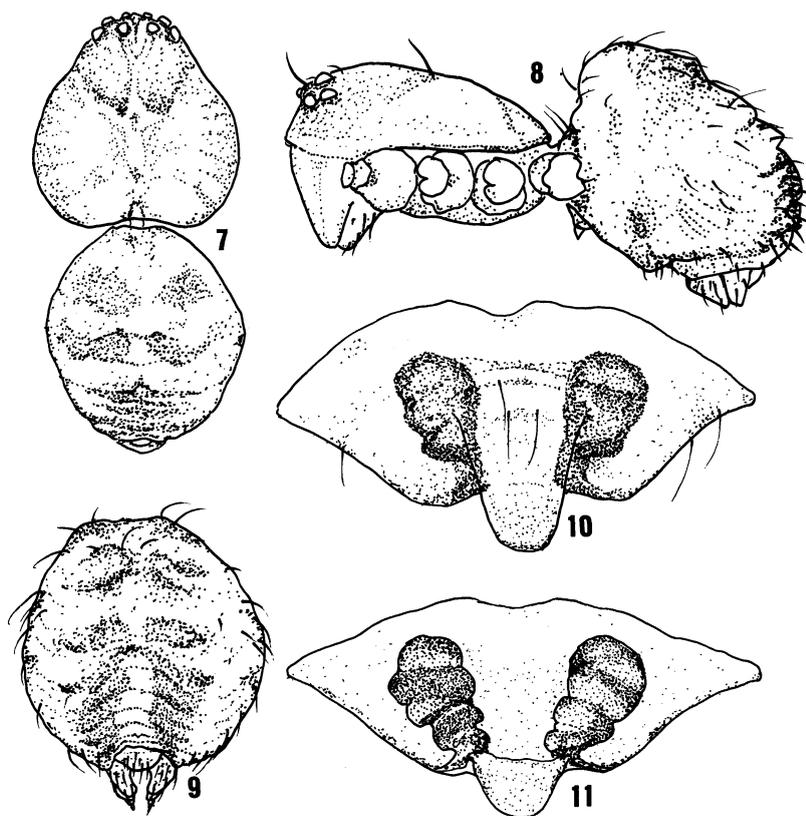


Figs. 1-6. *Nesticella taiwan* sp. nov. (male holotype) — 1, dorsal view; 2, lateral view; 3, abdomen, dorso-posterior view; 4, left palpus, prolateral view; 5, same, ventral view; 6, same, retrolateral view.

tibia 2.32 mm; metatarsus 1.79 mm; tarsus 0.74 mm. Second patella and tibia 1.53 mm; third patella and tibia 1.05 mm; fourth patella and tibia 1.74 mm.

Carapace circular, slightly longer than wide, with an oval median furrow. Diameters of AME smaller than the others (3: 8). AME twice their diameter apart and two-thirds from ALE. PME four-thirds their diameter apart and a half from PLE. MOA, anterior width: posterior width: length=6: 9: 8 in the ratio. Clypeus slightly longer than the length of MOA (9: 8). Promargin of fang furrow with one tooth. Leg formula, 1, 4, 2, 3. Abdomen oval. Palpal organ as shown in Figs. 4-6: paracymbium with four large distal projections; embolus thin and long, originated from the basal part.

Carapace and abdomen grayish brown with blackish blotches as shown in Figs. 1



Figs. 7-11. *Nesticella taiwan* sp. nov. (female paratype) — 7, dorsal view; 8, lateral view; 9, abdomen, dorso-posterior view; 10, epigynum, ventral view; 11, internal genitalia, dorsal view.

-3. Venter of the abdomen almost dusky. Chelicerae, maxillae and labium yellowish dusky brown. Sternum dusky brown. AME black. ALE, PME and PLE white. Femora of legs yellowish brown with wide median and distal dusky blotches; patellae, tibiae and metatarsi brown with distal dusky blotches; tarsi brown.

Female (paratype). Total length 2.26 mm. Carapace length 1.11 mm; width 1.05 mm. Abdomen length 1.16 mm; width 0.95 mm. Second leg: femur 1.53 mm; patella and tibia 1.68 mm; metatarsus 1.16 mm; tarsus 0.63 mm. Third patella and tibia 1.21 mm. First and fourth legs are missing.

Diameters of AME: ALE: PME: PLE=4: 8: 7: 7 in the ratio. AME three-fourths their diameter apart and a half from ALE. PME their diameter apart and two-sevenths from PLE. MOA, anterior width: posterior width: length=12: 21: 14 in the ratio. Clypeus slightly shorter than the length of MOA (6: 7). Genital organ as shown in Figs. 10-11: chitin scape projecting over the epigastric furrow.

Other characters as same as in the male.

Type series. Holotype: ♂, Huisun Forest Area (24°04'N, 121°01'E), 1250m alt., Nantow County, Taiwan, IV-1998, Hai-Yin Wu leg. (THU-Ar-990048). Paratypes: 1

♀, Huisun Forest Area, 1600m alt., IV-1998, Sheng-Hai Wu leg. (THU-Ar-990047); 1 ♂, 9-IV-1998, Sheng-Hai Wu leg. (THU-Ar-990049).

Distribution. Taiwan: Nantow County.

Remarks. The present new species resembles *Nesticella odonta* (Chen 1984) described from Zhejiang Province, China, but is distinguished from the latter by the paracymbium of male palpus without basal projection (Figs. 4-6) and the epigynum with chitin scape projecting over the epigastric furrow (Figs. 10-11).

Etymology. The specific name is a noun in apposition after Taiwan.

Acknowledgments

We wish to express our sincere thanks to Dr. Hai-Yin Wu of the Institute of Natural Resource Management, National Tung-Hwa University and Dr. Sheng-Hai Wu of Department of Zoology, National Chung-Sing University for providing pitfall specimens. We are also indebted to Mr. Jin-Nan Hwang, Miss I-Chia Chou and Miss Chung-Li Huang of Department of Biology, Tunghai University for assistance in sorting and illustrating the specimens.

References

- Chen, Z. 1984. A new species of spider of the genus *Nesticus* from China (Araneae: Nesticidae). *Acta Zootaxon. Sin.*, 9: 34-36. (In Chinese with English summary)
- Hedin, M. C. 1997. Speciation history in a diverse clade of habitat-specialized spiders (Araneae: Nesticidae: *Nesticus*): inferences from geographic-based sampling. *Evolution*, 51: 1929-1945.
- Kaston, B. J. 1978. How to know the Spiders (3rd edition). Wm. C. Brown Company Publishers, Dubuque, Iowa. vii+272 pp.
- Lehtinen P. T. & Saaristo, M. I. 1980. Spiders of the Oriental-Australian region. II. Nesticidae. *Ann. Zool. Fennici*, 17: 47-66.
- Platnick, N. I. 1997. *Advances in Spider Taxonomy 1992-1995*. New York Entomological Society, New York. 976 pp.
- Song, D., Zhu, M. & Chen, J. 1999. *The Spiders of China*. Hebei Science and Technology Publishing House, Hebei. 640 pp., 4 pls.
- Wunderlich, J. 1986. *Spinnen Fauna Gestern und Heute: Fossile Spinnen in Bernstein und Ihre Heute Lebenden Verwandten*. Erich Bauer Verlag bei Quelle & Meyer, Wiesbaden. 283 pp.
- Yaginuma, T. 1970. Two new species of small nesticid spiders of Japan. *Bull. Natn. Sci. Mus.*, Tokyo, 13: 385-394.
- Yaginuma, T. 1986. *Spiders of Japan in Color (new edition)*. Hoikusha, Osaka. xxiv+305 pp., 64 pls. (In Japanese)

(Received January 31, 2000/Accepted March 13, 2000)