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Redescription of a little-known spider species, *Mesiotelus lubricus* (Simon, 1880) (Aranei: Liocranidae) from China

Переописание малоизвестного вида пауков *Mesiotelus lubricus* (Simon, 1880) (Aranei: Liocranidae) из Китая

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KEY WORDS: Aranei, Liocranidae, *Mesiotelus lubricus,* redescription, China
КЛЮЧЕВЫЕ СЛОВА: Aranei, Liocranidae, *Mesiotelus lubricus,* переописание, Китай

ABSTRACT. A little-known spider species of the genus *Mesiotelus*, *M. lubricus* (Simon, 1880) from China, is redescribed and illustrated.

РЕЗЮМЕ. Приведено иллюстрированное переописание малоизвестного вида *Mesiotelus lubricus* (Simon, 1880) из Китая.

Introduction

The spider family Liocranidae currently contains 29 genera and 163 species in the world-wide [Platnick, 2008]. Until now, a total of four genera and six species have been recorded in China [Song, 1987; Song *et al*., 1991; Song & Zhu, 1994; Tso *et al*., 2005; Platnick, 2008]. Members of the family Liocranidae are small- to medium-sized, free-living ground spiders inhabiting forest litter, and are usually found in woody debris, litter or humus on the forest floor in shady deciduous forests [Deeleman-Reinhold, 2001]. They are mainly distributed in the tropical areas of the world.

The genus *Mesiotelus*, of the family Liocranidae, was established by Simon in 1897 for the species *Cheiracanthium tenuissimus* L. Koch, 1866, from Europe. At present, this genus includes 15 described species [Platnick, 2008] and are mainly distributed in Eurasia. Among them, only one species, *Mesiotelus lubricus* (Simon, 1880), with both male and female, has been reported from China [Simon, 1880, 1897; Song & Hubert, 1983; Song, 1987; Song, Zhu & Chen, 1999, 2001]. We here outline the history of this species. Simon collected many specimens in his collecting journey to China and described a new spider species collected from Beijing, China, *Liocranum lubricum* Simon, 1880. Later [Simon, 1897], he transferred it to the newly erected genus *Mesiotelus.* From that date it had not been researched until Song & Hubert [1983] re-studied the specimens of Simon's Beijing collections deposited in the Natural History Museum of Paris. However, all descriptions and illustrations were very simple, especially those of the male. For example, Song & Hubert [1983] described the male as "Body length 3.2. Palp long (2.67 = femur 1.0 + patella 0.75 + tibia 0.25 [with apophysis 0.62] + tarsus 0.67)". This description was accompanied by only an indistinct illustration of the retrolateral palpal organ. All other reports [Song, 1987; Song, Zhu & Chen, 1999, 2001] were copied from Song & Hubert [1983]. In other words, owing to past limited circumstances, this species has not been carefully described and illustrated. We believe that this species may have been often collected, but researchers could not successfully identify the specimen (especially the male).

While examining the spider specimens collected from Baishi Mountain in 2008, Laiyuan County, Hebei Province, China, we found a few liocranid species. Among them, the female of *Mesiotelus lubricus* was easily identified and confirmed; a male specimen with body habitus and pattern very similar to that of the female *M. lubricus* was also found. The male palp was very long, with a long retrolateral tibial apophysis and relatively long patella. All these characters are conforming to the genus characters of *Mesiotelus.* Therefore, we identified it as the male of *M. lubricus* and redescribed it below.

Material and Methods

Terminology is standard for Aranei. All specimens were preserved in 75% ethyl alcohol and were examined, drawn and measured under a Tech XTL-II stereomicroscope equipped with an Abbe drawing device. Epigyna were removed and cleared in 10% warm solution of potassium hydroxide (KOH), transferred to alcohol and temporarily mounted for drawing. Carapace length was measured from the anterior margin to the rear margin of the carapace medially. Total length is the sum of carapace and abdomen length, regardless of

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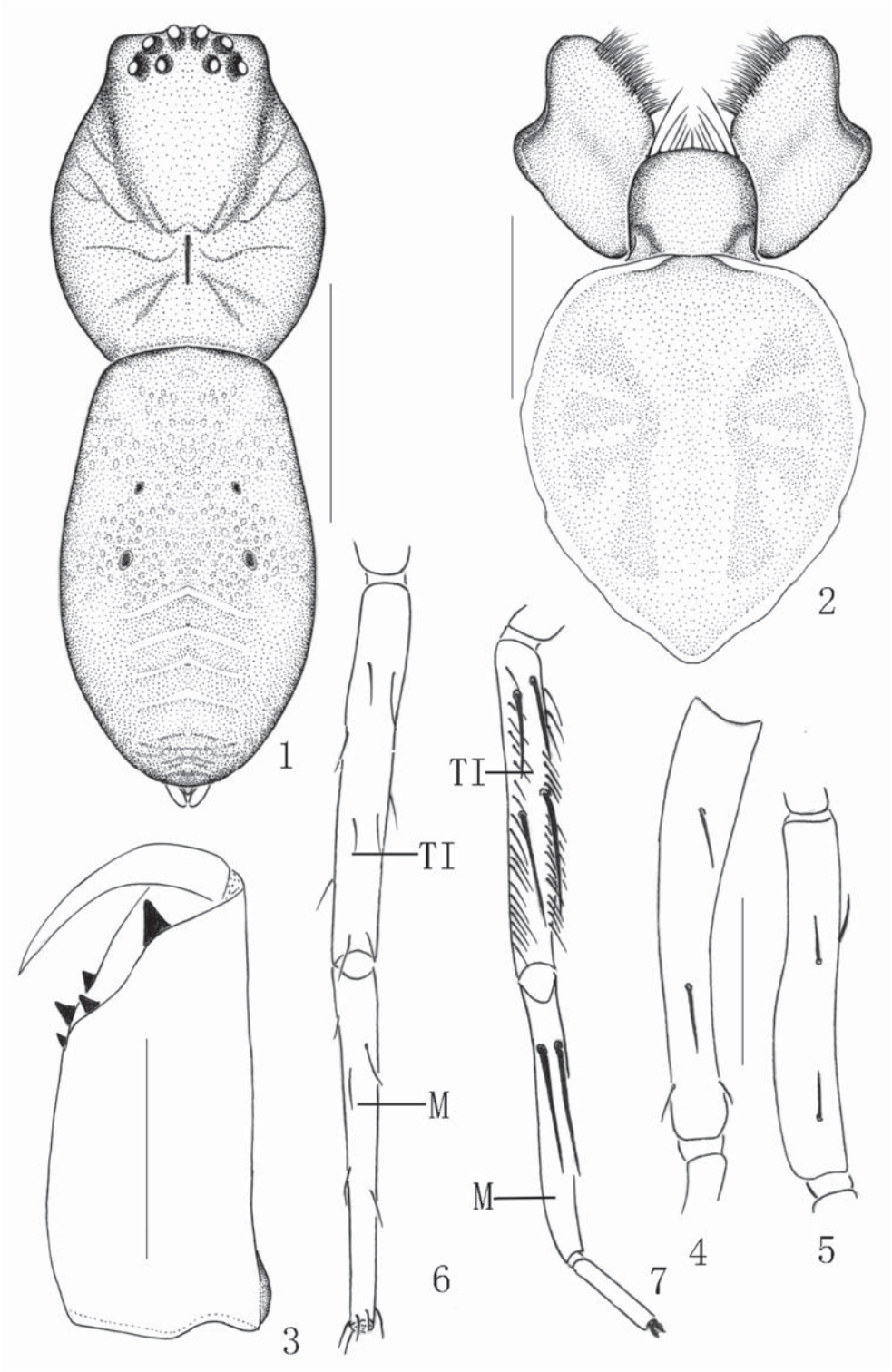


Figs 1–7. *Mesiotelus lubricus*: 1 — male body, dorsal view; 2 — male endites, labium and sternum, ventral view; 3 — male left chelicera, posterior view; 4 — female left femur IV, dorsal view, showing spines; 5 — female left femur I, dorsal view, showing spines; 6 — female left tibia and metatarsus IV, ventral view, showing spines; 7 — female left tibia, metatarsus and tarsus I, ventral view, showing spines; TI — tibia; M — metatarsus. Scale bars: 1 — 2 mm; 2 — 1 mm; 3 — 0.5 mm; 4–7 — 0.1 mm.

Рис. 1–7. *Mesiotelus lubricus*: 1 — самец, сверху; 2 — самец, стернум, лабиум и максиллы, снизу; 3 — левая хелицера самца, сзади; 4 — левое бедро IV самки сверху, показаны шипы; 5 — левое бедро I самки сверху, показаны шипы; 6 — левая голень и предлапка IV снизу, показаны шипы; 7 — левая голень и предлапка I снизу, показаны шипы; TI — голень; M — предлапка. Масштаб: 1 — 2 мм; 2 — 1 мм; 3 — 0,5 мм; 4–7 — 0,1 мм.

the petiolus. Eye sizes are measured as the maximum diameter in a dorsal view. The measurements of legs are as follow: total length = femur + patella + tibia + metatarsus + tarsus. All measurements are given in mm.

The following abbreviations are used: ALE, anterior lateral eyes; ALE–PLE, distance between ALE and PLE; AME, anterior median eyes; AME–ALE, distance between AME and ALE; AME–AME, distance between AME; MOA, median ocular area; PLE, posterior lateral eyes; PME, posterior median eyes; PME–PLE, distance between PME and PLE; PME–PME, distance between PME; SP1, spermatheca with fertilization duct; SP2, spermatheca without fertilization duct.

Specimens are deposited in the Museum of Hebei University (MHBU), Baoding, China.

Fam. LIOCRANIDAE

Mesiotelus Simon, 1897

Mesiotelus Simon, 1897:143; Song, Zhu & Chen, 2001: 304.

Type species: *Cheiracanthium tenuissimus* L. Koch, 1866, by original designation.

DIAGNOSIS. The presence of a long male palp (especially long tibia and patella) distinguishes the genus *Mesiotelus* from other liocranid genera. The genus *Mesiotelus* presumably has close affinities with the Palearctic genus *Liocranum* and the Nearctic genus *Hesperocranum* on the basis of potentially derived genitalic characters: male palpal tibia with a prolateral lobe and epigynum with a similar conformation, including an anterior hood and posterior spermathecal sacs and ducts [Ubick & Platnick, 1991].

Mesiotelus can be distinguished from *Hesperocranum* by: tibiae and metatarsi I, II with interspersed typical spines and relatively few pairs of ventral bristles (Fig. 7), while the latter without spine and with numerous pairs of ventral bristles on tibiae and metatarsi I–III; epigynum with single hood anteriorly, while the latter with a bipartite hood; also *Mesiotelus* can be further distinguished from *Hesperocranum* by having recumbent, feathery leg setae, and the male with prognathous chelicerae.

Mesiotelus is also very similar to the *Liocranum*, but can be distinguished from the latter by: metatarsi I, II with only one pair of long ventral spines, while the latter has two or three pairs of long ventral spines; epigynum with a single small, half-moon shaped hood anteriorly, while the latter often has a large and variously shaped hood; also *Mesiotelus* can be further distinguished from *Liocranum* by having fewer pairs of ventral bristles on tibiae and metatarsi I, II.

Mesiotelus lubricus (Simon, 1880)
Figs 1–13.

Liocranum lubricum Simon, 1880: 122, pl. 3, f. 26–27(♂♀).

Mesiotelus lubricus: Simon, 1897: 140, 143; Song & Hubert, 1983: 14, f. 37–40(♂♀); Song, 1987: 328, f. 283(♂♀); Song et al., 1999: 411, f. 238M–N(♂♀); Song et al., 2001: 304, f. 193(♂♀).

TYPE MATERIAL. *Liocranum lubricum* Simon, 1880: the type specimens are deposited in the Natural History Museum of Paris. They were examined by Prof. Daxiang Song (ca. 1979) and we consulted his original sketches.

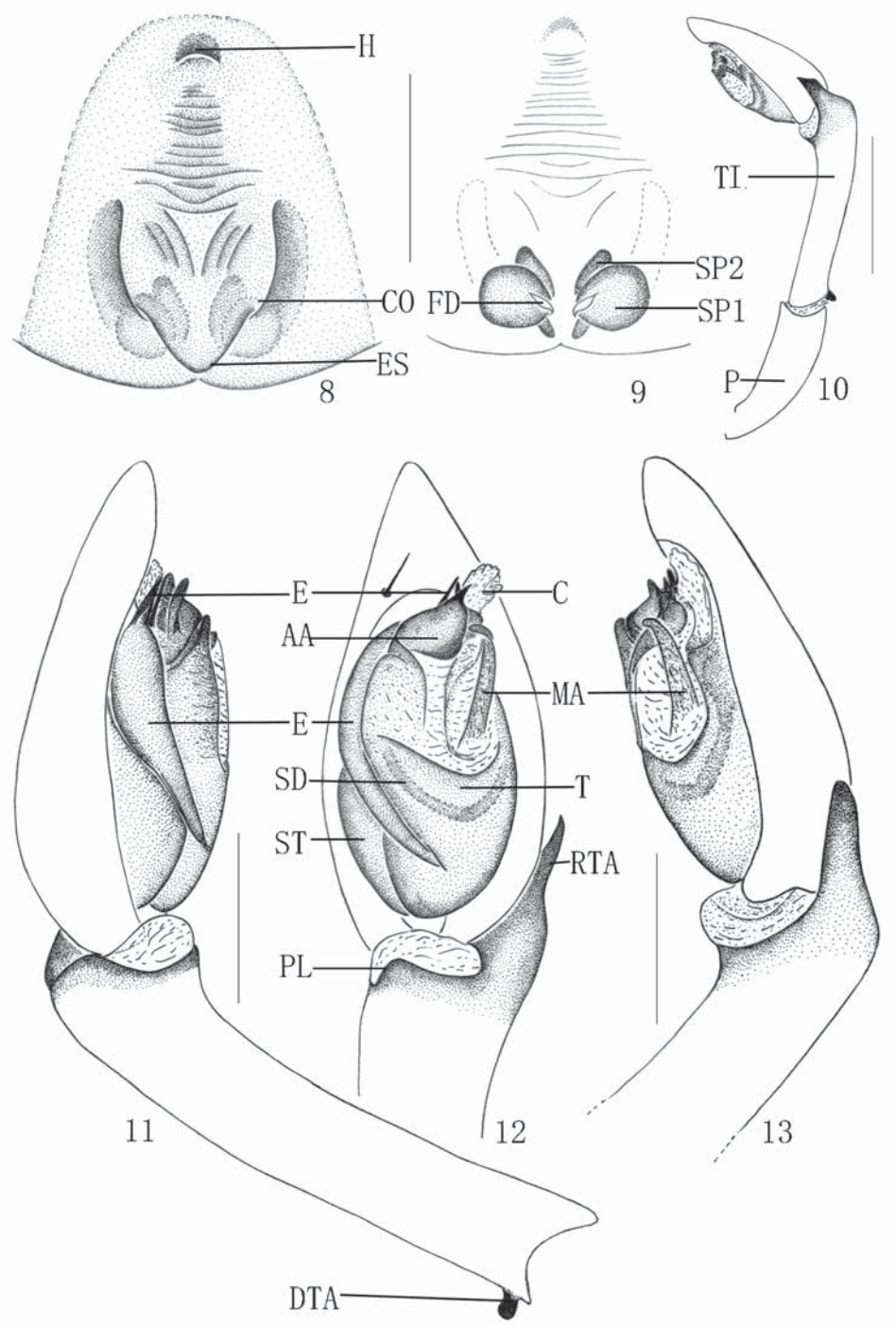
MATERIAL EXAMINED. 1 ♂ and 8 ♀♀ from Baishi Mountain, Laiyuan County, Hebei Province, China, April 30, 2008, F. Zhang and L.M. Zhu leg. (MHBU). 1 ♀ from Pingshan County, Hebei Province, China, May 21, 1986, W. S. Zhang leg. (MHBU). 3 ♀♀ from Zanhuang County, Hebei Province, China, June 13, 1998, F. Zhang leg. (MHBU). 2 ♀♀ from Wu'an County, Hebei Province, China, May 18, 1999, F. Zhang leg. (MHBU). 2 ♀♀ from Linzhou County, Henan Province, China, May 11, 1999, F. Zhang leg. (MHBU)

DIAGNOSIS. This species resembles the type species *M. tenuissimus* [cf. Kovblyuk *et al*., 2008], but males can be distinguished by the longer thumb-shaped retrolateral tibial apophysis (retrolateral view), by the palpal tibia bearing a dorsal knob-shaped apophysis proximally, by the shape of additional tegular apophysis, by the relatively thin base of median apophysis; females by the posterior margin of epigynal scape being closer to genital fold.

REDESCRIPTION. Male (Mt. Baishi, Hebei Province). Total length 3.72: carapace 1.55 long, 1.42 wide; abdomen 2.17 long, 1.32 wide. Carapace (Fig. 1) brown and smooth, without granulations or pits, elongate-ovoid in dorsal view, darker in eye area. Clypeus height 0.10, almost equal to AME diameter. Eye sizes and interdistances: AME 0.10, ALE 0.12, PME 0.10, PLE 0.10; AME–AME 0.16, AME–ALE 0.13, PME–PME 0.19, PME–PLE 0.19, ALE–PLE 0.16. MOA 0.19 long, front width 0.13, back width 0.19. Thoracic groove longitudinal, dark. Radial furrows indistinct, slightly dark. Chelicerae (Fig. 3) brown, with three promarginal and two retromarginal teeth. Endites (Fig. 2) brown, nearly rectangular, obliquely depressed, inner margin with a cluster of fine hairs. Labium (Fig. 2) as long as wide, with several long bristles distally. Sternum (Fig. 2) bright brown, posteriorly rounded between coxae IV. Legs brown; femur I with two dorsal and one prolateral macrosetae, tibia I with two pairs of long spines and two rows of short spines ventrally, metatarsus I with one pair of long spines ventrally; femur II with two dorsal macrosetae, tibia II with two pairs of long spines (prolateral spines longer) and two rows of short spines ventrally, metatarsus II with one pair of long spines ventral; femur III with two dorsal, one prolateral and one retrolateral macrosetae, tibia III with three pairs of ventral spines, two prolateral spines and one retrolateral spine; metatarsus III with one pair of ventral, one prolateral and one retrolateral spines; other segments have no spines, leg IV absent. Tarsal claws with four teeth. Measurements of legs: I 7.78 (1.13 + 1.80 + 2.07 + 0.78 + 2.00); II 6.58 (1.07 + 1.58 + 1.61 + 0.55 + 1.77); III 5.38 (0.65 + 1.32 + 1.35 + 0.61 + 1.45). Abdomen (Fig. 1) light brown dorsally, with two pairs of muscle impressions centrally and behind these, four white chevrons; paler ventrally and with white ring around spinnerets.

Male palp (Fig. 10) very long: femur 0.78, patella 0.61, tibia (including apophysis) 0.84, tarsus (cymbium) 0.78. Palpal organ as illustrated (Figs 10–13): tibia with short prolateral lobe [Bosselaers & Jocqué, 2002] and longer thumb-shaped retrolateral apophysis terminally, and also with a dorsal knob-shaped apophysis proximally (Fig. 11); median apophysis (Fig. 12) retrolaterally, long flake-like and with thin base, brown, originating from tegulum centrally; additional tegular apophysis (Fig. 12) apically, brown and sclerotized, large and almost triangular from ventral view, with two pointed spine-like tips; embolus long, originating prolaterally, median part hidden behind additional tegular apophysis, tip near conductor; conductor apical, white, membranous (Figs 12–13), thin and flake-like; subtegulum small, almost hidden by tegulum, prolateral.

Female (Mt. Baishi, Hebei Province). Total length 5.76: Carapace 2.16 long, 1.80 wide; abdomen 3.60 long, 2.25 wide. Eye sizes and interdistances: AME 0.13, ALE 0.14, PME 0.12, PLE 0.12; AME–AME 0.07, AME–ALE 0.03,



Figs 8–13. *Mesiotelus lubricus*: 8 — epigynum, ventral view; 9 — vulva, dorsal view; 10 — male left palp, showing palpal organ, tibia and patella; 11 — male left palp, prolateral view; 12 — same, ventral view; 13 — same, retrolateral view; AA — additional tegular apophysis; C — conductor; CO — copulatory opening; DTA — dorsal tibial apophysis; E — embolus; FD — fertilization duct; ES — epigynal scape; H — hood; MA — median apophysis; P — patella; PL — prolateral lobe of tibia; RTA — retrolateral tibial apophysis; SD — sperm duct; SP1 — spermatheca with fertilization duct; SP2 — spermatheca without fertilization duct; ST — subtegulum; T — tegulum; TI — tibia. Scale bars: 8–9 — 0.3 mm; 10 —1 mm; 11–13 — 0.5 mm.

Рис 8–13. *Mesiotelus lubricus*: 8 — эпигина, снизу; 9 — вульва, сверху; 10 — левая пальпа самца, ретролатерально; 11 — левая пальпа самца, пролатерально; 12 — левая пальпа самца, снизу; 13 — левая пальпа самца, ретролатерально; AA — дополнительный тегулярный отросток; C — кондуктор; CO — копулятивные отверстия; DTA — дорзальный отросток голени; E — эмболюс; FD — фертилизационный канал; ES — скапус эпигины; H — карман; MA — медиальный отросток; P — колено; PL — пролатеральная лопасть голени; RTA — ретролатеральный отросток голени; SD — семенной каналец; SP1 — сперматека с фертилизационным каналом; SP2 — сперматека без фертилизационного канала; ST — субтегулюм; T — тегулюм; TI — голень. Масштаб: 8–9 — 0,3 mm; 10 — 1 mm; 11-13 — 0,5 mm.

PME–PME 0.13, PME–PLE 0.13. MOA 0.33 long, front width 0.30, back width 0.36. Clypeus height 0.13. Legs brown; femora I, II with two dorsal and one prolateral macrosetae (Fig. 5), tibiae I, II with two pairs of long and two rows of short spines ventrally, metatarsi I, II with one pair of ventral spines (Fig. 7); femora III, IV with two dorsal, one prolateral and one retrolateral macrosetae (Fig. 4), tibiae III, IV with three pairs of ventral spines, two prolateral spines and one retrolateral spine; metatarsi III, IV with three pairs of ventral spines, one prolateral spine and one retrolateral spine (Fig. 6); other segments have no spines. Measurements of palp and legs: palp 3.05 (0.86 + 0.66 + 0.72 + 0.81); I 8.29 (2.16 + 1.10 + 2.19 + 1.76 + 1.08); II 7.66 (2.03 + 1.07 + 1.90 + 1.67 + 0.99); III 7.03 (1.76 + 0.99 + 1.40 + 1.89 + 0.99); IV 9.99 (2.61 + 1.12 + 2.30 + 2.79 + 1.17). Leg formula: 4123.

Epigynum as illustrated (Fig. 8), with almost triangular hairy plate; plate with pronounced, half-moon shaped hood anteriorly; with several transverse wrinkles centrally; copulatory openings concealed at sclerotized lateral margins; tongue-shaped epigynal scape posteriorly, close to genital fold. Vulva (Fig. 9) with very short copulatory ducts connected to copulatory openings and spermathecae; spermathecae posteriorly, both ball-shaped, sp1 larger than sp2 and sp1 fitted with single membranous fertilization duct.

VARIATION. Females (n=15): body length: 4.94–6.32. Femur I prolateral spine: 0–1; femur II prolateral spines:1–2; femur III, IV retrolateral spines:1–2, prolateral spines:1–2.

HABITIAT. Free-living ground-dwelling spiders inhabiting deciduous forest litter, debris, or humus on the shady temperate forest floor. All specimens were collected using a hand-made detritus sifter on forest litter.

DISTRIBUTION. China (Hebei, Henan, Beijing).

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