

Taxonomic notes on the Euophryini jumping spiders, with description of a new species of *Leuserattus* Prószyński et Deeleman-Reinhold, 2012 from Vietnam (Aranei: Salticidae)

Таксономические заметки по паукам-скакунчикам трибы Euophryini, с описанием нового вида *Leuserattus* Prószyński et Deeleman-Reinhold, 2012 из Вьетнама (Aranei: Salticidae)

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KEY WORDS: Araneae, distribution, mainland, morphology, new combination.

КЛЮЧЕВЫЕ СЛОВА: Araneae, распространение, материк, морфология, новая комбинация.

ABSTRACT. A new species of the genus *Leuserattus* Prószyński et Deeleman-Reinhold, 2012 from mainland Vietnam is described: *L. khuongi* sp.n. (♂♀). A detailed description, photos of the copulatory organs and somatic features of the new species are provided. Based on morphological traits, the species *Euochin extraculum* Wang et Zhang, 2023 is transferred to the genus *Spiralembolus* Wang et Li, 2023: *S. extraculum* (Wang et Zhang, 2023), comb.n.

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РЕЗЮМЕ. Описан новый вид из рода *Leuserattus* Prószyński et Deeleman-Reinhold, 2012 из материкового Вьетнама: *L. khuongi* sp.n. (♂♀). Для нового вида даны детальное описание, фотографии копулятивных органов и соматических признаков. На основании анализа морфологических признаков вид *Euochin extraculum* Wang et Zhang, 2023 переведен в род *Spiralembolus* Wang et Li, 2023: *S. extraculum* (Wang et Zhang, 2023), comb.n.

Introduction

The jumping spider tribe Euophryini Simon, 1901 is one of the most diverse groups within the subfamily Salticinae, of which taxonomy remains problematic and poorly resolved [Zhang, Maddison, 2015; Yu *et al.*, 2023]. In Vietnam, the Euophryini have been insufficiently studied, with some 15 genera and 20 species having been recorded to date [Žabka, 1985; Logunov, Jäger, 2015; Logunov, 2021, 2024; Yu *et al.*, 2023; World Spider Catalog, 2025].

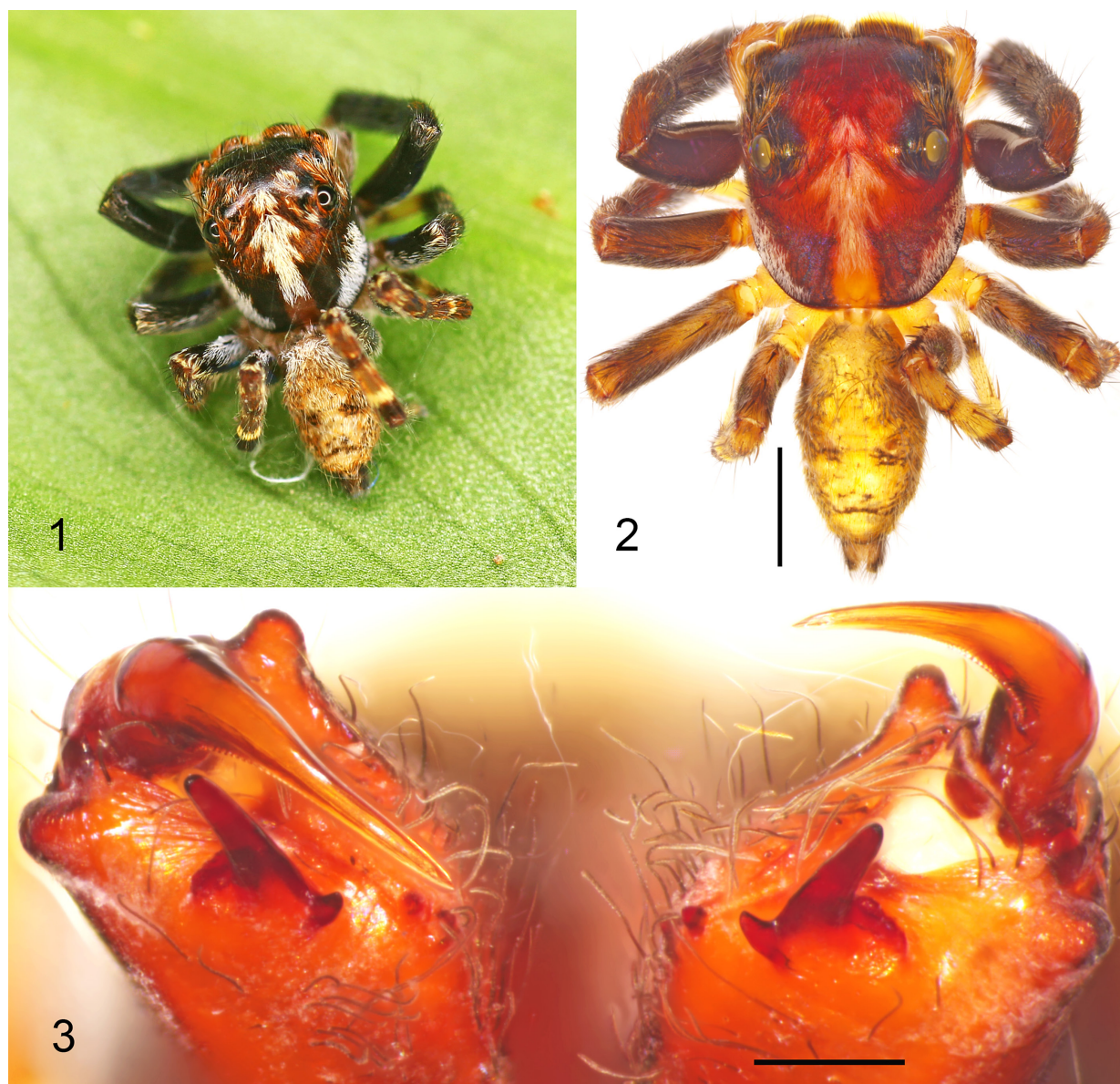
At present, the euophryini genus *Leuserattus* Prószyński et Deeleman-Reinhold, 2012 is known to consist of two species only, both with the restricted distribution on the islands of Indonesia and Malaysia [Prószyński, Deeleman-Reinhold, 2012; Deeleman-Reinhold, Miller, 2021].

In the present paper, the genus *Leuserattus* is newly recorded from the mainland of Vietnam, with a new species, *L. khuongi* sp.n. (♂♀), being described. Besides, based on morphological traits, the species *Euochin extraculum* Wang et Zhang, 2023 is transferred to the genus *Spiralembolus* Wang et Li, 2023: *S. extraculum* (Wang et Zhang, 2023) comb.n.

Material and methods

The specimens studied were collected by a beating tray and examined using a Leica M205C stereo microscope. Photos were taken using Jenoptik ProgRes CF Scan 12.5MP camera attached to the stereo microscope and Jenoptik ProgRes Capture Pro 2.10.0.1 software. The male palp and the epigyne were examined and illustrated after dissection. The epigyne was cleared in a 10% KOH solution at room temperature for about 12 hours. Photos were stacked using the Helicon focus 8.2.2 Pro software and then modified using Adobe Photoshop CS2 9.0. All measurements are in millimeters (mm). The description format follows Hoang *et al.* [2024]. Leg segment lengths are given as follows: femur + patella + tibia + metatarsus + tarsus (total length). The studied specimens have been deposited in the Vietnam National Museum of Nature (VNMN), Hanoi, Vietnam.

Abbreviations used in the text are as follows: ALE — anterior lateral eye; AME — anterior median eye; PLE — posterior lateral eye; PME, posterior median eye; Fm — femur; Tb — tibia; Mt — metatarsus; the number and position of spines on legs: d — dorsal; pr — prolateral; v — ventral.



Figs 1–3. The holotype male of *Leuserattus khuongi* sp.n. 1 — habitus of non-preserved specimen, dorsal view; 2 — same, preserved in alcohol, dorsal view; 3 — chelicerae, ventral view. Scale bars: (2) 1 mm, (3) 0.2 mm.

Рис. 1–3. Самец-голотип *Leuserattus khuongi* sp.n. 1 — габитус неконсервированного экземпляра, вид сверху; 2 — тоже, законсервированный в спирте, вид сверху; 3 — хелицеры вид снизу. Масштаб: (2) 1 мм, (3) 0,2 мм.

Results

Genus *Leuserattus* Prószyński et Deeleman-Reinhold, 2012

Leuserattus Prószyński et Deeleman-Reinhold, 2012: 42.

Type species: *Leuserattus gunung* Prószyński et Deeleman-Reinhold, 2012.

Species included: *L. gunung*, *L. pristinus* Deeleman-Reinhold et Miller, 2021, and *L. khuongi* sp.n.

DIAGNOSIS. See in Prószyński & Deeleman-Reinhold [2012] and Deeleman-Reinhold & Miller [2021].

DISTRIBUTION. Indonesia (Sumatra, Java), Malaysia (Borneo) and Vietnam [Prószyński, Deeleman-Reinhold, 2012; Deeleman-Reinhold, Miller, 2021; present data].

Leuserattus khuongi sp.n. Figs 1–10.

TYPES. HOLOTYPE ♂ (VNMN-ARA-SAL-661), Vietnam, Dak Lak Prov., Ea Kar Distr., Ea So Nature Reserve (12.9883°N, 108.6742°E), 150 m a.s.l., 18.02.2024, Q.D. Hoang. — PARATYPES: 1 ♀ (VNMN-ARA-SAL-660), together with the holotype; 1 ♀ (VNMN-ARA-SAL-242), Vietnam, Dak Lak Prov., Lak Distr., Chu Yang Sin National Park (12.42405°N, 108.3476°E), 806 m a.s.l., 14.06.2022, Q.D. Hoang; 3 ♀♀ (VNMN-ARA-SAL-620.1-3), same prov., Lak Distr., Chu Yang Sin National Park (12.4863°N, 108.4675°E), 520 m a.s.l., 15.06.2024, Q.D. Hoang.

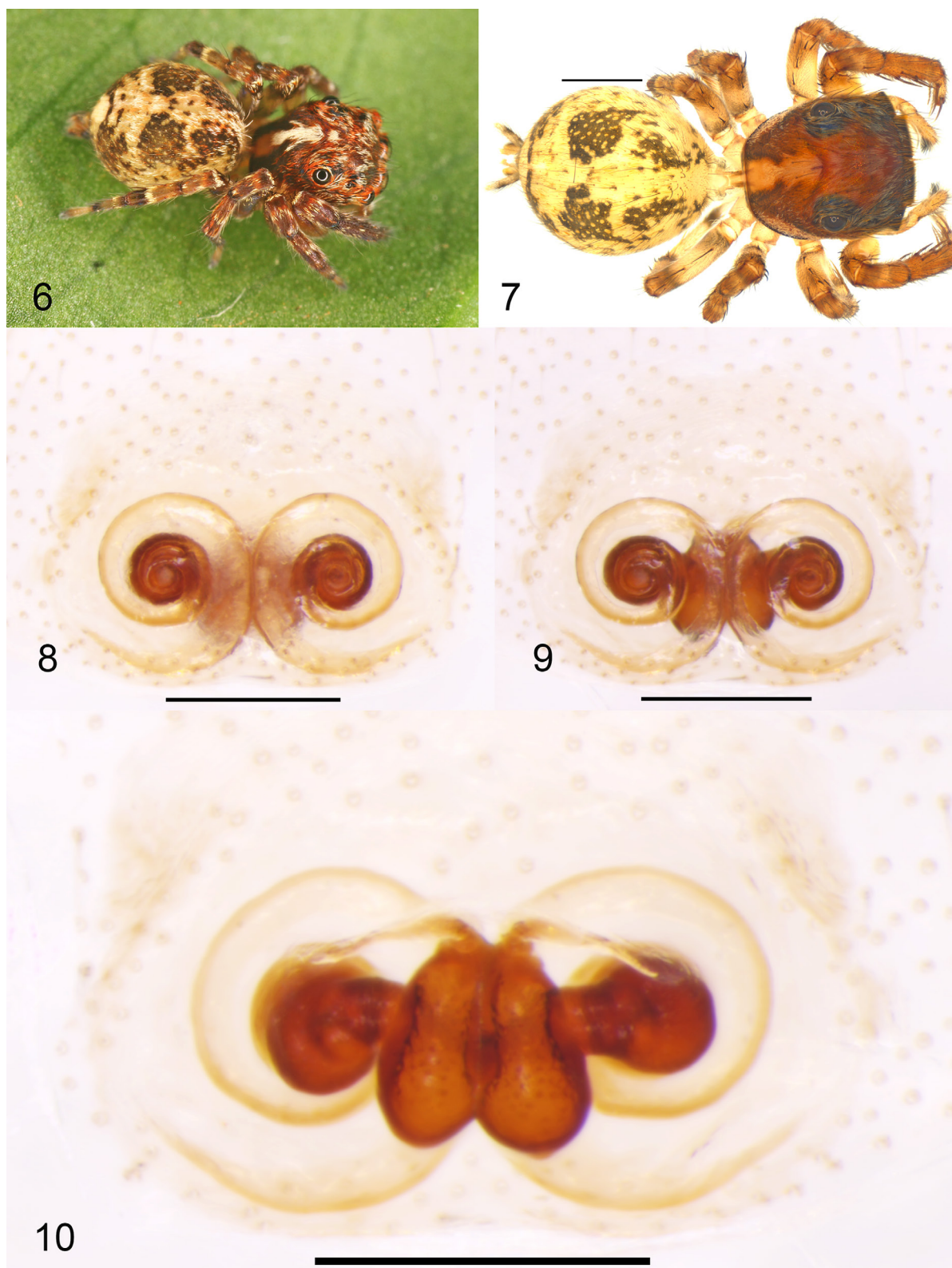
ETYMOLOGY. The species is dedicated to Mr Nguyen Van Khuong (Buon Ma Thuot City, Dak Lak Province, Vietnam), a friend of mine who has provided enthusiastic support to my research.



Figs 4–5. The male palp of the holotype of *Leuserattus khuongi* sp.n. 4 — ventral view; 5 — retrolateral view. Scale bars: (4–5) 0.2 mm.
Рис. 4–5. Пальпа самца голотипа *Leuserattus khuongi* sp.n. 4 — вид снизу; 5 — вид сбоку-сзади. Масштаб: (4–5) 0,2 мм.

DIAGNOSIS. In the similar palpal conformation, the male of *L. khuongi* sp.n. closely resembles the type species *L. gunung*, from which it can be distinguished by the following characters: the ventral branch of retrolateral tibial apophysis is wider than that of *L. gunung* (cf. Fig. 5 and fig. 82 in Prószyński & Deeleman-Reinhold [2012] and fig. 4 in Deeleman-Reinhold & Miller [2021]); the dorsal branch is long, about a half of the ventral one and bent inward (Fig. 5; *vs* short and about 1/4 of the ventral one and bent outward, cf. fig. 82 in Prószyński & Deeleman-Reinhold [2012] and fig. 4 in Deeleman-Reinhold & Miller [2021]); and the embolus is longer in the new species (cf. Figs 4–5 and fig. 81 in Prószyński & Deeleman-Reinhold [2012] and fig. 5 in Deeleman-Reinhold & Miller [2021]). The female of *L. khuongi* sp.n. is similar to that of *L. pristinus*, but differ in having the longer copulatory ducts with two coils (Fig. 10; *vs* short ducts and one coil in *L. pristinus*, cf. figs 18–19, 24–25 in Deeleman-Reinhold & Miller [2021]).

DESCRIPTION. MALE (holotype): Measurements: Total length 4.17; Carapace length 2.26, width 1.86; Abdomen length 1.91, width 1.13. Clypeus height 0.08. Carapace reddish to dark brown, densely covered with short dark setae and sparsely clothed with long dark setae, along thoracic slope with a narrow medial stripe (Figs 1–2); eye field surrounded by long yellow-orange setae (Fig. 2). Eyes of the first row surrounded by yellow-orange orbital scales. Clypeus dark brown, bearing long white setae. Sternum yellowish brown, with darker margins. Endites and labium darker than sternum and whitish at tips. Chelicerae dark brown, with obtuse apical knobs on both sides (Fig. 3); promargin with two small teeth, retromargin with one small and one large tooth (Fig. 3). Abdomen yellowish brown, adorned with brown marks (Figs 1–2); venter pale yellow. Lateral sides of abdomen with scattered streaks of white setae (Fig. 3). Spinnerets dark brown. Leg I dark brown, robust and strongest, covered with dense pale setae; legs II, III and IV



Figs 6–10. The paratype female of *Leuserattus khuongi* sp.n. (VNMN-ARA-SAL-242). 6 — habitus in live, dorsal view; 7 — same, preserved in alcohol, dorsal view; 8 — epigyne (unmacerated), ventral view; 9 — same (macerated), ventral view; 10 — vulva, dorsal view. Scale bars: (7) 1 mm, (8–10) 0.2 mm.

Рис. 6–10. Самка-паратип *Leuserattus khuongi* sp.n. (VNMN-ARA-SAL-242). 6 — габитус живого экземпляра, вид сверху; 7 — тоже, законсервированный в спирте, вид сверху; 8 — эпигина (немацерированная), вид снизу; 9 — тоже (мацерированная), вид снизу; 10 — вульва, вид сверху. Масштаб: (7) 1 мм, (8–10) 0,2 мм.

pale yellow, leg IV – the narrowest (Figs 1–2). Width of eye rows: anterior eye row 1.85; posterior medial eye row 1.59; posterior lateral eye row 1.74. Distance between ALE-PME 0.51; ALE-PLE 1.16. Diameter of eyes: AME 0.62; ALE 0.39; PME 0.09; PLE 0.34. Length of leg segments: I 1.73 + 1.03 + 1.51 + 1.08 + 0.47 (5.82); II 1.43 + 0.71 + 0.75 + 0.86 + 0.41 (4.16); III 1.68 + 0.76 + 0.94 + 1.08 + 0.38 (4.84); IV 1.41 + 0.58 + 0.95 + 1.22 + 0.42 (4.58). Leg formula I–III–IV–II. Leg spination: I: Fm d 1–1–3, Pt pr 1, Ti v 2–2–2, pt 1–1; Mt v 2–2. II: Fm d 1–1–3; Pt pr rt 1; Tb pr 1–1, v 2–2–2; Mt v 2–2, pr rt 1. III: Fm d 1–1–3, pr 1; Pt pr rt 1; Tb pr rt 1–1, v 1; Mt pr rt 1–1, v 2–2. IV: Fm d 1–1–3; Pt pr rt 1; Tb pr rt 1–1, v 1–1; Mt pr rt 1–1–1, v 0–0–2. Palp (Figs 4–5) yellowish brown; tibia nearly half cymbium length; retrolateral tibial apophysis wide at its base, bifurcated, ventral branch wide, as long as tibia, slightly bent in the middle, directed anterior and dorsal one approximately a half of ventral one, slightly bent inward; bulbous oval, longer than wide and with narrow spermophor running along its margin; embolus thin, with two coils.

FEMALE (paratype, VNMN-ARA-SAL-242). Measurements: Total length 4.56; Carapace length 1.95, width 1.80; Abdomen length 2.61, width 1.86. Clypeus height 0.08. General appearance similar to that of the holotype, but with lighter body colouration (Figs 6–7). Abdomen with darker marks dorsally, and legs yellowish brown (Figs 6–7). Width of eye rows: anterior eye row 1.80; posterior medial eye row 1.58; posterior lateral eye row 1.71. Distance between ALE-PME 0.62; ALE-PLE 1.23. Diameter of eyes: AME 0.59; ALE 0.37; PME 0.08; PLE 0.36. Length of leg segments: I 1.21 + 0.77 + 0.95 + 0.67 + lost (unavailable); II 1.12 + 0.70 + 0.73 + 0.58 + 0.38 (3.51); III 1.47 + 0.68 + 0.82 + 0.92 + 0.37 (4.26); IV 1.29 + 0.52 + 0.80 + 1.06 + 0.41 (4.08). Leg spination: I: Fm d 1–1–2, Pt pr 1, Ti v 2–2–2, pt 1–1; Mt v 2–2. II: Fm d 1–1–3; Pt pr rt 1; Tb pr 1–1, v 2–2–2; Mt v 2–2, pr 1. III: Fm d 1–1–3, pr 1; Pt pr rt 1; Tb pr rt 1–1, v 1; Mt d 0–0–2, pr rt 1–1, v 2–2. IV: Fm d 1–1–2; Pt pr rt 1; Tb pr rt 1–1, v 0–0–1; Mt d 0–0–2, pr rt 1–1. Epigyne (Figs 8–10) weakly sclerotized; epigyne with a pair of sclerotised spiral rims of similar shape making one and a half revolution and touching each other along the middle line, each with a narrow translucent sheet; copulatory openings simple, located medially; copulatory ducts wide and with two coils; spermathecae bean-shaped, closely touching along almost their entire length.

DISTRIBUTION. Known only from the type locality.

Genus *Spiralembolus* Wang et Li, 2023

Spiralembolus Wang et Li, 2023: 188.

Type species: *Spiralembolus yinggeling* Wang et Li, 2023.

Species included: *S. yinggeling* Wang et Li, 2023, *S. yui* Wang et Li, 2023, and *S. extraculum* (Wang et Zhang, 2023) **comb.n.**

DIAGNOSIS. Members of the genus *Spiralembolus* resemble those of such related euophryine genera as *Logunattus* Wang et Li, 2023 and *Euochin* Prószyński, 2018, but the males can be distinguished from both by the following characters: the erect, spiral and screw-like embolus, without embolic disc (see Wang & Li [2023: figs 19B, 21A–C] and Wang & Zhang [2023: figs 60–64, 67]) vs the flagelliform, coiled embolus accompanied with an embolic disc (cf. comparative illustrations in Metzner [2025]); the retrolateral tibial apophysis typically wide at base, bent and short (see Wang & Li [2023: figs 19C, 21C] and Wang & Zhang [2023: figs 62, 68]) vs the narrow, almost straight and long apophysis (cf. comparative illustrations in Metzner [2025]). In the females, the epigyne does not have a window and median septum (see Wang & Li [2023: figs 20A–C, 21A–C] and Wang

& Zhang [2023: figs 65–66, 69–70]) vs two large windows and a median septum in both *Logunattus* and *Euochin* (cf. comparative illustrations in Metzner [2025]).

DISTRIBUTION. China (Hainan) [Wang, Li, 2023; Wang, Zhang, 2023].

NOTES. Based on the specimens from Hainan (China), Wang & Zhang [2023] and Wang, Li [2023] described a new species and erected a new genus, respectively. Morphologically, the male of *Euochin extraculum* (figs. 51–66 in Wang & Zhang [2023]) perfectly matches the generic diagnosis of *Spiralembolus*, as defined by Wang & Li [2023] and specified above. Yet, the female shows small differences, with its copulatory openings larger and copulatory ducts shorter as compared to other *Spiralembolus* congeners. Despite this, it is safe to conclude that the species *E. extraculum* is to be transferred to the genus *Spiralembolus*, and hence a new combination, *S. extraculum* (Wang et Zhang, 2023) **comb.n.**, is proposed here.

Discussion

The genus *Leuserattus* has been reported from the mainland of Vietnam for the first time. This finding suggests that the genus is more widespread in SE Asia than previously known. It also highlights that both the Oriental jumping spider fauna and the tribe Euophryini, particularly in Vietnam, remains poorly known.

With the addition of the new species described in the present paper, the tribe Euophryini in Vietnam currently accounts for 16 species in 21 genera. Whether this reflects a truly low diversity of the tribe in Vietnam or is simply the result of insufficient taxonomic research remains unknown, but likely to be the latter. Further comprehensive studies are necessary to clarify this matter.

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