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New data on *Synaphosus* (Araneae: Gnaphosidae) from Southeast Asia

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Abstract

Three new species of *Synaphosus* Ovtsharenko, Levy et Platnick, 1994 are described from Southeast Asia: *S. jaegeri* **sp. n.** (♂♀, Laos), *S. lehtineni* **sp. n.** (♂♀, Sulawesi, Indonesia) and *S. dubius* **sp. n.** (♀, Thailand). Two species, *S. femininis* Deeleman-Reinhold, 2001 and *S. evertsi* Ovtsharenko, Levy et Platnick, 1994 are redescribed. *Synaphosus kris* Deeleman-Reinhold, 2001, syn. n. known from Bali is synonymised with *S. evertsi* known from Ivory Coast. *Synaphosus evertsi* is reported from the Philippines for the first time.

Key words: new species, new synonymy, species group

Introduction

Synaphosus Platnick & Shadab, 1980 is a relatively large genus of gnaphosid spiders with 29 species (WSC 2017) distributed in the Old World, if not counting one species introduced to the Nearctic and another of uncertain placement. In contrast to most of the Gnaphosidae it is a well studied group due to a global (Ovtsharenko *et al*. 1994) and two regional revisions (Deeleman-Reinhold 2001; Marusik & Fomichev 2016). Most species occur in the Palaearctic (20), five species are known in Southeast Asia, and three in the Afrotropical Region (WSC 2017). One species, *S. paludis* (Chamberlin et Gertsch, 1940), probably misplaced in the genus (Ovtsharenko *et al*. 1994) is known only from the southern United States. While studying gnaphosids of Laos we recognized two species of *Synaphosus*, *S. femininis* Deeleman-Reinhold, 2001 and a new one. Examining material from Southeast Asia in the collections of the Zoological Museum of the University of Turku revealed three more species, two of which appeared to be new to science. The goal of this paper is to provide a redescription of two known species and descriptions of three new species.

Material and methods

Specimens were photographed with a Canon EOS 7D camera attached to an Olympus SZX16 stereomicroscope, a Pro-Microscan camera attached to an Olympus BH-2, and a SEM JEOL JSM-5200 scanning microscope, at the Zoological Museum of the University of Turku, Finland. Digital images were combined using CombineZP, Helicon focus 3.10 and Zerene Stacker image stacking software. Epigynes were treated in a KOH/water solution until soft tissues were dissolved. Photographs were taken in dishes with cotton or paraffin on the bottom to hold the specimens in position. All measurements are given in mm. The following abbreviations are used for leg segments: Fe femur, Pa patella, Ti tibia, Mt metatarsus, Ta tarsus; leg spination abbreviations: d dorsal, p prolateral, r retrolateral, v ventral; eyes: ALE anterior lateral eyes, AME anterior median eyes, MOQ median ocular quadrangle, PLE posterior lateral eyes, PME posterior median eyes.

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Museums:

SMF	Naturmuseum Senckenberg, Frankfurt am Main, Germany.
ZMMU	Zoological Museum of the Moscow State University, Russia.
ZMUT	Zoological Museum of the University of Turku, Finland.

Taxonomic survey

Synaphosus Platnick & Shadab, 1980

Synaphosus Platnick et Shadab, 1980: 21; Ovtsharenko *et al*. 1994: 2; Deeleman-Reinhold 2001: 535; Murphy 2007: 378; Marusik & Fomichev 2016: 429.

Type species: *Nodocion syntheticus* Chamberlin, 1924 from California.

Diagnosis. *Synaphosus* species found in Southeast Asia can be distinguished from other gnaphosids known in the region by the combined presence of a preening brush (but not comb) on metatarsi III, lack of median apophysis, long whip-like circular embolus embedded into the fold of the complex conductor, large conductor almost entirely hiding the tegulum, epigyne with an anterior hood or scape, and long and coiled copulatory ducts.

Relationships. *Synaphosus* remains unassigned to any subfamily or tribe of Gnaphosidae, belonging only to the informal *Echemus* group of genera (Murphy 2007).

Species grouping: Three species groups were recognized by Ovtsharenko *et al*. (1994) in the genus: *syntheticus*, *gracillimus* and *kakamega*. Marusik & Fomichev (2016) recognized one more group among species occurring in Southeast Asia, the *femininis* group. This group unites *S. cangshanus* Yang, Yang & Zhang, 2013 and *S. femininis* Deeleman-Reinhold, 2001. Three other species known from the region have copulatory organs very different from each other and may each represent their own species group.

Synaphosus femininis Deeleman-Reinhold, 2001

Figs 1–13, 54

Synaphosus femininis Deeleman-Reinhold, 2001: 538, f. 929-930 (♀); Wang & Zhang, 2015: 438, f. 1–19 (♂♀).

Material examined. LAOS, Luang Nam Tha Province: 1♂ 1♀ (ZMF), Luang Nam Tha, Ban Tavan1, 581 m, 20°58.702'N, 101°28.686'E, small secondary forest, leaf litter, close to stream, sieving, 2.03.2008 (P. Jäger); 1♀ (ZMMU), Luang Nam Tha, Ban Tavan, 586 m, 20°58'57.6"N 101°29'57.6"E, valley with stream, bushes, sieving, 7.03.2008 (P. Jäger).

Note. The new species belongs to the *femininis* group of species.

Diagnosis. *Synaphosus femininis* is most similar to *S. jaegeri* **sp. n.** from which it can be distinguished by longer retrodorsal tibial apophysis, droplet-shaped cymbium with distinct tapering tip (but not egg-shaped), three-dimensional conductor partly encircling the tip of the cymbium, a longer epigynal scape, thinner copulatory ducts with 13–14 (*vs.* 6) closely spaced coils.

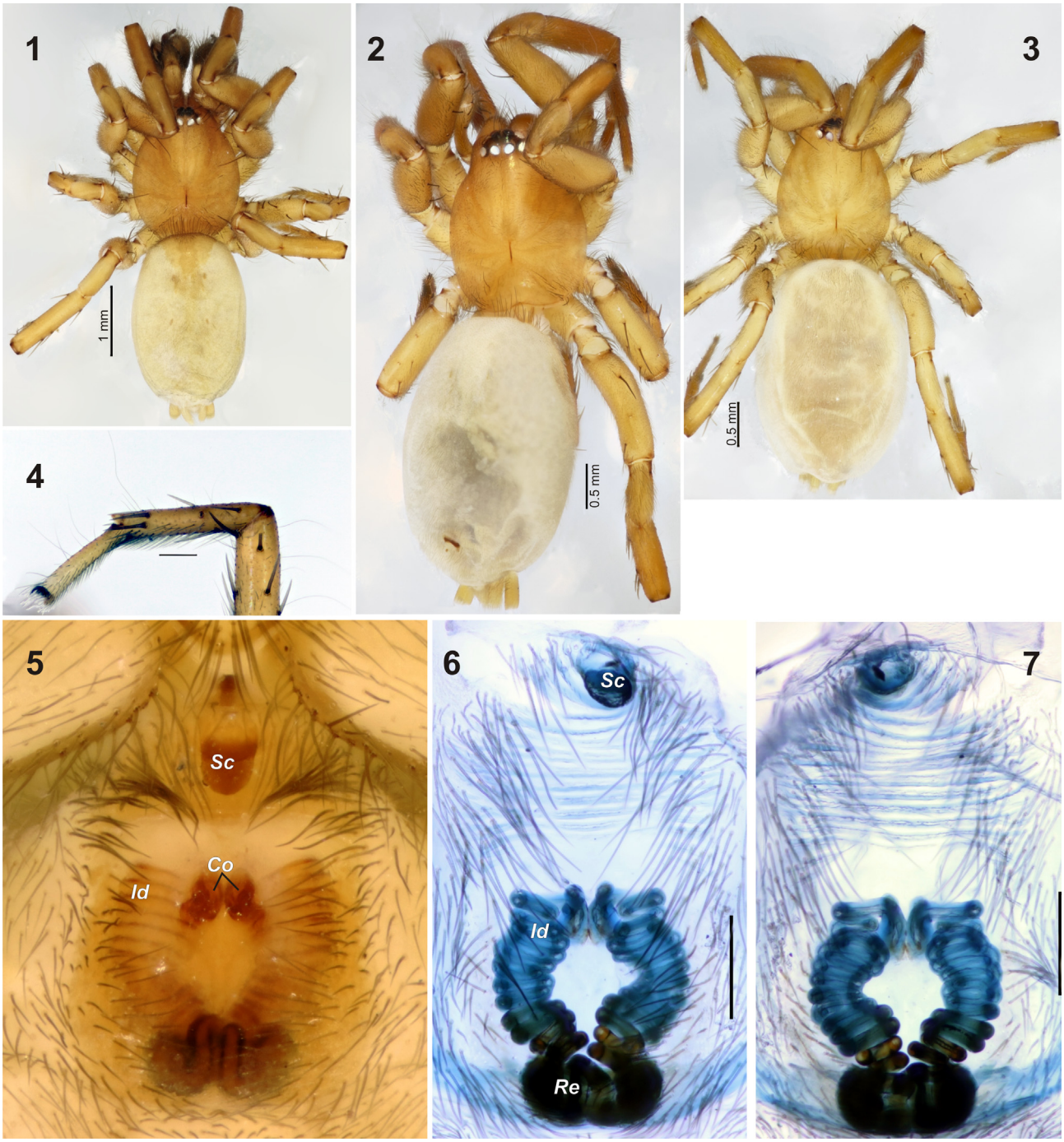
Description. Male. Total length 4.25. Carapace: 1.85 long, 1.53 wide. Eye sizes and interdistances: AME 0.11, ALE 0.12, PME 0.14, PLE 0.12, AME–AME 0.03, AME–ALE 0, PME–PME 0.08, PME–PLE 0.03, ALE–PLE 0.03; MOQ length 0.31, front width 0.23, back width 0.29. AME surrounded by black edge. Carapace yellow-brown. Chelicerae, maxillae and labium light-brown. Sternum yellow-brown with dark brown thin edge. Legs and palps yellow-brown. Abdomen grayish with trapeziform scutum. Scutum anteriorly with long setae.

Leg measurements in ♂.

	Fe	Pa	Ti	Mt	Ta	Total
I	1.70	0.98	1.08	1.20	0.75	5.70
II	1.37	0.80	1.13	0.90	0.71	4.89
III	1.13	0.60	0.90	0.87	0.60	4.10
IV	1.58	0.84	1.43	1.31	0.68	5.82

Spination of legs in ♂.

	Fe	Pa	Ti	Mt
I	2d 1p	-	-	-
II	2d 1p	-	-	2v
III	2d 1p 1r	-	2d 3v 2r 2p	-
IV	2d 1r	-	2p 3r 2-2v	1p 2r 2-1v



FIGURES 1–7. *Synaphosus femininis*. 1 male habitus, dorsal; 2–3 female habitus, dorsal, showing size variation; 4 female leg III; 5 intact epigyne, ventral; 6–7 macerated epigyne, ventral and dorsal. Scale = 0.2 mm if not otherwise indicated. Abbreviations. *Co* copulatory openings, *Id* insemination ducts, *Re* receptacles, *Sc* scape.

FIGURES 8–13. Copulatory organs of *Synaphosus femininis*. 8–11 male palp, ventral, prolateral, dorsal and retrolateral; 12–13 macerated epigyne, ventral. Scale = 0.2 mm. Abbreviations. *Cd* conductor, *Eb* dorso-basal outgrowth of embolus, *Em* embolus, *Ta* dorso-retrolateral apophysis, *Tc* tip of conductor, *To* tibia outgrowth.

Palp as in Figs 8–11; femur and patella not modified; tibia with retrolateral conical outgrowth (*To*) and long dorso-retrolateral apophysis (*Ta*) bifid on the tip, tibial apophysis 2.5 times longer than tibia in retrolateral view, and as long as 2/3 of cymbium; cymbium droplet shaped in dorsal view, smoothly rounded in lateral view; bulb bean-shaped in lateral view with concave ventral part, conductor (*Cd*) very large (larger than cymbium), covers almost whole tegulum, 3-dimensional; tip of conductor (*Tg*) small tongue-like (labeled as tegular apophysis in Wang & Zhang, 2015); embolus (*Em*) filamentous, originating at 6 o'clock position, base of embolus with baso-dorsal outgrowth (*Eb*).

Female. Total length 4.13. Carapace: 1.65 long, 1.28 wide. Eye sizes and interdistances: AME 0.09, ALE 0.11, PME 0.11, PLE 0.11, AME–AME 0.02, AME–ALE 0, PME–PME 0.06, PME–PLE 0.06, ALE–PLE 0.06, MOQ 0.27 long, front width 0.21, back width 0.23. AME with black margins. Coloration like in males. Abdomen without

scutum.

Leg measurements in ♀.

	Fe	Pa	Ti	Mt	Ta	Total
I	1.37	0.83	1.13	0.83	0.68	4.82
II	1.17	0.62	0.89	0.71	0.59	3.96
III	0.92	0.53	0.75	0.62	0.51	3.32
IV	1.29	0.74	1.23	1.13	0.63	5.01

Spination of legs in ♀.

	Fe	Pa	Ti	Mt
I	2d 1p	-	-	-
II	2d 1p	-	-	2v
III	2d 1p 1r	1r	1d 3p 3r 1-2v	1d 1p 1r 1-1v
IV	2d 1r	-	2p 3r 1-2v	1p 2r 2-0v

Epigyne as in Figs 5–7, 12–13; very long, with oval shaped short scape (*Sc*) located close to petiolus; area between scape and coiled insemination ducts (*Id*) with transversal furrow; copulatory openings (*Co*) located in centre of epigyne; insemination ducts first run anteriorly, and then form about 13–14 coils located one over another; receptacles (*Re*) round.

Distribution. Currently, the species is known from Eastern Java, Pujon Pass (type locality), three localities in Hainan (Wang & Zhang 2015) and one locality in Laos (present data). The Laotian locality is the northernmost and westernmost locality of the range.

***Synaphosus jaegeri* sp. n.**
Figs 14–15, 17–25, 32–34, 54

Types. Holotype ♂ (SMF) and paratype ♀ (SMF) LAOS, Champasak Province, Muang Bachieng, Pak Son, 15°10'36"N, 106°14'15.2"E, 1280 m, plateau, pine forest, by hands, sieving. 27.11.2009 (S. Bayer).

Etymology. The specific name is a patronym in honour of our colleague and friend Peter Jäger (Frankfurt am Main, Germany) who made great contributions to the study of Laotian spiders.

Diagnosis. The new species is closely related to *S. femininis* (Figs 1–13) from which it can be distinguished by shorter retrodorsal tibial apophysis, egg-shaped cymbium (but not droplet-shaped with distinct tapering tip), simple conductor (not three-dimensional and partly encircling the tip of the cymbium, Fig. 8), shorter epigynal scape, thicker copulatory ducts with 6 free coils (copulatory ducts not thinner with 13–14 closely spaced coils, Figs 5–7, 12–13).

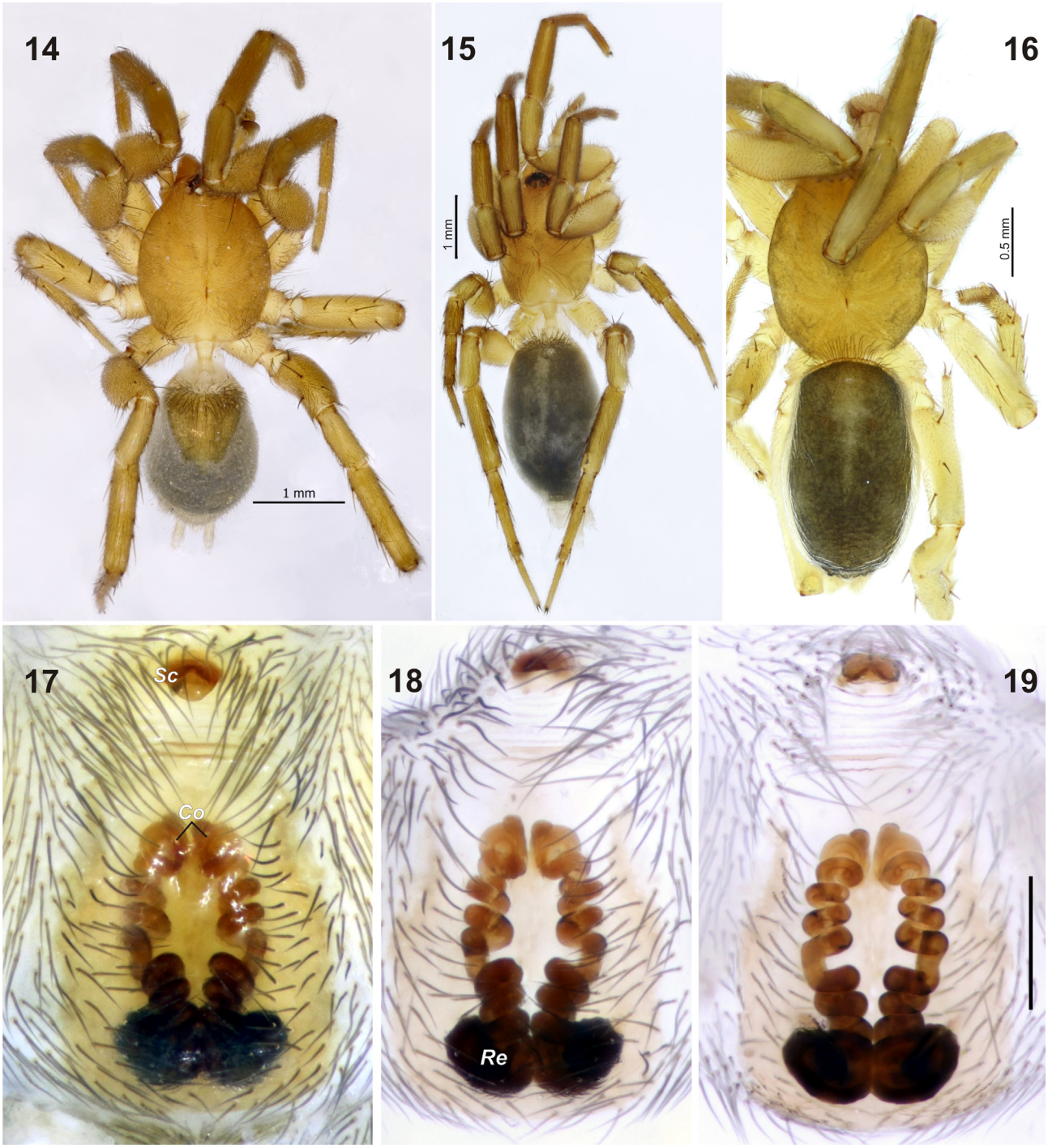
Description. Male. Total length 4.15, carapace 1.9 long, 1.53 wide. Carapace yellowish-brown without pattern. Chelicerae, maxillae, labium and sternum yellowish. Legs yellowish-brow with yellow coxae. Abdomen gray with brown trapezoidal scutum. Legs with long trichobothria. Longest trichobothria on tarsi and metatarsi about 2/3 of segment length (as in Fig. 4).

Leg measurements in ♂.

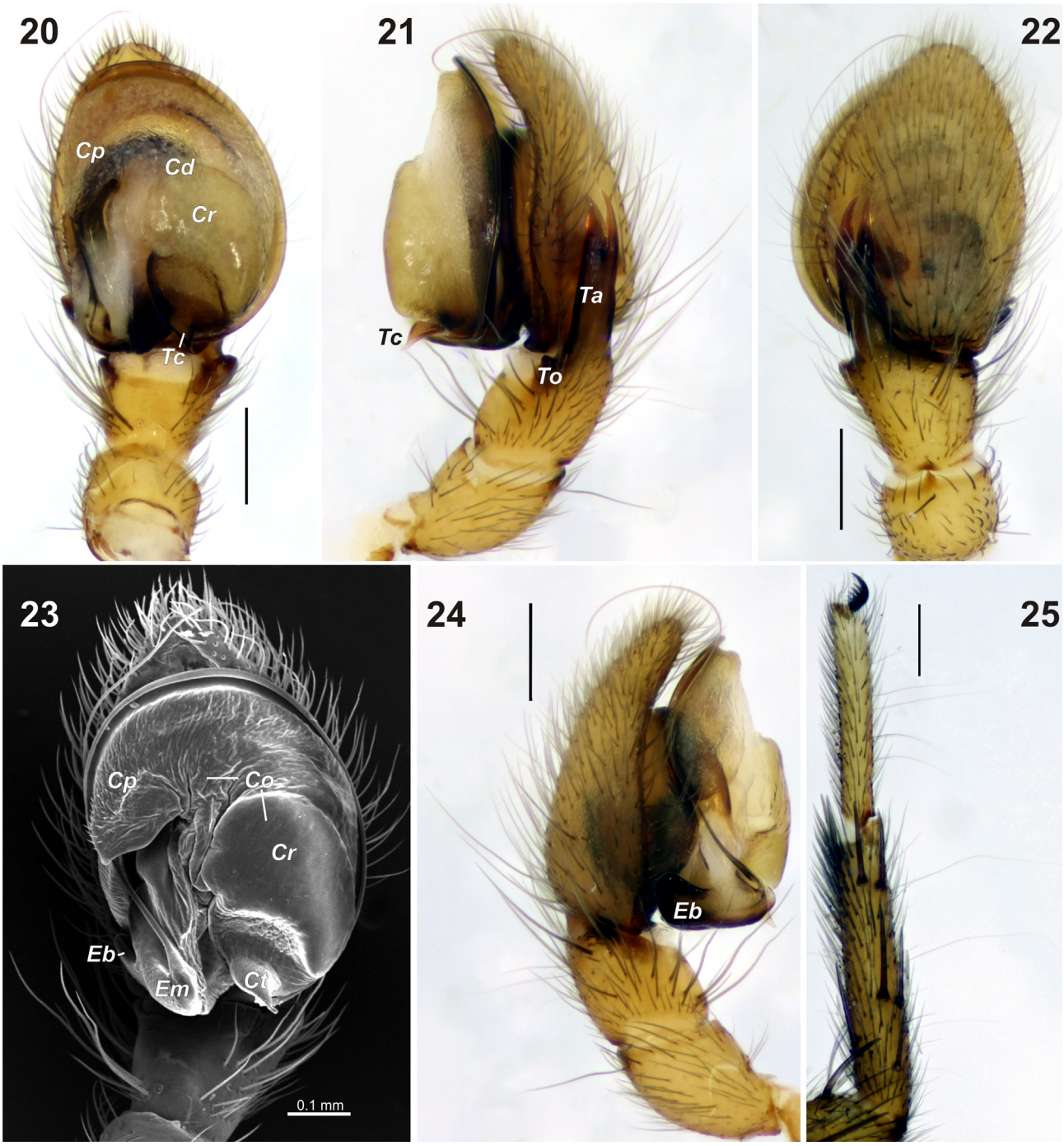
	Fe	Pa	Ti	Mt	Ta	Total
I	1.55	0.88	1.33	1.08	0.75	5.58
II	1.33	0.78	1.05	1.0	0.65	4.8
III	1.13	0.55	0.88	0.88	0.58	4.0
IV	1.55	0.78	1.38	1.3	0.63	5.63

Spination of male legs.

	Fe	Ti	Mt
I	2d 1p		
II	3d		2v
III	2d 2p 2r	1d 2p 2r 4v	1d 2r 3r 2v
IV	2d 1p 1r	2p 3r 4v	3p 3r 4v



FIGURES 14–19. Habitus and epigyne of *Synaphosus jaegeri* **sp. n.** (14–15, 17–19) and *S. evertsi* (16). 14, 16 male, dorsal; 15 female, dorsal; 17 intact epigyne, ventral; 18–19 macerated epigyne, ventral and dorsal. Scale = 0.2 mm if not otherwise indicated. Abbreviations. *Co* copulatory openings, *Re* receptacles, *Sc* scape.



FIGURES 20–25. Male palp and leg III of *Synaphosus jaegeri* **sp. n.** 20–22 male palp, ventral; retrolateral and dorsal; 23–24 same, ventral and prolateral; 25 leg III. Scale = 0.2 mm if not otherwise indicated. Abbreviations. *Cd* conductor, *Cp* prolateral arm, *Cr* retrolateral arm, *Ct* tip of conductor, *Eb* dorso-basal outgrowth of embolus, *Em* embolus, *Ta* dorso-retrolateral apophysis, *To* tibial outgrowth.

Palp as in Figs 20–24, 32–34. Femur and patella unmodified; tibia with conical outgrowth (*To*) and long bifid retrodorsal apophysis (*Ta*); cymbium egg-shaped, as long as bulb (tip extending bulb absent); conductor (*Cd*) large covering almost whole tegulum, with two arms directed pro (*Cp*) and retrolaterally (*Cr*); prolateral arm weakly sclerotized and covered with fine spines near prolateral edge; tip of conductor (*Ct*) triangle shaped, terminating at the posterior-retrolateral edge of bulb; embolus (*Em*) long, filamentous originating at about 6:30 o'clock position°, with hammer-like dorso-basal outgrowth (*Eb*).

Female. Total length 5.25, carapace 2.13 long, 1.5 wide. Coloration as in male but somewhat darker.

Leg measurements in ♀.

	Fe	Pa	Ti	Mt	Ta	Total
I	1.65	0.93	1.30	1.00	0.70	5.58
II	1.35	0.75	1.08	0.95	0.70	4.83
III	1.25	0.63	0.88	0.90	0.65	4.30
IV	1.78	0.78	1.50	1.38	0.78	6.20

Spination as in male except Fe II with 2d, 1p and Fe IV with 2d, 1r. Epigyne as in Figs 17–19. Plate about 2 times longer than wide, anterior part with short subtriangular scape (*Sc*), scape with pocket on dorsal side; anterior 1/3 with transversal wrinkles; copulatory openings (*Co*) indistinct, located in mid part of the plate near the long axis; insemination duct makes 6 coils, 2 coils near receptacles more sclerotized than others; receptacles (*Re*) transverse egg-shaped.

Synaphosus evertsi **Ovtsharenko, Levy et Platnick, 1994**

Figs 16, 26–27, 42–45, 54

Synaphosus evertsi Ovtsharenko *et al*., 1994: 12, f. 48–52 (♂♀).
Synaphosus kris Deeleman-Reinhold, 2001: 537, f. 924–928 (♂). **Syn. n.**

Material examined: 3♂ (ZMUT), PHILIPPINES, Luzon Benguet, La Trinidad, grassy pine forest, 11.11.1979. (P.T. Lehtinen).

Diagnosis. This species well differs from all congeners by the lack of tibial apophysis.

Description. Male (one specimen measured). Total length 3.13. Carapace: 1.55 long, 1.18 wide. Eye sizes and interdistances: AME 0.06, ALE 0.08, PME 0.10, PLE 0.08, AME–AME 0.02, AME–ALE 0, PME–PME 0.03, PME–PLE 0.05, ALE–PLE 0.05; MOQ length 0.21, front width 0.15, back width 0.20. AME surrounded by black edge. Carapace yellow-brown with small gray V mark near fovea and grayish edge (Fig. 16). Chelicerae, maxillae and labium light-brown. Sternum yellow. Legs and palps yellow-brown. Abdomen dorsally and laterally gray without scutum. Abdomen ventrally yellowish. Abdomen anteriorly with long setae.

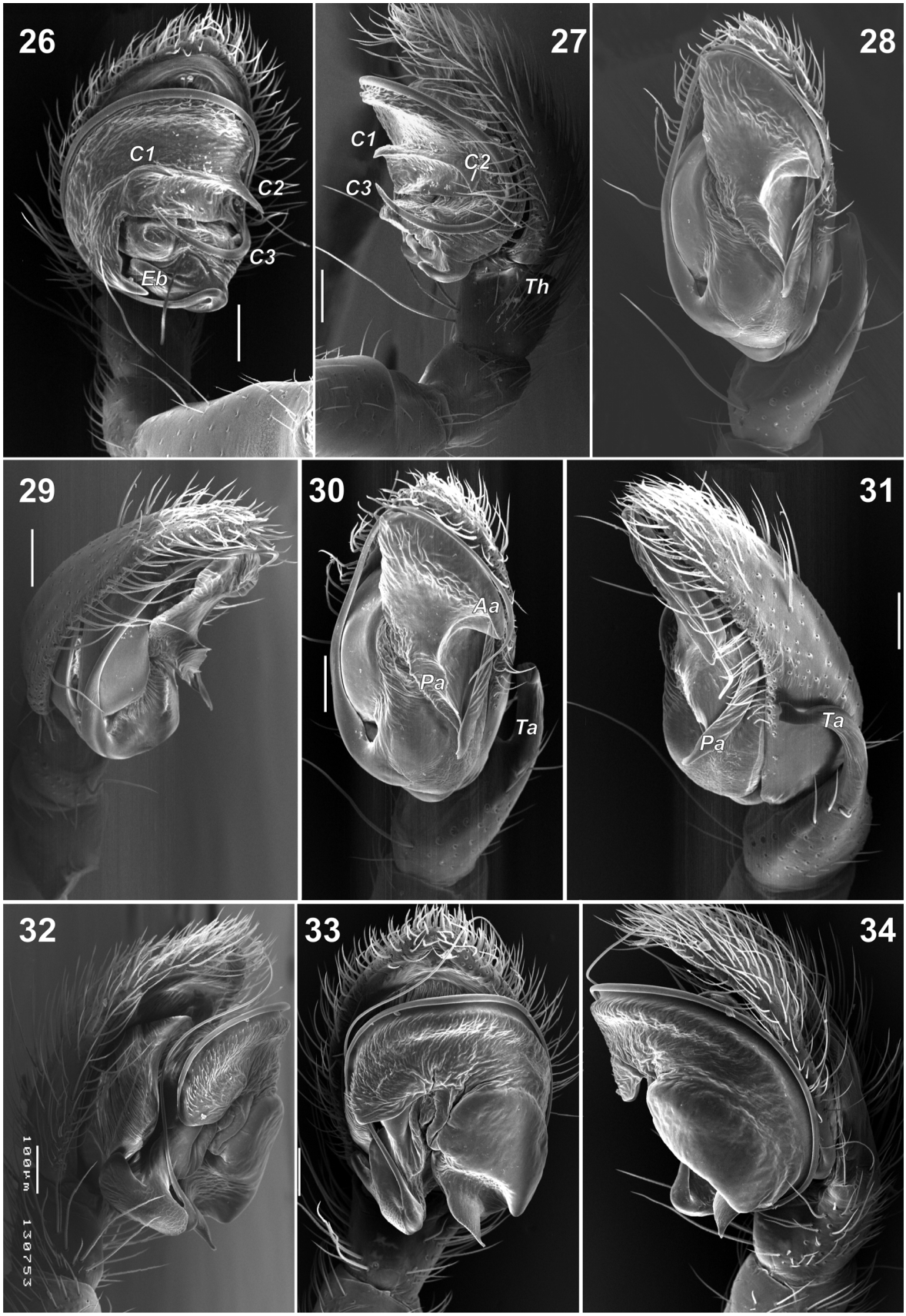
Leg measurements in ♂.

	Fe	Pa	Ti	Mt	Ta	Total
I	1.53	0.98	1.43	1.11	0.72	5.76
II	1.05	0.71	0.96	0.77	0.60	4.08
III	0.98	0.45	0.68	0.69	0.53	3.32
IV	1.43	0.75	1.20	1.28	0.68	5.33

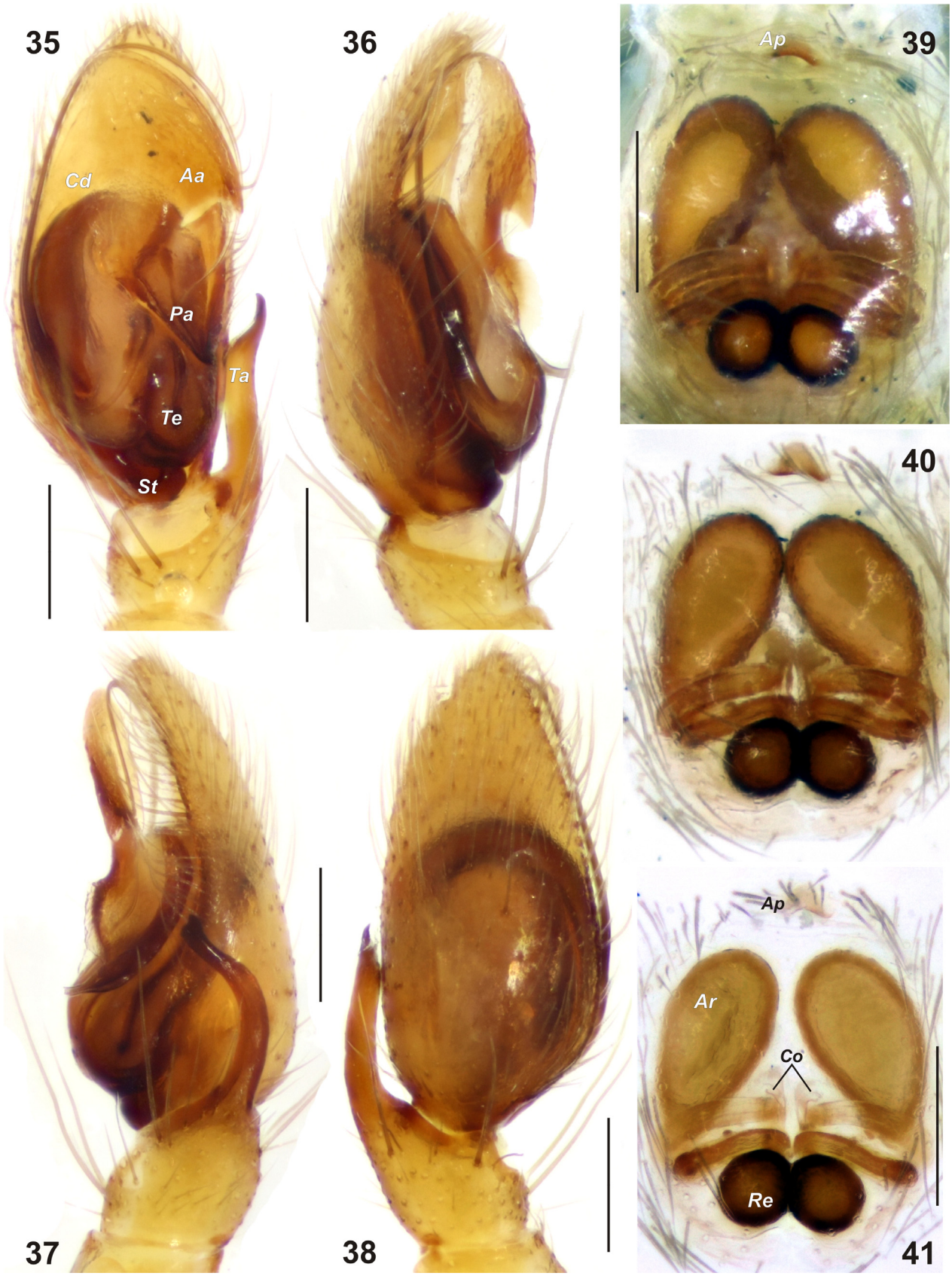
Spination of legs in ♂.

	Fe	Pa	Ti	Mt
I	2d	-	-	-
II	2d	-	-	2-1v
III	2d 1p 1r	-	1d 3p 2r 2-2v	2p 2r 1-1v
IV	2d 1r	-	3p 3r 2-2v	3p 2r 2-2v

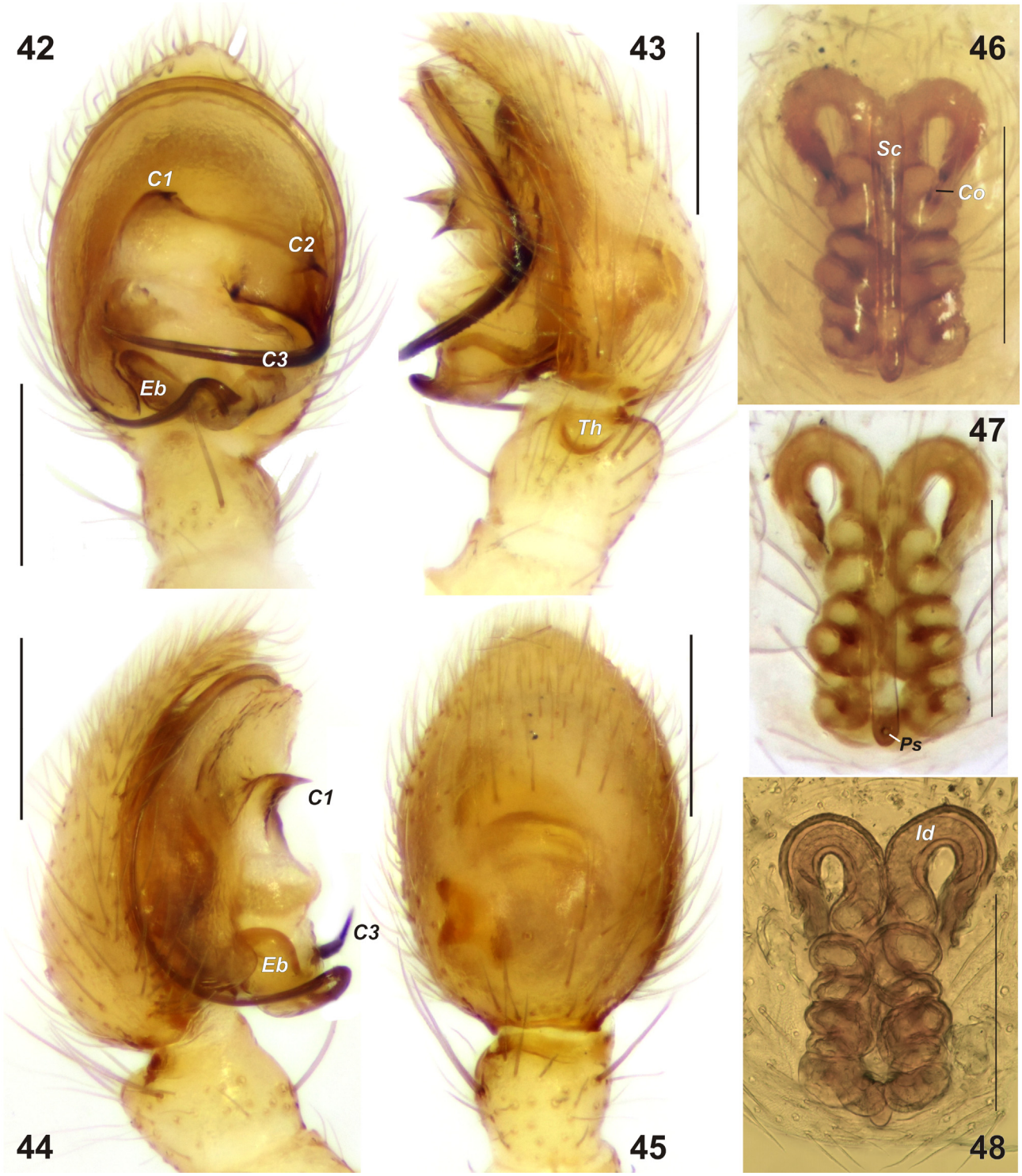
Palp as in Figs 26–27, 42–45; femur and patella not modified; tibia without apophysis but with a kind of hollow (*Th*), cymbium egg-shaped, with smoothly rounded tip; conductor large, covering whole tegulum, with 3 sharp outgrowths, subprolateral spine-like outgrowth (*C1*), retrolateral spine-like outgrowth (*C2*) and circle-shaped outgrowth (*C3*) directed prolaterally; embolus originating at about 5:30 o'clock position, with large baso-dorsal outgrowth (*Eb*).



FIGURES 26–34. Male palp of *Synaphosus evertsi* (26–27), *S. lehtineni* **sp. n.** (28–31) and *S. jaegeri* **sp. n.** (32–34). 26, 30, 33 antero ventral; 27, 31 retrolateral; 28 ventral; 29, 32 ventro-prolateral; 34 ventro-retrolateral. Scale = 0.1 mm. Abbreviations. *Aa* anterior arm, *C1* subprolateral outgrowth, *C2* retrolateral outgrowth, *C3* prolateral outgrowth, *Eb* baso-dorsal outgrowth of embolus, *Pa* posterior arm, *Th* tibia hollow.



FIGURES 35–41. Male palp and epigyne of *Synaphosus lehtineni* **sp. n.** 35–38 male palp, ventral, prolateral, retrolateral and dorsal; 39 intact epigyne, ventral; 40 dissected epigyne, ventral; 41 macerated epigyne, ventral. Scale = 0.2 mm. Abbreviations. *Aa* anterior arm, *Ap* anterior pocket, *Ar* anterior receptacles, *Cd* conductor, *Co* copulatory openings, *Te* tegulum, *Pa* posterior arm, *Re* receptacles, *St* subtegulum.



FIGURES 42–48. Male palp of *Synaphosus evertsi* (42–45) and epigyne of *S. dubius* **sp. n.** (46–48). 42–45 male palp, ventral, retrolateral, prolateral and dorsal; 46 intact epigyne, ventral; 47–48 macerated epigyne, ventral and dorsal. Scale = 0.2 mm. Abbreviations. *C1* subprolateral outgrowth, *C2* retrolateral outgrowth, *C3* prolateral outgrowth, *Co* copulatory openings, *Eb* baso-dorsal outgrowth, *Id* insemination ducts, *Ps* dorsal pit, *Sc* short scape, *Th* tibia hollow.

Female described by Ovtsharenko *et al*. (1994).

Note. Ovtsharenko *et al.* (1994) placed this species in the *syntheticus*-group although it differs from all congeners by the lack of tibial apophysis and the presence of a hollow (=depression *sensu* Ovtsharenko *et al*. (1994)), a large conductor covering almost the entire tegulum (*vs.* small, not covering whole tegulum), and presence of 3 sharply pointed outgrowths not known in any other *Synaphosus*. To our mind, it should be considered in a separate monotypic species group, *evertsi*.

Distribution and comments. *Synaphosus evertsi* was described on the basis of a male and female from Ivory Coast, and *S. kris* was described on the basis of the holotype male from Bali. Deeleman-Reinhold (2001) pointed out the similarity between the two species, but considered them separate due to the different number of teeth on the conductor. Our specimens from the Philippines fit the descriptions provided for both species (size, spination) and figures of the male palp correspond to those given by Ovtsharenko *et al.* (1994). In our opinion the two names should be synonymized, and differences in the spines of the conductor are caused by misinterpretation. Judging by the occurrence of this species in three widely spaced localities it is an anthropochorous species, and most likely more widely distributed in the Old World tropics and has not been reported in other parts of Asia due to the difficulties with identification. The present record from the Philippines extends the known range almost 3000 km to the north.

***Synaphosus lehtineni* sp. n.**
Figs 28–31, 35–41, 50, 52–53, 54

Types: Holotype ♂ (ZMUT) and paratypes 1♂ 1♀ (ZMUT), INDONESIA, Sulawesi Tengah, Donggala d., Salena, bamboo-cocoanut forest, 25.10.1979 (P.T. Lehtinen). The specimens are in poor physical condition, only the holotype male's prosoma and abdomen are still connected, in other specimens the abdomen are separated from the rest of the sample, the sample contains many specimens including juveniles, and it is impossible to recognize which carapace belongs to the paratype female.

Diagnosis. Males of *Synaphosus lehtineni* **sp. n.** are easily differentiated from congeners by the long and bent tibial apophyses not known in other species. Female of the new species is easily differentiated from congeners by having 2 pairs of receptacles: large egg-shaped anterior receptacles and round heavily sclerotized primary receptacles (with fertilization ducts). Other species of *Synaphosus* have only one pair of or either globular or tube-shaped receptacles.

Description. Holotype male: total length 3.95; carapace: 1.95 long and 1.38 wide. All legs lost. Palp as in Figs 28–31, 35–38; femur and patella not modified; tibia with a long and bent retrolateral apophysis (*Ta*) 1.5 times longer than tibia, apophysis slightly widened at the tip; cymbium elongate, 2 times longer than wide; conductor (*Cd*) large, as long as cymbium, not covering entire tegulum (*Te*), with 2 retrolateral arms anterior (*Aa*) and posterior (*Pa*), both arms pointed; tegulum and subtegulum (*St*) well distinct; embolus relatively short, originating from 6 o'clock position, makes about 250° loop, broad at the base, basal outgrowth absent.

Female. Carapace missing. Epigyne as in Figs 39–41, 50, 52–53; epigynal plate 1.5 longer than wide, without fovea, with small anterior pocket (*Ap*), copulatory opening located in centre of plate, divided by small septum (*Se*), ducts transverse, 2 pairs of receptacles, anterior receptacle (*Ar*) large egg-shaped, primary receptacle (*Re*) round heavily sclerotized.

Distribution. The species is only known from the type locality.

***Synaphosus dubius* sp. n.**
Figs 46–49, 51, 54

Type. Holotype ♀ (ZMUT) THAILAND, Chiangmai Province, Doi Suthep, dry forest slope, 16.11–30.12.1976 (P.T Lehtinen, R. Laine). Holotype in poor condition without legs.

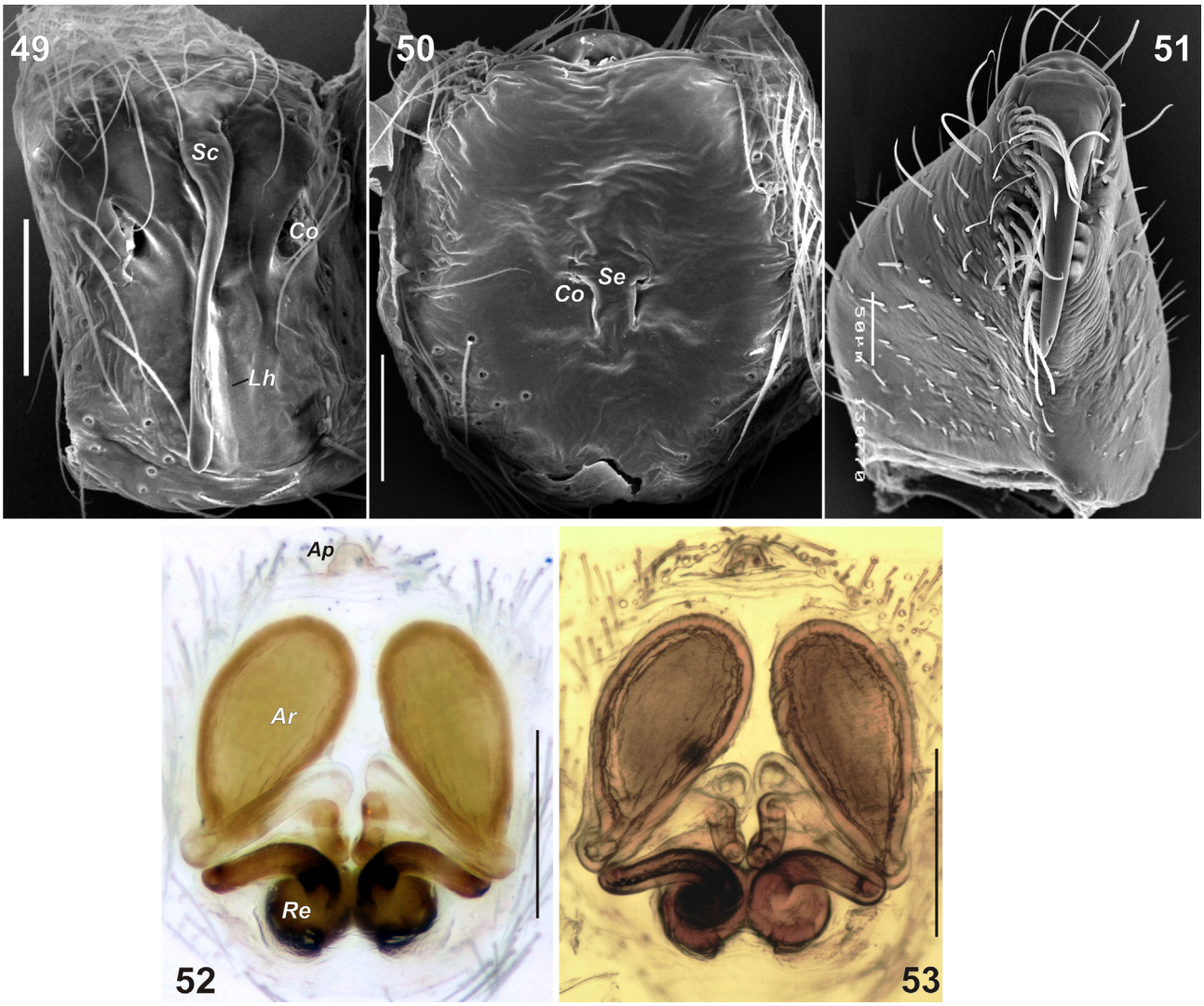
Etymology. The specific name *dubius* (=doubtful, uncertain) refers to the unclear belonging of the species.

Diagnosis. This new species clearly differs from all congeners and even from all Gnaphosidae by having a very long, stick-like and inflexible scape.

Description. Female. Total length 2.53. Carapace: 1.13 long, 0.65 wide. Chelicera with 4 retrolateral teeth and seemingly with 2 or 3 prolateral teeth (not well visible due to small size and being hidden by setae (Fig. 51). Epigyne as in Figs 46–49; epigynal plate about 2 times longer than wide, fovea absent, with long, thin inflexible scape (*Sc*), bearing small dorsal pit (*Ps*) at the tip, scape embedded in shallow longitudinal hollow (*Lh*), copulatory openings (*Co*) slit like, widely spaced; insemination ducts (*Id*) broad, first diverging anteriorly, then converging and touching each other, posterior 2/3 of ducts twisted/coiled along longitudinal axis forming 6 loops; receptacles tubular, not distinct from insemination duct.

Note. We placed this species in *Synaphosus* because of the similarity in insemination ducts forming coils/loops, as in *S. femininis* and *S. jaegeri* **sp. n.**

Distribution. The species is known from the type locality only.



FIGURES 49–53. Epigynes and chelicera of *Synaphosus dubius* **sp. n.** (49, 51) and *S. lehtineni* **sp. n.** (50, 52–53). 49, 50 epigyne, ventral; 51 left chelicera, meso-ventral; 52–53 macerated epigyne, dorsal. Scale = 0.2 mm if not otherwise indicated. Abbreviations. *Ar* anterior receptacles, *Co* copulatory openings, *Lh* longitudinal hollow, *Re* receptacles, *Sc* short scape, *Se* septum.

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FIGURE 54. Distribution records of *Synaphosus* species in Southeast Asia. Filled symbols refer to our records and open symbols refer to the literature records.

References

Deeleman-Reinhold, C.L. (2001) *Forest spiders of South East Asia: with a revision of the sac and ground spiders (Araneae: Clubionidae, Corinnidae, Liocranidae, Gnaphosidae, Prodidomidae and Trochanterriidae)*. Brill, Leiden, 591 pp.

Marusik, Y.M. & Fomichev, A.A. (2016) A survey of East Palaearctic Gnaphosidae (Araneae). 5. On *Synaphosus* from Central Asia. *Zootaxa*, 4178 (3), 428–442. https://doi.org/10.11646/zootaxa.4178.3.7

Murphy, J. (2007) *Gnaphosid Genera of the World*. Vol. 2. British Arachnological Society, St Neots, Cambs, 513 pp. [pp. 93–605]

Ovtsharenko, V.I., Levy, G. & Platnick, N.I. (1994) A review of the ground spider genus *Synaphosus* (Araneae, Gnaphosidae). *American Museum Novitates*, 3095, 1–27.

Platnick, N.I. & Shadab, M.U. (1980) A revision of the North American spider genera *Nodocion*, *Litopyllus*, and *Synaphosus* (Araneae, Gnaphosidae). *American Museum Novitates*, 2691, 1–26.

Wang, L. & Zhang, F. (2015) The first description of the male *Synaphosus femininis* (Aranei: Gnaphosidae) from Hainan Island, China. *Arthropoda Selecta*, 24 (4), 437–441.

World Spider Catalog (2017) *World Spider Catalog*. Version 18.0. Natural History Museum Bern. Available from: http://wsc.nmbe.ch (accessed 25 April 2017)