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Identification of jumping spiders placed in the genus *Epeus* (Araneae: Salticidae: Plexippini: Plexippina)

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Summary: The identity of species presently placed to the genus *Epeus* is reviewed, based on comparison of published records and descriptions with a large number of photographic records posted in *iNaturalist* and elsewhere. Based on this review, a number of species group names are placed into synonymy.

The genus *Epeus* Peckham & Peckham 1885 presently contains more than 20 named species, all found in tropical South to Southeast Asia (Table 1; WSC 2025). Although these are relatively large jumping spiders, and are often observed, their identification in the field is problematic. In part this is due to the brevity or inadequacy of older descriptions, some more than a century old and written in Latin at a time when few related species were known. But even today, at least 11 of these species have been decribed for only one gender, and in many cases that is the female which, apart from the epigynum, can share the same general appearance across multiple species. Perhaps a greater problem for field naturalists, however, is one that is common to all salticid groups: Most descriptions are based on preserved types from collections, and the appearance of the living animal has never been documented. In this era of arthropod macrophotography, it is more imperative that species descriptions document key features of the living animals, or *field marks*.

First I will provide a summary table (Table 1) and map (Figure) showing published records related to the distribution of *Epeus* species, as these are presently known. Then I will provide my *working list* of these species, to include several new synonymies as well as suggestions related to the application of these names. Finally I will translate (as necessary) and review the descriptions of each of these species, and match these to the greatest extent possible with recent photographs. In this last section you will find information drawn from many different sources, to support conclusions that are summarized in my *working list*. This review is not a comprehensive revision of the genus *Epeus*, and, indeed, it may be too early for that as many new species probably remain to be found. Hopefully it will encourage others to study these in more detail.

Some of my decisions have been difficult, as older descriptions tend to be incomplete or inadequate, in part because writers did not realize that there were many species, many quite similar, in this genus. In other cases writers were mostly concerned with cataloging items in their collection, but those types, in some cases, have been lost or mislabled. The study of *Epeus* began more than 150 years ago, as noted arachnologists like Tamerlan Thorell (1830-1901) and Eugène Simon and (1880-1910) described a a few species from single specimens in faraway Europe. Much later, Jerzy Prószyński (1935-) and his student Marek Żabka (1955-) continued to study several *Epeus*, with a focus on the detailed structure of the male and female genitalia of preserved specimens. More recently many more people, particularly those living in Southeast Asia, have begun to study these local spiders.

Species presently placed in the genus *Epeus*.

Published records of *Epeus* are shown in Table 1 and Figure 1.

#	species	sex	locality	reference	notes
1	alboguttatus	Ŷ	Rangoon, Burma (Yangon, Myanmar)	(Viciria) Thorell 1887	
2	albus	Ŷ	Jajpur-Keonjahr District, Orissa	Prószyński 1992	"closely resembles <i>Epeus indicus</i> sp. n. which has dark abdominal marks"
		ę	Chilapata Forest, cooch Behar District, West Bengal	(Lussomanas chilanatansis) Biswas & Biswas 1992	drawings do not support identification to species
				Logunov 2004	assignment to Engugues a guess time not examined
				(abilanatanaia-albua) Sudhin at al 2024	assignment to Epeus was a guess, type not examined
		10	0.26075°N 76 70014°E Karala	(daguini) Sibi et al. 2022	minimum of albus non Sudhin et al. 2024
		0 ¥ 10	9.20075 N, 70.79914 E, Keldid		inisidentined, <i>alba</i> s per sudnin et al. 2024
		0 ¥ 10	12.70525°N 75.04057 E, Kalilataka		
		O¥ 1	13./0525 [°] N, /5.06325 [°] E, Karnataka	Sudhin et al. 2024	Prószyński's figure of the <i>albus</i> epigynum
		0	11.60319"N, 76.08666"E, Kerala		
		¥ 10	25.75506 N,91.86311 E, Megnalaya		in du des abets souches of listing 1 and 0
		Ο¥	Ben Tre Province, vietnam		includes photographs of living \circ and \downarrow
3	bicuspidatus	8	18.7°N, 108.8°E, Jianfengling, Hainan Province	Peng et al. 1993; Song et al. 1988 Peng & Li 2002; Yin et al. 2012; Peng 2020	
		23,03	23.7°N, 106.8°E, Guangxi AR 24.1°N, 110.1°E. Guangxi AR	Peng & Li 2002, Yin et al. 2012	
		32	27.85350°N. 108.76450°E. Guizhou	Meng et al. 2015	
		Ŷ	27.84667°N. 108.77150°E. Guizhou		
		39	27.83067°N, 108.76264°E, Guizhou		
4	covid	32	Pu'er, Jiangcheng County, Yunnan	Lin et al. 2023	♂ with serrated tibial apophysis
5	daiguini	39	14.44139°N, 101.36972°E, Thailand	Patoleta et al. 2020	
		3	21 km from Wangdiphodrang, Bhutan	(Plexippoides) Próchniewicz 1990	
6	dilucidus	8	87 km from Puntsholing, Bhutan	Wang et al. 2024	
7	edwardsi	8	Koronadal, South Cotabato, Mindanao	Barrion & Litsinger 1995	
0	1	8	Nepal	Jastrzębski 2010	
8	exaomus	8	27.66142°N, 85.23406°E, Kathmandu	Magar et al. 2017	
9	flavobilineatus	0	Haming Dantes Description West Loss	(Salticus) Doleschall 1859	This female, not figured (lost?), is the only known
		¥	narriang, Banten Province, west Java	(Viciria) Thorell 1892	specimen of record associated with this species.
		Ŷ	Kagok, Java	Prószyński 1984a	
				Prószyński 1984b	provisional classification, not type specimen,
				Prószyński & Deeleman-Reinhold 2012	"E. flavoblilineatus is closely related to E. tener"
10	furcatus	8	Bukit Timah Nature Reserve, Singapore	Zhang et al. 2003	Like <i>tener</i> , but with forked cymbial apophysis
	(3	Phu Que, 80 km NW of Vinh, Vietnam	Żabka 1985	"affinity with <i>E. tener</i> "
11	glorius	8	Guangxi Province	Song et al. 1999	
		8	Yunnan Province	Peng & Li 2002: Peng 2020.	
		8	Guangdong Province	Xie & Peng 1993; Peng et al. 1993	
		39	29.83558°N, 106.36106°E, Chongqing	Meng et al. 2015	
40		1		Peng & Li 2002; Peng 2020; Wang et al. 2024	
12	guangxi	Q.	24.1°N, 110.1°E, Guangxi Province	(Plexippoides) Logunov 2021	
13	hawigalboguttatus	8	Molave, Zaboanga del Sur, Mindanao	Barrion & Litsinger 1995	
		Ŷ	Jaipur-Keonjahr District, Orissa	Prószyński 1992	
14	indicus	Ŷ	Nuwakot District, Trisuli, Nepal	Jastrzębski 2010	
		Ŷ	Mysuru, Karnataka	Abhijith & Hill 2021	many photos of living females
15	1-h d - 1 (-	0	Khandala Rest House Khandala Ghat,	(Phidippus) Tikader 1977	drawing inadequate, black posteromedian spots
15	knanaalaensis	¥	Poona District, Maharashtra	Sudhin et al. 2024	
				(Taupoa) Peckham & Peckham 1907	no figures; inadequate text description
16	mirus	Ŷ	Borneo	Prószyński 1984a	drawing of onigraum, recombles allows
				Prószyński & Deeleman-Reinhold 2012	drawing of epigynum; resembles arbus
17	pallidus	Ŷ	14.50000°N, 100.86670°E, Thailand	Patoleta et al. 2020	epigynum similar to albus and szirakii
19	nenai	39	30.07450°N, 95.13317°E, Bowo County	Wang et al 2024	similar to <i>hicuspidatus</i>
10	pengi	Ŷ	28.56783°N, 97.09067°E, Zayou County	Wang Ct al. 2027	sinnar to bicuspitutus
		89 89	Dinh Quan D., Dong Nai Prov., Vietnam Chongzuo, Guangxi, China	Tam & Hill 2025	includes photographs of living \eth and \circlearrowright
19	nhamtri	8	Chine, 80 km SW of Hanoi, Vietnam	(alboauttatus) Żobko 1985	
	phamen	Ŷ	Viet Tri, Vinh Phu Province, Vietnam	(uiboguitutus) zabka 1985	
		0	27.5°N, 119.7°E, Taishun County,	(Viciria alboguttata) Chen & Zhang 1991	
		Ť	Wuyanling NR, Zhejiang Province	(alboguttatus) Peng & Li 2002; Peng 2020	
20	sumatranus	39	Mt. Singgalang, Sumatra	Prószyński & Deeleman-Reinhold 2012	♀ designated as holotype
21	szirakii	Ŷ	14.50000°N, 100.86670°E, Thailand	Patoleta et al. 2020	epigynum similar to albus and pallidus
22	tener	0	Malamavi (2) Basilan Is, Dhilippings	(Evenus) Simon 1877	description insufficient type lest
		Ť	maiamavi (:), basiidii is., Piiiippifies	Peckham & Peckham 1886	uesen puoli insumcient, type lost
		2	Bhamo Myanmar	(Viciria cristata) Thorell 1887	
		0	blialilo, Myalillial	(Viciria) Simon 1903	with line drawings of carapace and pedipalp
		8	Makassar, Celebes		
		8	Kema, Celebes	(Vigiria) Morian 1011	with line drawing of male pedipalp, different from Simon
		Ŷ	Mapane, Celebes		1903
		Ŷ	bet. Mapane and Posso-See, Celebes		
		20	"Java: Palah Tenger /Tr" (Tenggar?)	Prószyński 1984b, 2017; Peng 2020	from Simon collection but no known relationship to the
		υ¥	Java. I alab. Tenger/II. (Tengger?)	Prószyński & Deeleman-Reinhold 2012	female described by Simon; figs. of male and female
		8	Palembang, Sumatra	Żabka 1985	includes line drawings of male pedipalp by Prószyński
		8	14.50000°N, 100.86670°E, Thailand	Patoleta et al. 2020	identity probably based on Prószyński (1984b)
23	triangulopalpis	39	9.61864°N, 76.38471°E, Kerala	Malamel et al. 2019	junior synonym of <i>E. alboguttatus</i> (Thorell 1887)



Figure 1. Distribution of *Epeus* species in South and Southeast Asia, based on previously published records (Table 1). Each number corresponds to a species listed in Table 1. Each group of similar species (possibly synonyms) reported from multiple localities is shown in color; white circles identify species reported from a single locality. The actual distribution of each species is greater than shown here, but this does suggest some regional differences. For example, *E. alboguttatus* (1, with synonyms 14, 15 and 23) is primarily found in South Asia. *E. glorius* (11) is found in East Asia.

Working list of *Epeus* species

Epeus Peckham & Peckham 1886, type Evenus tener Simon 1877 (nomen dubium)

 Epeus alboguttatus (Viciria albo-guttata Thorell 1887) Phidippus khandalaensis Tikader 1977, new synonym not E. alboguttatus Żabka 1985 E. indicus Prószyński 1992, new synonym E. indicus Jastrzebski 2010 not E. indicus Dhali et al. 2017 E. triangulopalpis Malamel et al. 2019, new synonym E. khandalaensis Sudhin et al. 2024 2. Epeus albus Prószyński 1992

Lyssomanes chilapatensis Biswas & Biswas 1992, per Sudin et al. 2024 *E. chilapatensis* Logunov 2004 **possible synonym:** *E. pallidus* Patoleta, Gardzińska & Żabka 2020 **possible synonym:** *E. szirakii* Patoleta, Gardzińska & Żabka 2020 *E. daiqini* Sibi et al. 2023, per Sudin et al. 2024 *E. albus* Sudin et al. 2024 *E. albus* Tam & Thuy 2025

- 3. Epeus bicuspidatus (Plexippoides bicuspidatus Song, Gu & Chen 1988) possible synonym: E. pengi Wang, Mi & Li 2024
- 4. Epeus covid Lin & Li 2023 (in Lin et al. 2023)
- 5. Epeus daiqini Patoleta, Gardzińska & Żabka 2020
- 6. Epeus dilucidus (Plexippoides dilucidus Próchniewicz 1990) E. dilucidus Wang et al. 2024
- 7. Epeus edwardsi Barrion & Litsinger 1995, may be a nomen dubium
- 8. Epeus exdomus Jastrzębski 2010 E. exdomus Magar et al. 2017
- 9. Epeus flavobilineatus (Salticus flavobilineatus Doleschall 1859) uncertain: Viciria cristata Thorell 1887

Viciria flavo-bilineata Thorell 1892

not: *Viciria tenera* Simon 1903 (\circlearrowleft with long cymbial apophysis, perhaps Thorell's *cristata*) uncertain: *Viciria tenera* Merian 1911 (\circlearrowright only)

Epeus flavobilineatus Prószyński 1984a, 1984b, Prószyński & Deeleman-Reinhold 2012 (♀) *Epeus tener* Prószyński 1984b, 2017, Prószyński & Deeleman-Reinhold 2012 (♂ only) *Epeus tener* Żabka, 1985 (drawings of ♂ pedipalp from Prószyński 1984b) *Epeus tener* Peng 2020 (♂ only) uncertain: *Epeus tener* Patoleta, Gardzińska & Żabka 2020, Thailand (♂), possibly *E. glorius*

- 10. Epeus furcatus Zhang, Song & Li 2003
- 11. Epeus glorius Żabka 1985

E. glorius Xie & Peng 1993 *E. glorius* Peng et al. 1993, Song et al. 1999 (drawings from Xie & Peng 1993) *E. glorius* Peng & Li 2002 *E. glorius* Meng et al. 2015 *E. glorius* Peng 2020 (drawings from Peng & Li 2002)

- 12. Epeus guangxi Peng & Li 2002 E. guangxi Peng 2020 Plexippoides guangxi Logunov 2021 E. guangxi Wang et al. 2024
- 13. Epeus hawigalboguttatus Barrion & Litsinger, 1995
- 14. *Epeus mirus (Taupoa mira* Peckham & Peckham 1907) *E. mirus* Prószyński 1984, Prószyński & Deeleman-Reinhold 2012
- 15. Epeus phamtri Tam & Hill 2025
 E. alboguttatus Żabka 1985
 E. alboguttatus Peng 2020 (followed Żabka 1985)

- 16. Epeus sumatranus Prószyński & Deeleman-Reinhold 2012
- Epeus tener (Evenus tener Simon 1877), nomen dubium, but recognized as Epeus sp. by description Epeus tener Peckham & Peckham 1886 uncertain: Viciria cristata Thorell 1887

Review of Epeus species

Epeus alboguttatus (Viciria albo-guttata Thorell 1887)

Although it has been given more than one name (usually called *E. indicus* or *E. triangulopalpis* in iNaturalist), this is the easiest *Epeus* species to recognize in the field, based on the distinctive paired white spots, on either side of a series of posteromedial dark marks, on the dorsal opisthosoma (Figures 2-4).



Figure 2 (continued on next page). Adult \bigcirc *Epeus alboguttatus* from Karnataka, India. In addition to the paired white spots on the dorsal opisthosoma, males have a dark line over each paturon, white-banded legs, relatively short legs I (for the genus), and lack a crest of setae at the rear of the eye region. **1-2**, iNaturalist observation (iNat. obs.) 87254194, Dakshina Kannada, © Manjunath Acharya, CC BY 4.0. **3-4**, iNat obs. 151726163, Balele, © Abhijith APC, with permission.



Figure 2 (continued from previous page). Adult d Epeus alboguttatus from Karnataka, India.**5,**iNat obs. 151726163, Balele, © Abhijith APC, with permission.**6,**iNat. obs. 256484789, Bengaluru, © kumarkv, CC BY 4.0.**7,**iNat. obs. 132534025, Dharwad, © Mutturaj Gouda, CC BY-NC 4.0. These photos, like all others in this paper, have been cropped and modified for presentation.



Figure 3 (continued on next page). *♀ Epeus alboguttatus* from Karnataka, India. **1-2**, iNat. obs. 169525330, brooding eggs beneath a leaf, near Bengaluru, © 360pixual, CC BY-NC 4.0. **3-5**, iNat. obs. 36257853,© harshithjv, CC BY-NC 4.0.



Figure 3 (continued from previous page). ♀ *Epeus alboguttatus* from Karnataka, India. **6-7,** iNat. obs. 36257853,© harshithjv, CC BY-NC 4.0. **8-10,** © Abhijith APC, with permission. **11,** iNat.obs. 59059053, guarding eggs under leaf, © harshithjv, CC BY-NC 4.0. **12,** iNat. obs. 147836664, Bengaluru, © Vikrant Kumar, CC BY-NC 4.0.



Figure 4. Adult \bigcirc *Epeus* from Audala, Karnataka, India. This male is most likely a darker from of *E. alboguttatus*, and other than the black color looks much like the males shown in Figure 1. **1-2**, iNat. obs. 189254634, © Hardeep Gazdar, CC BY-NC 4.0.

Thorell's (1887) immature specimen used as a basis for his description of this species is now lost. Although his description was quite long, it was written in Latin and has thus been relatively inaccessible. Here I provide Thorell's original description in Latin, followed by a new English translation:

English translation of Thorell's 1887 Latin description of Viciria albo-guttata.

141. *V. albo-guttata*, n., cephalothorace in fundo sub-testaceo, saltem clypeo et fascia utrinque, a clypeo in lateribus partis cephalicae (sub oculis) continuata, dense albo-pubescentibus, saltem facie praeterea et spatiis inter oculos utriusque lateris dense ferrugineopubescentibus; sterno, partibus oris et palpis testaceis, albo-pilosis, pedibus ejusdem coloris, tibiis basi et apice, metatarsis (saltem anterioribus) apice infuscatis; abdomine supra squamulis aureis et sub-ferrugineis vestito et maculis sex rotundatis albis secundum latera dorsi in series duas longitudinales dispositis ornato. — Q jun. Long, saltem 6 ½ millim.

Femina jun. — Cephalothorax , patellam + tibiam + 1/3 metatarsi 4.ⁱ paris longitudine aequans, paullo longior est quam tibia cum patella 1.ⁱ paris, plus ¹/₃, paene dimidio, longior quam latior, lateribus in parte dimidia posteriore modice rotundatis, lateribus praeterea rectis anteriora versus modo leviter angustatus, fronte ipsa levissime rotundata igitur parte thoracica modo paullo angustiore, clypeo dimidiam oculi maximi diametrum altitudine paene aequanti. Arcus supra-ciliares oculorum posticorum parum expressi sunt; inter eos et oculum seriei 2.^{ae} impressionem ostendit cephalothorax aliamque magnam mediam transversam antico rotundatam paullo pone oculos posticos, in qua sulcus ordinarius centralis tenuissimus et brevis conspicitur. Ante oculos posticos, qui paullo pone medium ejus locum tenent, modice proclivis est dorsum ipsum, pone eos primum parum, dein magis declive et convexum et sensim in declivitatem posticam non multo praeruptam et dimidio reliqui dorsi paullo longiorem sensim transiens. Oculi, 2.^{ae} seriei exceptis, magni sunt, medii antici praesertim valde magni et valde prominentes, ita ut oculi in quattuor series transversas dispositi dici possent. Quadrangulus oculorum paullo plus ²/₅ longitudinis cephalothoracis occupare mihi videtur; circa ¹/₄ latior est quam longior, circa oculi singuli postici diametro latior antice quam postice, ubi vix dupla oculi postici diametro latior est quam cephalothorax eodem loco. Linea recta oculos medios anticos supra tangens laterales anticos tangit, vix secat; medii , inter se contingentes, lateralibus saltem duplo et dimidio majores sunt et ab iis spatio remoti, quod, quum desuper inspicitur cephalothorax, sat magnum videtur. Oculi seriei 2.^{ae} evidenter longius ab oculis posticis quam a lateralibus anticis distant. Oculi postici, lateralibus anticis saltem non minores, plus diametro sua altius quam ii sunt locati, et spatio vix vel non majore a margine cephalothoracis quam inter se remoti. Sternum rotundatum, coxis plus duplo latius; spatium inter coxas 1.ⁱ paris labii latitudine paullo majus est. Mandibulae directae, parallelae, sub-cylindratae, faciei altitudinem longitudine non aequantes, plus dimidio, paene duplo longiores quam latiores; sulcus unguicularis apice antice 2 dentibus, postico dente singulo armatus est. Unguis mediocris. Maxillae sub-ovatae, parum

Identification of Epeus

divaricantes, labio vix dimidio longiores; labium parum longius quam latius basi, a basi ad apicem rotundatum sensim sat fortiter angustatum. Palpi sat graciles, paene cylindrati; pars patellaris saltem dimidio longior est quam latior, pars tibialis ea non parum longior, saltem duplo longior quam latior; pars tarsalis, quae apicem rotundatum versus sensim parum angustata est, priores duas conjunctim longitudine saltem aequat, ut eae pilis longis sat dense conspersa. Pedes mediocres, non robusti, anteriores posterioribus parum robustiores, 4.ⁱ paris reliquis graciliores. Tibiae 1.ⁱ paris cylindratae et circiter 5.plo longiores quam latiores sunt; patellae 3.ⁱⁱ paris patellis 4.ⁱ paris paullo sunt longiores, tibiae 3.ⁱⁱ paris tibiis 4.ⁱ paris longiores quoque. Aculei pedum sat crebri , longi et graciles sunt. Femora anteriora 8 aculeos habent, patellae omnes 1 aculeum utrinque. Tibiae supra aculeis carent; tibiae anteriores subter 2. 2. 2, antice et postico 1. 1. 1 aculeis sunt armatae, metatarsi anteriores 2. 2 subter, 1. 1 antice et postico; metatarsi posteriores non tantum apice aculeati sunt. Abdomen sat longum et angustum, posteriora versus sensim angustatum; mamillae longae, superiores angustiores et longiores quam inferiores, art. 2.^o aeque longo ac lato.

Color. — Cephalothorax in fundo testaceus, arcubus supraciliaribus oculorum posticorum et macula utrinque, inter oculum 2.^{ae} seriei et oculum lateralem anticum sita, nigris. Clypeus pube densa alba tectus est, hac vitta lata alba utrinque in lateribus partis cephalicae, supra, ut fascia alba sub oculis continuata; facies praeterea pube ferrugineo-rubra tecta est, cui in annulis circum oculos anticos pubes alba est admixta; etiam spatia inter oculos utriusque lateris et spatium parvum pone (apud) utrumque oculum posticum pube densa ferruginea sunt tecta (cephalothorax praeterea in nostro exemplo detritus est). Sternum, partes oris et palpi testacea, pilis albis conspersa. Pedes quoque testacei, paulloque albo-pilosi, vestigiis pubescentiae albae et hic illic ferrugineae quoque, aculeis plerisque nigris, aliis pallidis. Tibiae basi et apice, utrinque, fuscae sunt; metatarsi saltem anteriores eodem modo apice sunt infuscati. Abdomen in fundo superius obscure testaceocinerascens est, squamulis tenuibus aureis et sub-ferrugineis, ut videtur, vestitum, et maculis sex majoribus rotundatis albis e pube formatis ornatum, quae in series duas longitudinales posteriora versus appropinquantes ad latera dorsi ordinatae sunt, posteriora versus magnitudine sensim decrescentes; duae primae harum macularum paullo ante medium dorsi locum tenent, duae ultimae panilo ante anum, religuae duae in medio inter has et illas; summus apex dorsi praeterea albo-pubescens est, et etiam in lateribus albopubescens fuisse videtur abdomen. Mamillae superiores, apice pallidiore excepto, nigrae sunt, reliquae mamillae clariores.

 \bigcirc jun. — Lg. corp. 6½; lg. cephaloth. paene 3, lat. ej. parum plus 2, lat. front. 1¾; lg. abd. 3½, lat. ej. 1½ millim. Ped. I et II paene 8 (pat. + tib. 2¾, tib. 1¾; metat. + tars. 2¼, metat. 1⅔), III 8½, IV 7½; pat. + tib. III 2½, pat. + tib. IV 2¼ (tib. 1½), metat. + tars. IV 2½ (metat. paullo plus 1½) millim.

Feminam singulam juniorem satis detritam examinavi, a Fea ad Rangoon inventam.

141. V. albo-guttata, n.

Female juvenile. — Cephalothorax with a slightly clay-colored (testaceous) base, at least the clypeus and a band on each side, extending from the clypeus along the sides of the cephalic part (under the eyes), densely covered with white pubescence; also, the face and the areas between the eyes on each side densely covered with ferruginous (rust-colored) pubescence. Sternum, mouthparts, and palps are testaceous and covered with white hairs; legs of the same color, tibiae darkened at both base and tip, metatarsi (at least the anterior ones) darkened at the tip. Abdomen above clothed with golden and light ferruginous scales, adorned with six round white spots arranged in two longitudinal series along the sides of the dorsum.— Juvenile female, body length at least $6\frac{1}{2}$ mm.

Juvenile female — The cephalothorax equals the combined length of the patella + tibia + $\frac{1}{3}$ of the metatarsus of the 4th leg pair, and is slightly longer than the tibia and patella of the 1st leg pair combined; it is more than $\frac{1}{3}$, nearly $\frac{1}{2}$, longer than wide. The sides are moderately rounded in the posterior half, otherwise straight toward the front, narrowing slightly, with the front itself very slightly rounded — thus the thoracic part is just a little narrower. The clypeus is nearly equal in height to half the diameter of the largest eye. The supra-ciliary arches of the posterior eyes are only slightly pronounced; between them and the eyes of the 2nd row, the cephalothorax shows an impression, and another large, central, transverse impression just behind the posterior eyes — which are slightly behind the midpoint — the dorsum is moderately sloped; behind them, first slightly, then more steeply sloped, convex, and gradually merging into the not very steep posterior declivity, which is a little more than half the remaining dorsum in length. All eyes, except those of the 2nd row, are large — especially the median anterior ones, which are very large and strongly protruding, so that

the eyes can be said to be arranged in four transverse rows. The eye quadrangle appears to occupy a bit more than 2/5 of the cephalothorax's length; it's about ¹/₄ wider than long, and anteriorly wider by about the diameter of a posterior eye than posteriorly, where it is hardly more than twice that diameter wider than the cephalothorax at the same point. A straight line touching the top of the median anterior eyes barely touches the anterior lateral eyes. The median eyes, which are touching each other, are at least 2.5 times larger than the lateral ones and are separated from them by a space that, when viewing the cephalothorax from above, appears quite large. The eyes of the 2nd row are clearly farther from the posterior eyes than from the anterior lateral ones. The posterior eves, not smaller than the anterior lateral ones, are located more than one diameter higher than the latter and are barely or not at all farther from the margin of the cephalothorax than they are from each other. The sternum is rounded and more than twice as wide as the coxae. The space between the coxae of the 1st leg pair is slightly wider than the width of the labium. The chelicerae are straight, parallel, sub-cylindrical, not as long as the height of their front face, more than half, almost twice as long as they are wide; the claw groove is armed at the tip with two teeth anteriorly, one tooth posteriorly. The claw is of medium size. Maxillae are sub-oval, slightly divergent, barely half as long as the labium. The labium is slightly longer than wide at the base, narrowing strongly and gradually to a rounded tip. Palps are rather slender, nearly cylindrical; the patellar part is at least half again as long as it is wide; the tibial part is even longer — at least twice as long as wide: the tarsal part, which tapers slightly toward a rounded tip, is at least equal in length to the patella + tibia together, and is densely covered with long hairs. Legs are moderate in size, not robust; the anterior legs are only slightly more robust than the posterior ones; the 4th pair is more slender than the others. The tibiae of the 1st pair are cylindrical and about five times as long as they are wide. The patellae of the 3rd leg pair are slightly longer than those of the 4th, and the tibiae of the 3rd are longer than those of the 4th as well. The spines on the legs are fairly numerous, long, and slender. The anterior femora have eight spines; all patellae have one spine on each side. Tibiae have no dorsal spines. The anterior tibiae bear spines ventrally in the arrangement 2.2.2 and anteriorly and posteriorly 1.1.1; anterior metatarsi with 2.2 ventrally and 1.1 anteriorly and posteriorly. Posterior metatarsi are spined only at the tip. The abdomen is fairly long and narrow, tapering gradually toward the rear. The spinnerets are long; the upper pair is more slender and longer than the lower; the second segment is as long as it is wide.

Coloration — The base color of the cephalothorax is testaceous (brick or yellow-brown). The supra-ciliary arches of the posterior eves and a spot on each side, between the 2nd row eve and the anterior lateral eve, are black. The clypeus is covered with dense white pubescence, extending upward as a broad white band on each side of the cephalic part, continued as a subocular white band. The rest of the face is covered with rust-red pubescence, mixed with white hairs in rings around the anterior eyes. Also, the spaces between the eyes on each side and a small area just behind each posterior eye are densely covered with ferruginous pubescence (in our specimen, the cephalothorax is otherwise somewhat worn). Sternum, mouthparts, and palps are testaceous, with white hairs. Legs also testaceous, with slight white pubescence and traces of ferruginous as well; most spines are black, some pale. The tibiae are darkened at base and tip; metatarsi, at least the anterior ones, are similarly darkened at the tip. The abdomen is dusky gray-testaceous above, apparently covered with thin golden and ferruginous scales, and adorned with six larger round white spots formed of pubescence, arranged in two longitudinal rows along the sides of the dorsum, approaching each other toward the rear and decreasing in size. The first two spots are located just before the midpoint of the dorsum, the last two just before the spinnerets, the remaining two in between. The tip of the dorsum is also white-pubescent, and the abdomen appears to have been white-pubescent on the sides as well. The upper spinnerets are black except for the paler tip; the remaining spinnerets are lighter.

Juvenile female measurements (in millimeters): Body length: $6\frac{1}{2}$; Cephalothorax: ~3 long, a bit over 2 wide, front width 1³/₄; Abdomen: 3¹/₆ long, 1⁵/₆ wide; Legs I and II: ~8 (patella + tibia 2³/₄; tibia 1³/₄; metatarsus + tarsus 2¹/₄, metatarsus 1²/₃); Leg III: 8¹/₂; Leg IV: 7¹/₂; Patella + tibia III: 2¹/₂; patella + tibia IV: 2¹/₄ (tibia 1¹/₂); metatarsus + tarsus IV: 2¹/₄ (metatarsus a bit more than 1¹/₂).

Remarks: A single juvenile female specimen was examined, collected by Fea in Rangoon [now Yangon, Myanmar]. The specimen was somewhat worn.

Much of Thorell's description is of little use for identification of this species, but his account of the coloration, to include the paired white spots (corresponding to his species name, *alboguttatus*) can be applied to no other species of *Epeus*. More than 100 years later, Żabka (1985) found a mature female specimen that he thought was Thorell's type, and redescribed this, with a new male and a new female, as

E. alboguttattus. His spiders have now been recognized as a different species, recently rediscovered in Vietnam and named *Epeus phamtri* by Tam & Hill (2025).

Tikader (1977) later found and described this species as *Phidippus khandalaensis*. Tikader's drawings clearly shows the series of dark spots on the posterior opisthosoma of the female, but his drawings of the epigynum are sketchy. Fortunately, Sudhin et al. (2024) were able to obtain a photograph of the holotype, although the epigynum was apparently lost. Nonetheless the scale pattern on the dorsal opisthosoma of the Tikader's female is distinctive (Figure 5).



Figure 5. Tikader's (1977) holotype ♀ for *Phidippus khandalaensis* (*=Epeus alboguttatus*), from Sudhin et al. (2024).

Fifteen years later, Prószyński (1992) described this species as *Epeus indicus*, a fitting name since it is mostly known from India. The spider later described as *E. indicus* by Dhali et al. (2017) is clearly not this species, and almost certainly not an *Epeus*.

For reference, Prószyński's brief description is given here (see also Figure 6):

Epeus indicus sp. n. (Figs 22-23, 26, 29)

Material: ♀ holotype, India (No. 929): Jajpur-Keonjahr District, Orissa 23 XI 1967, Leg. Topál. Coll. Hungarian NH Museum, Budapest.

Diagnosis. White medium size spider with 3 small black marks posteriorly along mid-line of abdomen (Fig. 23), black spInnerets and black surroundings of eyes ALE II and III; black basal and apical spots laterally on tibiae I-II, no such spots on tibia IV (legs III missing). Unidentati.

Measurements: L. cphth.: 2.49;L. abd.: 3.05;L. e-f.: 1.11; H. cphth.: .38; W. e-f. I: 1.66; W. e-f. III: 1.52; W. cphth.: 2.01.

Identification of Epeus

FEMALE. Cephalothorax yellowish, eyes lateral surrounded black (Figs26, 29); behind fovea 4 darker yellow radii. Eyes anterior lateral (ALE) drawn back with lenses on the level of darker bases of anterior median eyes (AME), both ALE and AME are directed anteriorly like in any other *Salticidae*. Eyes II small (about ½ of diameter of ALE,) located half way between eyes III and ALE, on the edge of the black field surrounding ALE. Abdomen whitish, posteriorly with 3 distinct and one indistinct black marks along mid-line; faint traces of 2 pairs of intensively white scales marginally, followed by yellow scales behind them and also marginally. Frontal aspect: diameter of AME slightly more than twice that of ALE; the latter bluish medially and almost black laterally, whilst the AME have greyish pink outer part and pearl yellowish central one. Eyes anterior surrounded with white setae, whilst wedge shaped spots of yellowish orange scales penetrate between AME and ALE from beneath and above. Clypeus covered by broad band of strikingly white scales. Chelicerae yellow, pedipalps yellowish white with tarsus and tibia fawn. Legs long and thin. Epigyne: sclerotized rims of the copulatory openings make part of an almost regular circle in the anterior third of epigyne, followed [followed] by very small pockets (Fig. 22).



Figure 6. Prószyński's (1992, figs. 22-23, 26, 29) drawings of the holotype for his *Epeus indicus* (*=E. alboguttatus*). Note the distinctive dark dorsomedial markings at the rear of the opisthosoma (2-3). 4, Ventral view of epigynum. The incomplete circle of dark cuticle at the top (anterior) of the epigynum is characteristic of this species.

Most recently, Malamel et al. (2019) redescribed this species as *Epeus triangulopalpis*. Their paper is well-illustrated and includes a description of the male, as well as photographs of the living spiders. Because of this, their types for *E. triangulopalpis* should be recognized as the designated neotype specimens for *E. alboguttatus*. Their photographs of the dissected and cleared female epigynum (figs. 18-19, drawn in figs. 22-23) are clearly distorted, particularly with respect to the position of the external openings of the copulatory ducts. Fortunately the position of this incomplete circular rim (see Figure 6.4) can be seen in their photo of an intact female specimen (fig. 14) if one looks closely. Since the sclerotized openings of the copulatory ducts are so important to *Epeus* taxonomy, those who wish to study these spiders should always document the appearance of the intact (*in-situ*) epigynum. Malamel et al. (2019, figs. 11, 20-21) also provide our only documentation of the appearance of the male pedipalp, similar to that of other *Epeus* but with a short, acute cymbial apophysis (not heavily sclerotized), a simple spine-like RTA (projecting laterally, curving distally, not truncated), and one or two small tegular lobes projecting from the proximal side of the tegulum.

Epeus albus Prószyński 1992

Epeus pallidus Patoleta, Gardzińska & Żabka, 2020 possible synonym *E. szirakii* Patoleta, Gardzińska & Żabka 2020, possible synonym

With the recent description of *Epeus albus* from Vietnam (Tam & Thuy 2025) we now have a better idea of what these spiders looks like in life (Figures 7-8). However, still we need to know much more about variation in the appearance of this species, as well as the appearance of other very similar *Epeus* species, to be confident in identification based only on field marks. In particular, females of several different species are quite similar to each other. As revealed by Tam & Thuy (2025), the male (Figure 7) has long, dark (brown to black) legs, dark brown pedipalps that are black at the tip, a cover of dark orange setae in the eye region with a pointed crest at the rear between the PLE, and a generally pale green body except for a darker median area flanked by narrow off-white stripes on the opisthosoma, and a dark black face, including black chelicerae, flanked by a black anterior carapace beneath each ALE. The female (Figure 8) is similar in body color, more pale green, without the black areas and sometimes with indistinct darker banding on the pale green, translucent legs. The eye region of females is glabrous at the center, with off-white or orange setae to the sides and front, around the eyes. Note that spiders shown in Figures 7-8 are labeled *Epeus* cf. *albus*, because some of these may actually represent different, related species.



Figure 7 (continued on next page). Adult ♂ *Epeus* cf. *albus*. **1-3**, iNat. obs. 178304668, Thailand, © Lawrence Hylton, CC BY 4.0. **4**, iNat. obs. 192900848, Singapore, © budak, CC BY-NC 4.0.



Figure 7 (continued from previous page, continued on next page). Adult ♂ *Epeus* cf. *albus.* **5-6,** iNat. obs. 6160698, Singapore, © budak, CC BY NC 4.0. **7,** iNat. obs. 146671233, Singapore, © romejonpaul, CC BY NC 4.0. **8,** iNat. obs. 245051929, Singapore, © Melvyn Yeo, CC BY NC 4.0. **9-10,** iNat. obs. 206967499, Hong Kong, © benjonion, CC BY-NC 4.0.



Figure 7 (continued from previous page). Adult ♂ *Epeus* cf. *albus.* **11-12**, iNat. obs. 153608826, and **13-14**, iNat. obs. 162719339, Bentong, Malaysia, © Nadja Baumgartner, CC BY-NC 4.0. **13-14**, iNat. obs. 82147101, Singapore, © Md Jusri, CC BY-NC 4.0. **15-16**, iNat. obs. 82147101, Singapore, © Md Jusri, CC BY-NC 4.0. **17**, iNat. obs. 9854715, Singapore, © ct19391945, CC BY NC 4.0. **18**, iNat. obs. 36404494, Singapore, © budak, CC BY NC 4.0.



Figure 8 (continued on next page). Adult ♀ *Epeus* cf. *albus.* **1,** iNat. obs. 94780849, Tanjung Bungah, Penang, Malaysia, fluorescing under UV light, © Albert Kang, CC BY-NC 4.0. **2-3,** iNat. obs. 9350991, Singapore, © Albert Kang, CC BY-NC 4.0. **4-5,** iNat. obs. 35193681, Indonesia, © Franz Anthony, CC BY 4.0. **6,** iNat. obs. 263328819, Sabah, Malaysia, © Lawrence Hylton, CC BY 4.0. **7,** iNat. obs. 129710332, Singapore, © Fiora Li, CC BY-NC 4.0. **8,** iNat. obs. 139732432, and **9,** iNat. obs. 106548159, Singapore, © budak, CC BY-NC 4.0. **10-11,** iNat. obs. 241606869, Singapore, © Melvyn Yeo, CC BY-NC 4.0.



Figure 8 (continued from previous page). Adult ♀ *Epeus* cf. *albus.* **12,** iNat. obs. 245206471, **13,** iNat. obs. 243715727, **14,** iNat. obs. 239970773, **15,** iNat. obs. 237240927, and **16,** iNat. obs. 257786700, Singapore, © Melvyn Yeo, CC BY-NC 4.0. **17,** iNat. obs. 204692106, Bohorok, Sumatra, © Bridgette Gower, CC BY-NC 4.0. **18,** iNat. obs. 158517564, Bentong, Malaysia, © Nadja Baumgartner, CC BY 4.0. **19,** iNat obs. 133640352, Puttur, Karnataka, © vasanthi k, CC BY-NC 4.0.

Peckhamia 330.1

Prószyński's (1992) description of a female *Epeus albus* is not very definitive, but does include a sketch of the epigynum (Figure 10.1):

Epeus albus sp. n. (Figs 20-21, 25)

Material: ♀ holotype. India (No. 929): Jajpur-Keonjahr District, Orissa, 23 XI 1967, Leg. Topál. Coll. Hungarian NH Museum, Budapest.

Diagnosis: White without dark abdominal spots.

Measurements: L. cphth.:2.22; L. abd.:3.05; L. e-f.:1.04; H. cphth.:1.25; W. e-f. I. 1.45; W. e-f. Ill. 1.38; W. cphth.: 1.94; Remark. Large spider, white (Fig. 25) devoid of posterior spots on abdomen, with spinnerets yellowish and legs devoid of darker tibial spots; closely resembles *Epeus indicus* sp. n. which has dark abdominal marks.

FEMALE. Cephalothorax yellow, eye field whitish, eyes lateral on black fields; remnants of colorless whitish scales near eyes III. Abdomen dorsally whitish with sparse inconspicuous gleaming scales. spinnerets yellow. Frontal aspect comparable with *Epeus indicus* sp n. described below: AME lighter, scales penetrating from beneath between AME yellowish white, clypeal band of white scales broader. Chelicerae yellow. Pedipalps whitish. Legs I yellow. tibia with 4 pairs of particularly long ventral spines. Ventral aspect: mouth parts yellow, remaining structures whitish, spinnerets yellowish. Epigyne: see Figs 20-21.

Sudin et al. (2024) and Tam & Thuy (2025) provide the best descriptions of this species, although they did not examine Prószyński's type. Their female specimens generally agree with Prószyński's drawings of the female epigynum (Figure 10.1), which has a large area of dark cuticle marking the external openings of the coiled copulatory duct on either side of a wide anterior window. The acute, projecting, and curved cymbial apophysis of the male has a distinctly serrated edge, and the retrolateral tibial apophysis (RTA) below this is wide and blunt or rectangular at the distal end (Figure 9). Sudin et al. also recognized *Epeus chilapatensis* Biswas & Biswas 1992 (Figure 11) as a junior synonym for *E. albus*. Both *E. pallidus* Patoleta, Gardzińska & Żabka 2020 (Figure 10.5) and *E. szirakii* Patoleta, Gardzińska & Żabka 2020 (Figure 10.6) may also be junior synonyms for *E. albus*. Although there appear to be differences between the various epigyna shown in Figure 10, much of what can be seen here is the result of female age and condition, preservation in alcohol, extraction, clearing, handling and lighting. When these variables are taken into account, the epigynal characters used to justify these as new species, based on 3 \mathcal{Q} specimens collected at one locality at some time in the past (unspecified), are not sufficient.



Figure 9. Left pedipalp of a *∂ Epeus albus* from India (adapted from Sudhin et al. 2024, CC BY 4.0). **1-2**, ventral view. **3-4**, retrolateral view. **5**, Dorsal view. Abbreviations: E, embolus; DCA, dorsal cymbial apophysis; LCA, (lateral) cymbial apophysis; TL, tegular lobe; RTA, retrolateral tibial apophysis.



Figure 10. Epigyna of \bigcirc *Epeus.* **1,** Prószyński's (1992) drawing of his holotype specimen for *E. albus* from Orissa, ventral view. **2-3,** Ventral views of the cleared epigyna of two \bigcirc *E. albus* from India (adapted from Sudhin et al. 2024, CC BY 4.0). **4,** Ventral view of the intact epigynum of a \bigcirc *E. albus* from Batang Hari, Jambi, Indonesia (iNat. obs. 167837565, © Naufal Urfi Dhiya'ulhaq, CC BY-NC 4.0). **5,** Cleared epigynum of the holotype specimen for *E. pallidus* from Thailand, view not specified but most likely a dorsal view (adapted from Patoleta et al. 2020). **6,** Cleared epigynum of the holotype specimen for *E. szirakii* from Thailand, view not specified but most likely a ventral view (adapted from Patoleta et al. 2020). **6,** Cleared epigynum of the holotype specimen for *E. szirakii* from Thailand, view not specified but most likely a ventral view (adapted from Patoleta et al. 2020). Abbreviations: CO, copulatory opening; EP, epigynal pocket; LL, lateral loop of copulatory duct; ML, medial loops of copulatory ducts; W, window.



Figure 11. Holotype \bigcirc specimen for *Epeus chilapatensis* Biswas & Biswas 1992, from West Bengal, recognized as a junior synonym of *E. albus* by Sudin et al. 2024 (adapted from Sudhin et al. 2024, CC BY 4.0).

Epeus bicuspidatus (Plexippoides bicuspidatus Song, Gu & Chen 1988)

E. pengi Wang, Mi & Li 2024, possible synonym

The cymbium is relatively wide and short. Most illustrations show this as significantly bent distally, to the side. The cymbial apophysis is relatively small and bifurcated, and the retrolateral tibial apophysis is also very short and spine-like. Peng & Li (2002) provided a brief description of the male in English: Proximal leg segments (to the femur) are light green in color and translucent, distal leg segments are dark, and the entire body is black. Legs are long and thin. The dorsal opisthosoma is uniform, dark with visible paired circular attachments for dorso-ventral muscles. Meng et al. (2015) published good photos of the living male and female, and described the female for the first time. However they did not examine the holotype. Their work should be used as the definitive reference for identification of this species. The female (Figure 12) has two dull orange or brown stripes across the otherwise off-white scale cover of the eye region, and a dark median line on the dorsal opisthosoma, flanked by off-white bands; the body color is generally dull to bright green. Lateral loops of the copulatory duct extend to the anterior of the epigyum, at least to the level of the copulatory ducts.



Figure 12. ♀ *Epeus bicuspidatus* from Taichung, Taiwan, iNat. obs. 14401507, © hokoonwong, CC BY-NC 4.0.

Adult male and female *Epeus pengi* Wang, Mi & Li 2024 (Figures 13-15) look much like *E. bicuspidatus*, and this could be a junior synonym for that species. The male holotype for *E. pengi* also has a small cymbial apophysis, but it is not bifurcated (or *bicuspid*) at the tip. The epigynum of the female *E. pengi* also has lateral loops of the copulatory duct that extend to the front, but not quite as far to the front as those shown in the cleared epigynum of *E. bicuspidatus*. These differences may not be significant.



Figure 13. *Epeus pengi* from Xizang, China (adapted from Wang et al. 2024; CC BY 4.0). **1-2, 4,** ♂ holotype specimen. **3,** ♀ paratype. **5,** Front of distal paturon showing cheliceral teeth, and **6,** posterior of leg I, ♂ holotype.



Figure 14. 1-3, Medial (1), ventral (2) and lateral (3) views of the left pedipalp of the holotype *♂ Epeus pengi* (adapted from Wang et al. 2024; CC BY 4.0). Abbreviations: E, embolus; RCA, (retrolateral) cymbial apophysis; RTA, retrolateral tibial apophysis; TF, tegular flap (lobe).



Figure 15. Ventral (external; 1, 3) and dorsal (2, 4) views of the epigynum of the paratype \bigcirc *Epeus pengi* (adapted from Wang et al. 2024; CC BY 4.0). The convoluted pathway of the copulatory duct, extending from the right copulatory opening to the right spermatheca, is shown at center. Abbreviations: At, atrium (window); CD, copulatory duct; CO, copulatory opening; FD, fertilization duct; S, spermatheca.

Epeus covid Lin & Li 2023 (in Lin et al. 2023)

This species, curiously named after a viral disease, is known only from the original description. Fortunately this description includes photographs of a living male and female. The female, with a dark middorsal line on the opisthosoma, resembles *E. bicuspidatus*, but the epigynum, with a large, dark oval rim around the external openings of the copulatory ducts, is quite different and distinctive. The cymbial apophysis is covered with fine, black tubercles that form a serrated edge at the rear. Otherwise the male pedipalp is unremarkable, and similar to that of *E. tener*. Males have a pointed crest at the rear of the eye region, and are mostly orange, with darker appendages and a band of white scales on either side of the eye region. The holotype male was found cohabiting with a penultimate female.

E. daiqini Patoleta, Gardzińska & Żabka 2020

This species is also known only from the original description of a male and several females from Thailand (Figure 16). The pedipalp of the male does not differ greatly from *E. tener*, but the epigynum of the female has a large, dark semicircular boundary spanning the openings of both copulatory ducts, and each

copulatory duct is wide at this boundary (joined at the median), then tapers as it curves, first laterally, then medially toward the rear, and there are no lateral loops (or coils) of the copulatory duct. Females are probably light green and translucent in life, and the males have darker legs and carapace. WE know nothing of the appearance of these spiders in the field, and some of the spiders shown in Figures 7-8 may represent this species.



Figure 16. \bigcirc holotype (1-4) and \bigcirc paratype (5-7) for *Epeus daiqini* (adapted from Patoleta et al. 2020, CC BY 4.0). **1**, Anterior view of \bigcirc . Note the crest (C) at the rear of the eye region. **2**, Ventral view of \bigcirc chelicerae and anterior prosoma. **3-4**, Ventral (3) and lateral (4) views of left \bigcirc pedipalp. **5**, Face of \bigcirc , with white facial setae (FS) characteristic of many *Epeus* species. **6**, Ventral (external) view of epigynum. **7**, Dorsal (internal) view of cleared epigynum. Other abbreviations: CA, cymbial apophysis; CD, copulatory duct; CG, cymbial groove; CO, copulatory opening; E, embolus; RTA, retrolateral tibial apophysis; SD, seminal duct; SP, small spine or projection on CA; TB, tegular bump; TL, (proximal/lateral) tegular lobe.

Epeus dilucidus (Plexippoides dilucidus Próchniewicz 1990)

Only the original description of two males from Bhutan, which includes drawings of the male pedipalp, is useful for identification. The pedipalp is relatively wide with a buldging tegulum, a relatively short groove of the distal cymbium, and a long, curved tegular lobe emerging near the center of the tegulum. The cymbial apophysis appears to be bifurcated, with two acute points. The RTA, beneath this, is simple with a rounded point. The description is brief. The female is unknown.

English translation of Próchniewicz' German description of *Epeus dilucidus*:

Plexippoides dilucidus n. sp. Abb. 21-28.

Holotypus: 👌 (NHMB), Bhutan, 21 km nach Wangdiphodrang, 1700-2000 m, 15.-16. oder 21.VII.1972.

Paratypus: 👌 (NHMB), Bhutan, 87 km nach Puntsholing, 1700 m, 22.V.1972.

Maße: Holotypus: Pros.L 2.50, Pros.MB 2.40, Pros.H 1.00, AF.L 1.30, VAR.B 1.80, HAR.B 1.60, Op.L 3.70. - Paratypus: Pros.L 2.90, Pros.MB 2.45, Pros.H 1.95, AF.L 1.35, VAR.B 1.95, HAR.B 1.60, Op.L 3.70.

Beschreibung: Holotypus: AF intensiv gelb, nach hinten orangebraun. VMA mit einer braunorangen Umrahmung. Übrige Augen schwarz umrandet. Pros sonst graugelb. Op aschgrau, mit einem violetten Glanz und vier weißlichen, rechteckig angeordneten Flecken (Abb. 23). SW gelblichschwarz. Cly orangebraun. Max braun. Ste weigelb. Ven graulila. Pd mit einem weichen, hellen, durchsichtigen Embolus (Abb. 21-23). Paratypus: AF zitronengelb. Die Umrahmung der VMA intensiv orangegelb. Übrige Augen schwarz gerandet. Pros sonst orangegelb, glanzlos. Op gelblichweiß, braun behaart (Abb. 28). SW gelbweißlich. Cly mit einem nach unten gerichteten, weißen Haarbiischel. Che orangegelb. Max und Ste weißlich. Ven gelblich. Alle BP gelblich, mit braunen Haaren und Stacheln. Pd im Vergleich zum Holotypus weniger sklerotisiert (Abb. 25-27).

Plexippoides dilucidus n. sp. Figs. 21–28.

Holotype: ♂ (NHMB), Bhutan, 21 km toward Wangdue Phodrang, 1700–2000 m, 15–16 or 21 July 1972.

Paratype: 👌 (NHMB), Bhutan, 87 km toward Phuntsholing, 1700 m, 22 May 1972.

Measurements: Holotype: Prosoma length 2.50 mm, Prosoma mid-breadth 2.40 mm, Prosoma height 1.00 mm, Anterior field length 1.30 mm, Ventral area breadth 1.80 mm, Hair area breadth 1.60 mm, Opisthosoma length 3.70 mm. Paratype: Prosoma length 2.90 mm, Prosoma mid-breadth 2.45 mm, Prosoma height 1.95 mm, Anterior field length 1.35 mm, Ventral area breadth 1.95 mm, Hair area breadth 1.60 mm, Opisthosoma length 3.70 mm.

Description: Holotype: Anterior field intensely yellow, transitioning to orange-brown toward the rear. Median anterior eyes bordered by a brown-orange frame. Other eyes black-bordered. Prosoma otherwise gray-yellow. Opisthosoma ash-gray, with a violet sheen and four whitish spots arranged in a rectangular pattern (Fig. 23). Sternum yellowish-black. Clypeus orange-brown. Maxillae brown. Labium yellowish-white. Legs grayish-lilac. Pedipalp with a soft, light, transparent embolus (Figs. 21–23). Paratype: Anterior field lemon-yellow. The frame around the median anterior eyes is intensely orange-yellow. Other eyes black-bordered. Prosoma otherwise orange-yellow, dull. Opisthosoma yellowish-white, with brown hairs (Fig. 28). Sternum yellowish-white. Clypeus with a downward-pointing tuft of white hairs. Chelicerae orange-yellow. Maxillae and labium whitish. Legs yellowish. All pedipalps yellowish, with brown hairs and spines. Pedipalp less sclerotized than in the holotype (Figs. 25–27).

Epeus edwardsi Barrion & Litsinger 1995, may be a nomen dubium

This species is only known from the original description of one male specimen from Mindanao in the Philippines. This includes only sketchy drawings of the pedipalps with few details, other than the presence of a short, pointed RTA and a short cymbial apophysis (spur), that might be used to separate it from other *Epeus*. If this specimen could be located (?) it might be identified or described in more detail. More field studies of *Epeus* in the Philippines are needed in any case.

Epeus exdomus Jastrzębski 2010

Jastrzębski (2010) described this species from two male specimens from an unknown locality in Nepal. Subsequently Magar et al. (2017) described a male from Katmandu (Figure 17), and included photos of a living male. The female is not known, but the male is very distinctive and easy to identify. The body is black, with two pairs of lateral lines on the dorsal opisthosoma, a diamond-shaped area of white scales at the center of the eye region, and a downward-pointing triagule of bright white scales over the clypeus. The legs are all dark brown except for the coxae, trochanters, and proximal femora of legs II-IV (but not I), whick are pale green and translucent, prominent fringes of long white setae around each tibia, lighter fringes of black black setae around femora I-III and the metatarsi. The pedipalp is relatively short for an Epeus, with three pointed apophyses at the base of the cymbium, and one simple, pointed RTA.



Figure 17. *Cepeus exdomus* from Katmandu, adapted from Magar et al. 2017.

Epeus flavobilineatus (Salticus flavobilineatus Doleschall 1859)

The male of this well-known species is mostly translucent green, and very distinctive (Figures 18-20). Its presence has been documented recently from many localities in Sunda, from the Malay peninsula to Java and Sulawesi. Determination of the correct species name has been difficult, however. For example, Patoleta, Gardzińska & Żabka recently (2020) published a frontal view of a \mathcal{J} (fig. 1B), but only identified this as "*Epeus* sp." Three species names, *flavobilineatus, tener* and *cristata* have been assigned to these spiders by different authors. On *iNaturalist* photographers mostly use *flavobilineatus*, although only the \mathcal{Q} of that species has been formally described. Yet most formal publications that have described related spiders from the localities inhabited by these spiders use *tener*, with *cristata* recognized as the \mathcal{J} of that species. Here I follow the many iNaturalist photographers who have based their identification on Prószyński's (1984a) drawing of the epigynum of a spider from Java, *provisionally* identified as *flavobilineatus*.



Figure 18 (continued on next page). Adult ♂ *Epeus flavobilineatus.* **1-2**, iNat. obs. 265931239, Singapore, © franegan, CC BY-NC 4.0. **3-4**, iNat. obs. 146039888, Singapore, © romejonpaul, CC BY-NC 4.0. **5-6**, iNat. obs. 138470791, © Aloke Sahu, CC BY-NC 4.0. **C** BY-NC 4.0.



Figure 18 (continued from previous page). Adult \bigcirc *Epeus flavobilineatus.* All are CC BY-NC 4.0, 7-10 are from Singapore. **7**, iNat. obs. 4770938, Singapore, © budak, CC BY-NC 4.0. **8**, iNat. obs. 242467027, Singapore, © Melvyn Yeo, CC BY-NC 4.0 **9**, iNat. obs. 200898850, Singapore, © Muhammad Huzaifah, CC BY-NC 4.0. **10**, iNat. obs. 266337227, Singapore, © kaylene77, CC BY-NC 4.0. **11-12**, iNat. obs. 212171175, Gunung Mulu NP, Sarawak, © DolceAmore, CC BY-NC 4.0. **13**, iNat. obs. 71224543, Jakarta, © Wildan R. Ardani, CC BY 4.0. **14**, iNat. obs. 201260078, Tinombo, Sulawesi, © fachrynurmallojr, CC BY-NC 4.0.



Figure 19. *Epeus flavobilineatus* from the vicinity of Yogyakarta, Java. This series is of particular importance as it documents the relationship of males and females, and the appearance of females. **1,** (iNat. obs. 67197685) \bigcirc (at right) with \bigcirc in her shelter beneath a leaf. **2-5,** (iNat. obs. 68102368) \bigcirc with medial (3), ventral (4), and lateral (5) views of pedipalp. Abbreviations: CA, cymbial apophysis; E, embolus; RTA, retrolateral tibial apophysis; TL, tegular lobe. **6-7,** (iNat. obs. 71536047) \bigcirc with brood and (7) ventral view of epigyum. The agrees with Prószyński's (1984a) drawing of the *flavobilineatus* epigynum. All photos © Naufal Urfi Dhiya'ulhaq, CC BY-NC 4.0.



Figure 20. *Epeus* cf. *flaveobilineatus.* **1-2**, This \Im looks much like a typical *E. flaveobilineatus*, but lacks the small bands of white setae on the legs. Instead of a narrow band of white to off-white scales on either side of the opisthosoma, it has off-white scales covering each side completely. (iNat. obs. 185206571, Candijay, Bohol, Philippines, © Ioannis Magouras, CC BY 4.0). **3-4**, This \Im has vivid stripes covering the entire eye region IiNat. obs. 41099702, Cebu, Philippines, © Aloke Sahu, CC BY-NC 4.0). **5-6**, These $\Im \Im$ from Singapore lack the dark pigment on the face and legs that is characteristic of *E. flavobilineatus*, but may represent a local form. However, in some salticids males do not develop their adult pigmentation until some time after their final molt to maturity (5, iNat. obs. 251547204, 29 Jan 2016, and 6, iNat. obs. 261684508, 27 Apr 2014, © Melvyn Yeo, CC BY-NC 4.0).

The \bigcirc *E. flavobilineatus* can be difficult to identify without examination of the epigynum (Figure 19.7), and may look like a different *Epeus*, perhaps *E. albus*. Many of the females shown in Figure 8 are probably *E. flavobilineatus*. More than one *Epeus* species may be found at the same locality, so it is particularly important to find males and females together (e.g., Figure 19.1). Earlier work on this genus has been based largely on specimens of a single gender, or males and females collected at different locations.

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To resolve the identity of *Epeus flavobilineatus* it has been necessary to step through the series of related publications, reviewed here in chronological order. We begin with Doleschall's brief 1859 description of a single female specimen from Java that he named *flavobilineatus*. At the time that he wrote this, it was probably deemed sufficient to describe his specimen. But that specimen has almost certainly been lost, and never subsequently examined or drawn. The best clue to the identity of this spider was the presence of *in dorso duabus longitudinalibus citrinis* (two longitudinal lemon-yellow stripes) on the dorsal opisthosoma, corresponding to the species name *flavobilineatus*. The dimensions and habitat (Java) of this spider provide additional clues. Doleschall did not mention the gender of the spider that he described, and it might have been immature.

English translation of Doleschall's 1859 description of *Salticus flavobilineatus*. This appears to describe a female (gender not stated), written in a combination of Latin (the taxonomic description) and Dutch (the accompanying explanatory text):

9. Salticus flavobilineatus nov. sp.

Gracilis, thorace pedibusque testaceis his corpore parum longioribus, sibi subaequalibus; abdomine elongato, thorace bis longiore, pallide viridi, vittis in dorso duabus longitudinalibus citrinis. Long. 2½ ' ". Grootte, gedaante en teekening bijna als bij de voorgaande soort, slechts zijn de kleuren anders verdeeld. De thorax en de pooten bleek geelachtig. Het achterlijf lang en puntig, lichtgroen, in het midden met twee overlangsche dunne citroengele strepen, die zich aan beide uiteinden vereenigen. De pooten van gelijke sterkte, 3. 1. 4. 2., iets langer dan het ligchaam, aan den binnenrand met korte doorntjes. Habit. Java (Harriang). N. K. [Nota Kennelyk]

9. Salticus flavobilineatus, new species

Slender, with the thorax and legs being yellowish-brown, the legs slightly longer than the body and nearly equal in length; abdomen elongated, twice the length of the thorax, pale green, with two longitudinal lemon-yellow stripes on the back. Length: $5.3 \text{ mm} [2\frac{1}{2} \text{ lines}]$ "lines" is an old unit of measurement, about 1/12 of an inch or $\sim 2.1 \text{ mm}]$. Size, shape, and pattern are almost the same as in the preceding species [*S. auricapillus*, a *nomen dubium*], only the colors are distributed differently. The thorax and the legs are pale yellowish. The abdomen is long and pointed, light green, with two longitudinal thin lemon-yellow stripes in the middle, which merge at both ends. The legs are of equal strength, in the order 3. 1. 4. 2. [longest to shortest], slightly longer than the body, with short spines on the inner edge. Habitat: Java (Harriang). Note from the author.

Subsequently Thorell (1892) moved Doleschall's female *Salticus flavobilineatus* into his own genus *Viciria*, as *V. flavo-bilineata*. He apparently based this solely on Doleschall's (1859) description, and simply recorded that species in a tabular list of species (Thorell 1892, p. 476):

Viciria, Thor. * (?) flavo-bilineata (Dol.) ... Java

Nearly a century later (!) Prószyński published his drawings of the genitalia of these spiders. His first publication (Prószyński 1984a) was a collection of drawings that included one drawing of the epigynum of a \bigcirc from Java (Figure 21) that someone had identified has *Epeus flavobilineatus*. This was not related to Doleschall's (1859) type from Harriang, but was at least collected from a location in Java (Kagok). The basis for this identification is not known, but the epigynum does agree closely with the epigynum of *E. flavobilineatus* (Figure 19.7), and this is different from the epigynum of any other *Epeus* that has been described. It is of interest that this drawing is the *only* published image that has been directly associated with *E. flavobilineatus*, yet many recent posts on iNaturalist have been correctly assigned to this species.



Figure 21. Prószyński's (1984a) drawing of the epigynum of *Epeus flavobilineatus*, ventral view (anterior at top). The caption published with this drawing included the text on the specimen label: *Epeus flavobilineatus* /comb. nov. J. Pr. /= *Plexippoides* f.?/ = "*Viciria flavobilineata*. Jawa: Kagok". Coll Kulczyński, Warszawa. Drawn by J. Prószyński.

In a second paper (1984b), Prószyński dealt more generally with the genus *Epeus*, but only listed two species. In this paper he formally transferred both *flavobilineatus* and *tener* to *Epeus*. His consideration of *flavobilineatus*, however, was *provisional*, as, although he had access to a collection of $7 \circlearrowleft$ and $10 \updownarrow$ labelled as that species, he did not have access to the type specimen. Although he had access to a series of \oiint specimens labelled as *flavobilineatus*, Prószyński did not draw or describe any of them. As a result, to the present day, there is no published description for the male of that species. This omission may be related to the fact that his identification of *flavobilineatus*, based on a female from Java, was still waiting on access to Doleschall's type specimen.

Based on a male and female specimen in the collection of E. Simon, Prószyński (1984b) also illustrated the male pedipalp and the female epigynum of a spider from the collection of E. Simon, labeled as *Viciria tenera*. However, Prószyński's drawing (Figures 22.1-22.3) of the \bigcirc pedipalp of *tener* from Java does not agree with Simon's earlier 1903 drawing (see Figure 31.3), which may have been based on Thorell's *cristata* from Myanmar. It clearly lacks the long, thin cymbial apophysis depicted in Simon's drawing. In addition, the female *tener* examined by Prószyński's drawing of the epigynum of *E. tener* is quite different from his earlier (1984a) drawing of the epigynum of *E. flavobilineatus*, and clearly represents a different species. The \bigcirc and \bigcirc *tener* drawn by Prószyński (1984b) may not have represented the same species.

Prószyński's (1984b) transfers of *flavobilineatus* and *tener* to *Epeus*:

Epeus flavobilineatus (Doleschall, 1859), comb. n. *Salticus flavobilineatus* Doleschall, 1859: 16, *Viciria flavobilineata*: Thorell, 1892 et auct. seq. Material: $7 \Im \Im$, $10 \ Q \ Q$ - "*Viciria flavobilineata* Dol. Jawa: Kagok coll. W. Kulczyński"- IZ PAN, Warszawa. Remark. The proposed transfer to the genus *Epeus* is based on examination of specimens which are not types of the species *flavobilineatus*. Thus the reclassification is provisional until identification of studied specimens could be confirmed. *E. flavobilineatus* is closely related to *E. tener* (= *Viciria tenera*) and a few not yet described forms from Viet-Nam (M. Żabka - personal communication).

Epeus tener (Simon, 1877), comb. n. Evenus tener: Simon, 1877: 59, t. 3, f. 12 (preoccup.) Epeus tener: Peckham 1886: 334, Viciria tenera: Simon, 1903: 742-748 et auct. seq.

Material: 1°_{\circ} , $l \stackrel{\bigcirc}{_{\circ}}$ - "20345 *Vic. tenera* E . E. Java: Palab. Tenger/Tr." - coll. E. Simon, MNHN, Paris. The palpal organ is shown on Figs. 13-15, epigyne and its internal structure on Figs. 16, 18.



Figure 22. Published illustrations that have been associated with *Epeus tener*. All have been adapted for this presentation. **1-3**, \bigcirc right pedipalp, Java (Prószyński 1984b). The scale should probably be 0.5 mm. This may represent a \bigcirc *flavobilineatus*. **4-5**, \bigcirc left pedipalp, Thailand (Patoleta et al. 2020, CC BY 4.0). **10-11**, Ventral (10) and dorsal or internal (11) views of \bigcirc epigynum, Java (Prószyński 1984b). Note the presence of lateral loops of the copulatory duct; this represents a different species, perhaps *E. albus*.

Żabka (1985), in his review of the Salticidae of Vietnam, included two of Prószyński's (1984b) drawings of the pedipalp of a male *Epeus tener*. Later, Prószyński & Deeleman-Reinhold (2012) republished the earlier drawings (Prószyński 1984a, 1984b) of both *flavobilineatus* and *tener*, noting that there were "problems with species interpretation of *E. flavobilineatus* (Doleschall, 1859), due to the absence of the type specimen." In 2017, Prószyński also republished some of his earlier drawings of *E. tener*. Peng (2020) also republished Prószyński's drawings of *E. tener* from Java.

Most recently, Patoleta et al. (2020) published photographs of a \Im specimen identified as *E. tener* collected in 2001, in Thailand (Figures 22.4-22.5). The pedipalp of their specimen agrees closely in most details with Prószyński's earlier (1984a) drawings of the same (Figures 22.1-22.3), although the RTA was more blunt, and, up close, small serrations (possibly overlooked by Prószyński) can be seen on the lateral edge of the cymbial apophysis. The blunt RTA and serrated cymbial apophysis actually agree closely with Żabka's (1985) drawings of the pedipalp of the holotype *Epeus glorius*, from Vietnam. The specimen photographed by Patoleta et al. lacked many features of the \Im *flaveobilineatus*, notably the prominent crest of long setae at the rear of the eye region. Collected 19 years earlier (2001), this specimen may have been rubbed or otherwise damaged.

Epeus furcatus Zhang, Song & Li 2003

Only one \circ specimen of this species is known, from Singpore. It has a shorter RTA, and the cymbial apophysis is bifurcated or forked (divided into a longer ventral part with a rounded tip, and a shorter dorsal part). A narrow proximolateral tegular lobe is present. The description is brief, but there is a *dense scopula* beneath the tibia and metatarsus of each leg I and II. The specimen was light in color.

E. glorius Żabka 1985

Żabka (1985) briefly described one \Diamond specimen (from Phu Que, Vietnam) with many yellow-orange setae, and noted that this was close to the "*Viciria tenera*" from Java that he had examined. His drawings of the right pedipalp depict a long, curved, proximally pointed and acute cymbial apophysis, serrated only on the ventral edge, and a wide, blunt RTA. His drawings are actually closer to the photographs of the "*tener*" pedipalp later published by Patoleta et al. (2020; see Figures 22.4-22.5). Peng & Li (2002) and Peng (2020) also published drawings of the male pedipalp. Meng et al. (2015) published photographs of a living adult \Diamond , with an orange body and dark brown to black appendages. The relationship of these photographs to the \Diamond specimen that they described is not known, and they did not examine the holotype \Diamond described by Żabka. Meng et al. (2015) also published photographs of a \heartsuit specimen. This \heartsuit has a very distinctive epigynum with two separate, circular anterior windows and a heavily sclerotized copulatory opening on either side. However it should be noted that this \heartsuit , representing the only published record of a \heartsuit *E. glorius*, was not collected at the same time as the males described by Meng et al. This leaves open the possibility that it represents a different species with a very different epigynal structure.

Recently many *Epeus* photographs posted on *iNaturalist* have been identified as *E. glorius*. Many of these vary from the published descriptions and in many cases their identification has been based more on locality (toward the northern part of the range of *Epeus* in east Asia, or even in southern India) than on the detailed examination of specimens. Some of these can be identified as other species, to include *E. alboguttatus* and *E. albus*. Some of the spiders identified as *E. glorius* in *iNaturalist* are shown in Figure 23. These all appear to be representatives of one species, and that could be *E. glorius*. Until we have confirmation based on microscopic examination of spiders that have been photographed in life, we cannot be certain.



Figure 23 (continued on next page). *Epeus* cf. *glorius.* **1**, ♂, iNat. obs. 153562327, Taipei, Taiwan, © Formosa Pan, CC BY-NC 4.0. **2**, ♂, iNat. obs. 113790486, Hsinchu County, Taiwan, © 水牛, CC BY-NC 4.0. **3**, ♂, iNat. obs. 266720755, Taichung, Taiwan, © starwu, CC BY-NC 4.0. **4**, ♂, iNat. obs. 75852043, Taipei, Taiwan, © carol1970, CC BY-NC 4.0. **5-6**, ♂, iNat. obs. 109441363, Taipei, Taiwan, © 魏芷,CC BY-NC 4.0.



Figure 23 (continued from previous page). *Epeus* cf. *glorius.* **7**, \mathcal{J} , iNat. obs. 78019827, Hsinchu County, Taiwan, © 魏芷蘭, CC BY-NC 4.0. **8**, \mathcal{J} , iNat. obs. 158178219, Hsinchu Couty, Taiwan, © stansun, CC BY-NC 4.0. **9-10**, \mathcal{J} , iNat. obs. 215733005, near Taipei, Taiwan, © Lupin, CC BY-NC 4.0. **11**, \mathcal{J} , iNat. obs. 222183632, Taipei, Taiwan, © hollythefrog, CC BY-NC 4.0. **12**, \mathcal{Q} , iNat. obs. 103241527, Sha Tin, Hong Kong, © Yui Hong Chiu, CC BY-NC 4.0. **13**, \mathcal{Q} , iNat. obs. 262332931, Hong Kong, © hollythefrog, CC BY-NC 4.0. **14**, Penultimate \mathcal{J} , iNat. obs. 198634397, Nantou, Taiwan, © Licheng Shih, CC BY 4.0.

This spider is known only from the male holotype. Peng & Li (2002) provided three views of the male pedipalp, and one dorsal view of the body. The cymbium of the male pedipalp is almost as wide as long. There are two sharply pointed cymbial apophyses, and a sharply pointed RTA. A relatively long tegular lobe is present, emerging from the distal side of the tegulum. In these respects the pedipalp resembles that of a *bifurcatus* with a longer and more widely bifurcated cymbial apophysis. In most *Epeus* species, this lobe emerges from the proximal or latersal side of the tegulum. There are two pairs of circular white spots on the dorsal opisthosoma. There are no known photographs of a living *E. guangxi*.

Epeus hawigalboguttatus Barrion & Litsinger 1995

This species is also known from a single male specimen. Drawings of a pedipalp provided by the authors do not show enough detail to be useful. There is possible mention of a cymbial apophysis (*lateral outgrowth of cymbium*), but the RTA is small. Neither detail was included in the drawing. Between the PLE is a *thick divided tuft of black hairs*. Metatarsus I is heavily fringed on at least two sides with *thick black hairs*. For a male *Epeus*, the legs are of moderate length. To resolve the identity of this species, the type specimen will have to be examined. There are no known photographs of this species.

Epeus mirus (Taupoa mira Peckham & Peckham 1907)

The Peckhams provided only a text description of the female, from Borneo. However, Prószyński (1984) later drew the epigynum of a specimen labeled "*Taupoa mira*" from the Peckham collection (Figure 24; also published in Prószyński & Deeleman-Reinhold 2012). The color of the opisthosoma may be distinctive, but the Peckhams' description of this may also have been influenced by its appearance when preserved or submerged in alcohol. No photographs of this species are known, but it may have been described by someone else under a different genus.



Figure 24. Prószyński's (1984) drawing of the epigynum of *Taupoa mira*. In the caption for this picture, he transferred it to the genus *Epeus*. The caption also included, between quotation marks, the label for this specimen: "1038 *Taupoa mira* Peckh. Borneo, 3214, Shelford. GW. and EG. Peckham coll." MCZ-Harvard Univ. /=*Epeus mirus* /Peckh./, comb. n. J. Pr./. Drawn by J. Prószyński, 1983.

This is a delicate, light-colored species of medium size, the abdomen being brilliantly iridescent. Q. Length 7 mm. Legs 3214, first, second and fourth pairs nearly equal, first and second a little the stoutest. Our specimens are rubbed. The cephalothorax is yellow with the eyes on black tubercles. The sides are bare, but the eye-square seems to have been covered with bright red hairs. The hairs around the eyes are snow-white with an intermingling of bright red. The clypeus is wide and retreating, with white hairs. The abdomen is covered with silky golden hairs and brilliantly iridescent white hairs, the pattern, unfortunately, being indistinct. There seems to have been a wide white band down the middle, and two transverse white bands. The anterior sides are golden. On each side, between the transverse white bands, is a dark bar covered with golden hairs, and at the posterior end, on each side, is an abbreviated dark band running longitudinally, also covered with golden hairs. The spinnerets are dark-colored. The under surface is light with a dark streak down the middle of the venter. The falces are small and yellow, the palpi white, the legs yellow. Two females.

Epeus phamtri Tam & Hill 2025

This species was misidentified as *Epeus alboguttattus* by Żabka (1985). Both the 3° and 9° were recently (Tam & Hill 2025) redescribed from Dong Nai Province, northeast of Hanoi. The prosoma of the male (Figures 25-26.1) is black beneath the anterior eye row, otherwise orange. The opisthosoma is very narrow and tapering, red-orange toward the front and black toward the rear. The legs are all very dark brown or black. The pedipalp has a wide, blunt RTA, a very short, pointed cymbial apophysis, and a relatively short proximal tegular lobe (Figures 26.2-26.3). Females are generally off-white in color, with a dull orange eye region interrupted by an off-white median stripe, and a pair of off-white dorsolateral stripes on the opisthosoma, with a wavy margin and surrounded by dark brown stripes at the median and on either side (Figure 27.1). The legs are translucent. The copulatory openings are more sclerotized (dark) and align as the left and right sides of a square window toward the front of the epigynum (Figure 27.2). This shape may not be seen in a dissected and cleared preparation, however.



Figure 25. Adult ♂ *E. phamtri* from Bảo Lâm, Lâm Đồng Province, Vietnam (iNat. obs. 212298642, © Phan Vũ Phúc Lân, CC BY-NC 4.0).



Figure 26. *∂ E. phamtri.* **1,** Adult *∂* from Muang Sa Kaeo, Sa Kaeo Province, Thailand (iNat. obs. 109210582, © arthur_ensis, CC BY-NC 4.0). **2-3,** Ventral (2) and lateral (retrolateral) views of the left pedipalp of the holotype *∂* from the Dinh Quan District of Dong Nai Province, Vietnam (from Tam & Hill 2025).



Figure 27. \bigcirc paratype *E. phamtri* from the Dinh Quan District of Dong Nai Province, Vietnam (from Tam & Hill 2025). 1, Dorsal view of living \bigcirc . 2, Ventral (exterior) view of intact epigynum.

The \bigcirc *E. phamtri* is similar in color to the photograph of a \bigcirc *E. glorius* published by Meng et al. (2015, figs. 3-4), but the posterior part of the opisthosoma is dark. In addition, the pedipalp of the \bigcirc *E. glorius*, as depicted by both Żabka (1985) and Meng et al. has a very long cymbial apophysis with a serrated ventral edge. The epigynum of the \bigcirc *E. glorius* as depicted by Meng et al. is also quite different. *E. phamtri* has been found from Vietnam west to Thailand and north to southeastern China.

Epeus sumatranus Prószyński & Deeleman-Reinhold 2012

The authors described this species from a series of male and female specimens collected at Mt. Singaling on Sumatra. A \bigcirc was selected as the holotype, based on its distinctive epigynum, as the \Im pedipalp, with a simple, pointed cymbial apophysis, a blunt or rectangular RTA, and a proximolateral tegular lobe, did not differ much from that of the related "*Epeus tener*." Males not associated with females may be difficult to identify. Unlike *E. albus*, they have a relatively uniform cover of off-white setae on the sides of the opisthosoma, rather than distinct stripes (Figures 28-29). The structure of the epigynum should allow one to identify females (Figure 30). The holotype \bigcirc was described as *green with two broad yellow marginal streaks, merged posteriorly*, but all recent records of this spider suggest that they are generally a very pale yellow, with translucent legs, and a uniform cover of white to ivory colored setae over the eye region and the dorsolateral sides of the opisthosoma, with more exposure of the pale yellow color and fewer setae along a middorsal opisthosomal band.



Figure 28. Two ♂ *Epeus sumatranus* from Sarawak (© W. Maddison, CC BY 3.0). **1-5,** Specimen SWK12-1629, with lateral (4) and ventral (5) views of left pedipalp. **6-8,** Specimen SWK12-2577, with lateral (6) and ventral (7) views of left pedipalp.



Figure 29. Adult *A Epeus* cf. *sumatranus* from Sabah (North Borneo), Malaysia (iNat. obs. 257783460, by Philipp Hoenle, CCO).



Figure 30. Two $\stackrel{\frown}{}$ *Epeus sumatranus* from Sarawak (© W. Maddison, CC BY 3.0). **1-2**, Specimen SWK12-1447, with ventral (exterior) view of epigynum (2). **3-6**, Specimen SWK12-2696, with ventral view of epigynum (3).

17. Epeus tener (Evenus tener Simon 1877), nomen dubium

uncertain: Viciria cristata Thorell 1887

This species cannot be separated from other *Epeus* by Simon's (1877) brief description of a single \bigcirc specimen from the Philippines (see Figure 31.1). Simon's specimen also appears to be lost, so all that we have is the description.

English translation of Simon's 1877 description of a female *Evenus tener*, written in French:

6. Evenus tener, sp. nov. (Pl. 3, fig. 12.)

 \bigcirc . Céphaloth. : long. 3,6 mill., largo 2,6 mill. Abd.: long. 4,5 mill., largo 1,5 mill. Pattes: 1^{re} p. 9 mill., 2^e p. 8,4 mill., 3^e p. 10 mill., 4^e p. 8,4 mill. Blanc-testacé, avec le tour des yeux noir. Bandeau garni de barbes trèblanches, serréer. Carré céphalique garni en dessus de pubescence squameuse d'un jaune brillant un peu doré, et sur les côtés de pubescence rouge. Abdomen rouge vif en dessus, avec deux fines lignes latérales jaunes. Pattes et pattes-mâchoires glabres? Malamoy, île Bassilan (Laglaise) (M. N.).

6. Evenus tener, sp. nov. (Plate 3, fig. 12)

 \bigcirc . Cephalothorax: length 3.6 mm, width 2.6 mm. Abdomen: length 4.5 mm, width 1.5 mm. Legs: 1st pair 9 mm, 2nd pair 8.4 mm, 3rd pair 10 mm, 4th pair 8.4 mm. Whitish-testaceous (ivory-like), with the area around the eyes black. Frontal band covered with very fine, closely set white hairs. Cephalic square covered on top with a shiny, slightly golden yellow scaly pubescence, and on the sides with red pubescence. Abdomen bright red on top, with two fine yellow lateral lines. Legs and pedipalps hairless (glabrous)? Malamoy, Basilan Island (Laglaise) (M.N.).

The subsequent transfer of Simon's *tener* to the new genus *Epeus* by the Peckhams (1886) is somewhat mysterious, as they added characters to Simon's description, but did not identify the source, or even the gender, of the spider that they described.

Transfer of *Evenus tener* to the genus *Epeus*, as the type of that genus, by Peckham & Peckham (1886):

¹ *EPEUS* N. Syn.: 1877. *Evenus* Simon, Am. Soc. Entomol de France, (5), vii, pp. 58–58. *Cephalothorax* moderately long; thoracic part scarcely the longer, plainly dilated and rounded, cephalic part plane, high behind, inclined in front, longer than wide. *Eyes*: the median anterior eyes very large, almost touching, the entire width of the face; the lateral eyes much smaller, separated, further back, forming a second line. Dorsal eyes as large as the lateral, a little nearer together since the sides of the head converge behind. Clypeus almost as wide as the radius of the median anterior eyes. *Sternum* scarcely wider than the intermediate coxae, rounded above, anterior coxae separated by at least the width of the lip, of the same length as the others. *Falces* short, vertical, not ridged. *Legs* 3, 1, 2, 4, long, the three first pairs of equal thickness, the fourth pair more slender, patella and tibia of the first longer than patella and tibia of the fourth much shorter than patella and tibia of the third, and more slender; metatarsus and tarsus of the fourth at least as long as the patella and tibia; on the first two pairs two inferior rows of very long tibial and metatarsal spines; tibiae and metatarsi of the two posterior pairs with slender spines throughout their length. Long tarsal claws, regularly bent, the external one provided with a series of five teeth, longer, more slender, equal, crowded together. This genus makes the transition from the ordinary Attidae to *Lyssomanes* of Hentz. ¹*Epeus* is substituted for *Evenus*, the latter name being preoccupied.

The next relevant publication in our timeline was Thorell's lengthy description of a male *Viciria cristata* from Burma (now Myanmar) in 1887. I include this here because Simon (1903) subsequently thought that this was the δ for his *tener*. Unfortunately, the fact that Thorell's description was written in Latin has made it relatively inaccessible. One advantage that Thorell had was that he was describing an adult male, and male *Epeus* tend to have many more distinguishing field marks than do females. His description included a "rust-red" crest at the rear of the eye region, and the white scales of the clypeus. However, that several things make identification of this male as a *flavobilineatus* less likely. First, his locality (northern Myanmar) is not within the range where most *E. flavobilineatus* have been observed in recent years. Second, he stated that the RTA was very long, almost as long as the tibia of the pedipalp: *spinam gracilem acuminatam, basi foras directam, dein anteriora versus curvatam, nigram ostendit, quae ipsa parte tibiali non vel parum brevior est* (a slender, pointed, black spine directed outward at the base and then curved forward, which is nearly as long as the tibial part itself).

English translation of Thorell's 1887 description of a male Viciria cristata, written in Latin:

140. V. cristata, n., cephalothorace in fundo sub-testaceo, parte cephalica utrinque pube densa flava tecta, area inter-oculari in medio crista lata sub-triangula, quae e pilis densis sub-erectis ferrugineorubris formata est, ornata; palpis pedibusque sordide testaceis, minus evidenter nigricanti-annulatis, femoribus saltem anterioribus subter nigricantibus, tarsis pallide testaceis; abdomine in fundo sordide testaceo, pube densa sericea supra vestito, hac pube secundum medium dorsi aureo-rufa, praeterea aureo-flava. - 🖒 ad. Long, circa 6 ¹/₃ millim. Mas. — Cephalothorax, qui tibiam cum ¹/₄ patellae 1.ⁱ paris, et tibiam cum patella 4.ⁱ paris longitudine aequat, paene ¹/₃ longior quam latior est, lateribus posterius fortiter rotundatis, anterius vero fere rectis anteriora versus sensim sat fortiter angustatus, fronte ipsa parum rotundata, ³/₄ latitudinis partis thoracicae latitudine aequanti; sulcus ordinarius centralis brevissimus est, arcus supra-ciliares oculorum posticorum parum expressi. Altus est cephalothorax, dorso a latere viso ante oculos posticos (qui fere in medio dorsi ipsius locum tenent) modice proclivi, pone eos eodem modo declivi et in declivitatem posticam longam et sat lenem (non praeruptam) paene sine limite transeunti. Clypeus altus quidem est, sed quum oculi medii antici solito majores sint, modo 1/3 diametri eorum altitudine aequat. Quadrangulus oculorum 2/5 longitudinis cephalothoracis occupat; circa ¹/₄ latior quam longior est, et non parum (circa diametro oculi singuli postici) latior antico quam postice, ubi fere tripla oculi postici diametro angustior est quam cephalothorax eodem loco. Linea recta oculos medios anticos tangens laterales anticos paullulo sub margine superiore secat. Oculi medii antici valde magni sunt, inter se contingentes, lateralibus anticis saltem triplo majores: adeo prominentes sunt, ut oculi in 4 series ordinati dici possint, et spatia, quibus sejuncti sunt medii a lateralibus anticis, eam ob causam, quum desuper inspicitur cephalothorax, majora videntur quam re vera sunt. Oculi seriei 2.^{ae} parvae parum longius ab oculis posticis quam a lateralibus anticis distant. Oculi postici, lateralibus anticis saltem non minores, et diametro sua altius quam ii positi, multo longius a margine cephalothoracis quam inter se remoti sunt. Sternum rotundatum, coxis multo latius; spatium inter coxas 1.¹ paris labii latitudine multo est majus. Mandibulae directae, parallelae, plus dimidio longiores quam latiores, altitudinem faciei longitudine non aequantes, in interiore latere rectae, in latere exteriore leviter rotundatae, apice late et valde oblique truncatae, in dorso parum convexae, opacae, leviter transversim striatae pilisque sat dense sparsae. Sulcus unguicularis apice antice duos dentes parvos habet, versus apicem postice dentern singulum majorem. Unguis mediocris. Maxillae sub-ovatae, non multo longae, labio circa duplo longiores, divaricantes et in latere exteriore foras curvatae (sive hic paullo emarginatae); labium modo paullo longius quam latius est, apice sub-rotundatum. Palpi longi et sat graciles sunt, clava tamen femora antica latitudine saltem aequat. Pars patellaris saltem dimidio longior est quam latior; pars tibialis partis patellaris longitudine fere est eaque vix vel parum latior, apice oblique rotundato-truncata: in ipso apice lateris exterioris spinam gracilem acuminatam, basi foras directam, dein anteriora versus curvatam, nigram ostendit, quae ipsa parte tibiali non vel parum brevior est. Pars tarsalis prioribus duabus conjunctis paullo longior videtur, et circa duplo et dimidio longior est quam latior, apice sat longo angusto; basi latissime et oblique truncata est, angulo interiore rotundato, et hic parte tibiali circa triplo latior, a vicinitate baseos ad apicem angustata, utrinque versus basin rotundata, latere exteriore dein late et leviter sinuato sive emarginato, latere interiore vero paene recto; ab angulo baseos exteriore spinam rectam sat gracilem nigram retro et deorsum directam emittit. Bulbus modo partem posteriorem partis tarsalis occupat; e tuberculo oblongo forti obliguo laevissimo testaceo constat, cujus apex posticus in procursum gracilem sive spinam brevem obtusam testaceam retro et intus directam est productus, et quod spina longissima nigra, primum crassa, denique gracillima, in helicem involuta circumdatum est. Pedes graciles, sat longi, anteriores reliquis modo paullo robustiores; tibiae anteriores cylindratae et valde longae sunt, patellae 3." paris longiores et robustiores quam patellae 4.ⁱ paris, tibiae 4.ⁱ paris paullo longiores quam tibiae 3.ⁱⁱ paris, cylindratae, patella modo parum angustiores. Parcius pilosi et pubescentes videntur pedes, aculeis sat crebris et gracilibus armati. Femora 9 aculeos habent, ad partem parvos et pallidos; patellae omnes aculeo parvo utrinque munitae sunt. Tibiae supra aculeis carent. In tibiis 1.ⁱ paris subter 2. 2. 2. 2 aculeos vidisse videor, antice et postice 1. 1. 1, in tibiis vero 2.ⁱ paris modo 2. 2. 2 subter, et 1. 1. 1 antice et postice. Metatarsi anteriores subter 2. 2, antice et postice 1. 1 aculeos habent; metatarsi posteriores non tantum apice aculeati sunt. Abdomen longum et angustum, sub-lanceolatum; mamillae longae, superiores multo angustiores et paullo longiores quam inferiores, art. 2.° aeque fere longo ac lato.

Color. — Cephalothorax in fundo sordide testaceus est, anterius obscurior; pars cephalica utrinque inter ocuios et supra utrinque — postice latius, antice angustius — pube densa sericea flava est tecta, praeterea vero in medio saltem posterius pilis densis luteo- vel ferrugineo-rubris vestita, qui quasi fasciculum vel cristam latam, transversam, sursum et anteriora versus directam, a fronte visam sub-triangulam in medio areae inter-ocularis formant (in nostro exemplo pars dimidia anterior hujus areae detrita est). Annuii

Identification of Epeus

angustissimi circum ocuios anticos flavi, super et inter medios anticos ferrugineo- vel luteo-rubri. Clypeus sub-fuscus, modo pilis albicantibus sparsus. Pars thoracica et latera partis cephalicae parcius pallido-pubescentes. Sternum et coxae pallide testacea, cum femori bus, subter, pilis albis sparsa. Mandibulae obscure ferrugineo-fuscae, pilis longis albicantibus conspersae. Maxillae et labium sordide testacea. Palpi testaceo-fusci, clava obscuriore, parte femorali flavo-testacea; pilis longioribus albis sparsi sunt, aculeo singulo minuto nigro armati. Pedes sordide testacei, tarsis praesertim anterioribus pallide testaceis, patellis, tibiis et metatarsis saltem 1.ⁱ paris apice sub-infuscatis vel nigricantibus; femora, praesertim anteriora, fasciam latam sive umbram longitudinalem nigram subter ostendunt. Nigropilosi sunt pedes et albo-pubescentes, et subter in tibiis et metatarsis anterioribus pilis longioribus (in metatarsis 1ⁱ paris praesertim longis) dense vestiti. Aculei plerique nigri, reliqui pallidi. Abdomen in fundo sordide testaceum; dorsum ejus pube densa sericea secundum medium aureo-rufa, praeterea aureo-flava vestitum est, latera abdominis parcius flaventi-pubescentia, venter albicanti-pubescens. Mamillae sordide testaceae.

Lg. corp. 6¹/₃; Ig- cephaloth. 2³/₄, lat. ej. paullo plus 2, lat. front. 1¹/₂; lg. abd. 3¹/₂, lat. ej. 1¹/₄ millim. Ped. I 9²/₃ (pat. + tib. 3⁵/₆, tib. paullo plus 2¹/₂; metat. + tars. 3, metat. circa 2), II 8¹/₄, III 8 8³/₄, IV 8; pat + tib. III 2³/₄, pat. + tib. IV 2¹/₂ (tib. 1⁵/₆), metat. + tars. IV 2⁵/₆ (metat. 2) millim.

Cel. Fea marem unicum hujus speciei ad Bhamò invenit. *V. scopariae*, Sim. (¹), ex Chantaboune (Siam), haec species valde affinis videtur; alio colore et forma alia palporum tamen facile internosci potest.

(¹) Arachnides recueillis.... dans le royaume de Siam, au Cambodge et en Cochinchine, *in* Actes de la Soc Linn. de Bordeaux, XL (1886), p. (4).

140. V. cristata, new species

With a cephalothorax dull testaceous (clay-colored) beneath, the cephalic part on both sides covered with dense vellowish pubescence. The area between the eyes is ornamented in the center with a broad, somewhat triangular crest formed of dense, semi-erect, rust-red hairs. Palps and legs are dull testaceous, less distinctly dark-ringed; the femora, at least the front ones, are dark underneath; tarsi are pale testaceous. Abdomen beneath dull testaceous, densely covered above with silky pubescence — this pubescence along the midline of the dorsum is golden-red, elsewhere golden-yellow. — Adult ♂. Length about 6¼ mm. Male — The cephalothorax, which equals the length of the tibia and ¼ of the patella of the first pair of legs and the tibia with patella of the fourth pair, is about 1/3 longer than wide, with strongly rounded sides posteriorly, almost straight anteriorly, narrowing fairly strongly toward the front; the front itself is slightly rounded, equaling ³/₄ of the width of the thoracic part. The central groove is very short; the evebrow-like arches above the posterior eyes are faintly marked. The cephalothorax is high, with the dorsum, seen laterally, moderately sloping in front of the posterior eyes (which are nearly centrally placed), similarly sloping behind them, blending into a long and rather gentle posterior slope (not abrupt), nearly without a boundary. The clypeus is indeed high, but since the anterior median eyes are unusually large, its height equals only $\frac{1}{3}$ of their diameter. The eye quadrangle occupies 2/5 of the cephalothorax's length; about 1/4 wider than long, and significantly wider in front than behind (by approximately the diameter of a posterior eye), where it is nearly three times narrower than the cephalothorax at the same point. A straight line touching the anterior median eyes intersects the anterior lateral eyes slightly below their upper margin. The anterior median eyes are very large, touching one another, at least three times the size of the anterior lateral eyes; they protrude so much that the eyes can be said to be arranged in four rows, and the spaces separating the median from the lateral anterior eyes, when viewed from above, appear larger than they really are due to this prominence. The second row of eyes is small and sits slightly farther from the posterior eyes than from the anterior lateral ones. The posterior eyes are at least as large as the anterior lateral ones, placed higher by their diameter, much farther from the edge of the cephalothorax than from each other. The sternum is rounded and much broader than the coxae; the space between the coxae of the first pair is much larger than the width of the labium. Chelicerae are straight, parallel, more than half as long again as wide, not equaling the facial height in length, straight on the inner side, slightly rounded on the outer, broadly and obliquely truncated at the tip, slightly convex on the dorsal side, dull, faintly striated transversely, and moderately covered with hairs. The claw groove has two small anterior teeth and a single larger posterior tooth. The claw is of medium size. Maxillae are somewhat ovate, not very long, nearly twice as long as the labium, diverging and curved outward on the outer side (or slightly notched there); the labium is just slightly longer than wide, with a sub-rounded tip. Palps are long and rather slender, though the club (bulb) at least equals the width of the femora. The patellar part is at least half again as long as wide; the tibial part is almost equal in length to the patella and only slightly wider, with a tip obliquely rounded and truncated. At the very tip on the outer side, it bears a slender, pointed, black spine

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directed outward at the base and then curved forward, which is nearly as long as the tibial part itself. The tarsal part appears slightly longer than the previous two combined, and about 2.5 times longer than wide, with a rather long, narrow tip; the base is very broadly and obliquely truncated, with the inner angle rounded, and this part is about three times wider than the tibial part. It narrows toward the tip, rounded at the base on both sides; the outer side is broadly and slightly sinuate or notched, while the inner side is nearly straight. From the outer base angle, it emits a fairly slender black spine directed backward and downward. The bulb occupies only the posterior part of the tarsal portion; it consists of a strong, obliquely positioned, smooth, testaceous, oblong tubercle, whose posterior tip is drawn out into a slender process or short, blunt, testaceous spine directed backward and inward, and is surrounded by a very long black spine — thick at first, then very slender — coiled in a spiral. The legs are slender, rather long, the anterior ones only slightly more robust than the others; the anterior tibiae are cylindrical and very long, the patellae of the third pair longer and more robust than those of the fourth pair. The tibiae of the fourth pair are a little longer than those of the third pair, cylindrical, with the patellae only slightly narrower. Legs appear sparsely hairy and pubescent, armed with rather frequent and slender spines. The femora have 9 spines, mostly small and pale; all patellae bear a small spine on each side. The tibiae lack dorsal spines. On the tibiae of the first pair, I seemed to see 2-2-2-2 spines beneath, and 1–1–1 anteriorly and posteriorly; on the tibiae of the second pair, only 2–2–2 below, and 1–1–1 anteriorly and posteriorly. The anterior metatarsi beneath have 2-2 spines, and 1-1 anteriorly and posteriorly; the posterior metatarsi have spines only at the tip. The abdomen is long and narrow, somewhat lanceolate; spinnerets long, the upper pair much narrower and slightly longer than the lower pair, the second segment almost as long as wide.

Coloration — The cephalothorax is dull testaceous underneath, darker in front; the cephalic part between and above the eyes — broader behind, narrower in front — is covered with dense silky yellow pubescence, and behind at least in the middle with dense vellow or rust-red hairs forming a bundle or broad transverse crest directed upward and forward, appearing triangular when viewed from the front (in our specimen, the front half of this area is worn). Narrow rings around the anterior eyes are yellow; above and between the anterior median eyes, rust-red or yellow-red. The clypeus is dusky, sparsely covered with whitish hairs. The thoracic part and sides of the cephalic part are sparsely pale-pubescent. Sternum and coxae pale testaceous, with white hairs on the underside of the femora. Chelicerae dark rust-brown, scattered with long whitish hairs. Maxillae and labium are dull testaceous. Palps are testaceous-brown, the club darker, femoral part vellowishtestaceous; scattered with longer white hairs and armed with a single minute black spine. Legs are dull testaceous, tarsi especially the anterior ones pale testaceous; patellae, tibiae, and metatarsi — at least of the first pair — slightly darkened or blackish at the tips. Femora, especially the front ones, show a broad dark longitudinal stripe or shadow below. Legs are covered with black hairs and white pubescence, and underneath the anterior tibiae and metatarsi are densely clothed with long hairs (especially long on the metatarsi of the first pair). Most spines are black, some are pale. Abdomen dull testaceous beneath; the dorsum is clothed with dense silky golden-red pubescence along the center, elsewhere golden-yellow; the sides of the abdomen are sparsely yellowish-pubescent, the ventral surface with whitish pubescence. Spinnerets dull testaceous.

Body length: $6\frac{1}{3}$ mm. Length of cephalothorax: $2\frac{3}{4}$ mm. Width of cephalothorax: a little more than 2 mm. Width of front: $1\frac{1}{2}$ mm. Length of abdomen: $3\frac{1}{2}$ mm. Width of abdomen: $1\frac{1}{4}$ mm. Leg I: $9\frac{2}{3}$ mm total (patella + tibia: $3\frac{5}{6}$ mm, tibia slightly more than $2\frac{1}{2}$ mm; metatarsus + tarsus: 3 mm, metatarsus about 2 mm), Leg II: $8\frac{1}{4}$ mm, Leg III: $8\frac{3}{4}$ mm, Leg IV: 8 mm; Patella + tibia of leg III: $2\frac{3}{4}$ mm, Patella + tibia of leg IV: $2\frac{1}{2}$ mm (tibia: $1\frac{5}{6}$ mm), Metatarsus + tarsus of leg IV: $2\frac{5}{6}$ mm (metatarsus: 2 mm).

Mr. Fea found a single male of this species at Bhamò. It seems very closely related to *Viciria scoparia*, Simon*, from Chantaboune (Siam); however, it can be easily distinguished by its different coloration and the different shape of the palps.

*Arachnides recueillis.... dans le royaume de Siam, au Cambodge et en Cochinchine, *in* Actes de la Soc Linn. de Bordeaux, XL (1886), p. (4).

Then, in 1903, Simon decided to synonymize Thorell's $\stackrel{\circ}{\circ}$ *cristata* with his own $\stackrel{\circ}{\circ}$ *tener*. He did this by simply placing "*V. cristata* Thorell" in parentheses at the end of a new, and also insufficient, description that may have included characters of both his own $\stackrel{\circ}{\circ}$ (from the Philippines) with Thorell's $\stackrel{\circ}{\circ}$ (from distant Myanmar!). Or, it may have been based on new specimens, from a different source. We just don't

know. Without any demonstration of a relationship, Thorell's description of the 3° *cristata* was appropriated as the basis for identification of Simon's *tener*. Simon did provide drawings of the male carapace and pedipalp (Figures 31.2-31.3), and it is possible that he had access to Thorell's specimen. Here is an English translation from Simon's (1903) paper, from the original Latin:

I (*Evenus* E. Sim.). — Oculi antici a sese validissime inaequales, medii maximi et valde prominuli, latérales parvi, fere pone medios siti. Pars cephalica maris postice longe penicillata. Clypeus maris parce pilosus, feminee crebre barbatus. Pedes antici maris longi et graciles, tibia metatarsoque, prope apicem, setis nigris longis, fimbriam angustam formantibus, munitis, tibia aculeis longis 4-4, duobus subbasilaribus reliquis in parte apicali sitis, metatarso tibia non multo breviore, curvato, aculeis inferioribus longis 2-2 et utrinque lateralibus binis, multo minoribus, instructis. Pedum-maxillarium tarsus apice longe productus et leviter curvatus, ad basin, praesertim intus, dilatatus, ad angulum exteriorem apophysi setiformi retro-directa armatus, bulbus obliquus et conicus. — *V. tenera* E. Sim. (*V. cristata* Thorell).

I (*Evenus* E. Simon) — The anterior eyes are strongly unequal in size, the median eyes are the largest and very prominent, the lateral eyes are small and located nearly behind the median ones. The head region of the male is posteriorly (toward the rear) long and brush-like (covered in fine hair or bristles). The clypeus (the area of the face below the eyes and above the mouthparts) in the male is sparsely hairy, in the female densely bearded. The anterior legs of the male are long and slender, with the tibia and metatarsus, near the tip, equipped with long black bristles, forming a narrow fringe. The tibia has four long spines (4–4), two near the base and the remaining ones in the apical part; The metatarsus is not much shorter than the tibia, is curved, and armed with two long ventral spines (2–2) and two small lateral spines on each side. The tarsus of the maxillary palps is elongated and slightly curved at the tip, expanded at the base, especially on the inner side, and armed at the outer angle with a setiform (bristle-like) apophysis directed backward. The bulb is oblique and conical. — *V. tenera* E. Simon (*V. cristata* Thorell).



Figure 31. Early depictions of *Epeus (Evenus, Viciria) tener.* **1,** \bigcirc carapace (Simon 1877). **2-3**, \Diamond carapace and mirror-image of right pedipalp (Simon 1903). Note the long, slender cymbial apophysis. **4,** Mirror image of \Diamond right pedipalp (Merian 1911) The origin of the embolus seems way out of place here, but this may be the simply a poor drawing.

Eight years later, Merian (1911), found two \Diamond at two different locations, and three \heartsuit at a different location, in Sulawesi (see Figure 1), and identified these as *Viciria tenera*. He probably based his identification largely on Thorell's long description of the \Diamond *Viciria cristata*, but followed Simon in his use of *tenera* as the species name. Merian also drew a picture of the male pedipalp, but his somewhat oblique drawing (Figure 31.4), although somewhat consistent with Simon's earlier drawing, was clearly not very detailed or even accurate in many respects. Yet Merian stated that Simon's drawing was probably of the pedipalp of an immature male, clearly not the case. In general, Merian's description is of little use for the identification of this species, and his association of females with males has no support as they were collected at different locations. At the same time, *Epeus flavobilineatus* is known to occur in Sulawesi, and Merian's spiders may represent that species.

English translation of Merian's 2011 redescription of *Viciria tenera*, written in German:

Viciria tenera Simon. (Fig. X¹.) Die Art ist identisch mit Viciria cristata Thor. und nahe verwandt mit Viciria rhinoceros v. Hass. Als Ergänzung zu den Beschreibungen Simon's (Vol. 2, p. 742-744) und den von Simon (Vol. 2. p. 743) gegebenen Darstellungen gebe ich eine Zeichnung des männlichen Tasters; die Simon'sche Darstellung des Tasters stammt wohl von einem noch nicht ganz ausgewachsenen Individuum und entspricht dem Taster des unten genannten kleinern Exemplars aus Kema; der Haken des zweitletzten Gliedes ist zudem bei der Simon'schen Zeichnuug wegen der etwas gedrehten Lage des Tasters nicht zn sehen. Das Endglied des Tasters ist mit langen Borsten dicht besetzt; die breite Rinne, welche sich auf der Zeichnung links findet, ist mit ziemlich langen weißen Haaren besetzt. Beide mir vorliegenden Exemplare männlichen Geschlechts sind hellgelblich gefärbt, nur der Kopfteil des Cephalothorax mit den Cheliceren, die Tibien und Metatarsen der vordern Beinpaare und das Endglied des Tasters sind gebräunt. Die Bedornung der Beine ist wie von Simon geschildert. Dem Cephalothorax sitzt zwischen den Augen der hintersten Reihe ein dichtes Büschel bräunlicher Haare auf; eine Reihe etwas kürzerer Härchen verbindet diesen Büschel mit den äußern Augen der 1. Reihe, doch sind diese Verbindungsreihen in der mitte stellenweise unterbrochen. Die Haarbüschel des Cephalothorax sind wohl typische Geschlechtscharaktere, sie finden sich nur bei den männlichen mir vorliegenden Formen. Simon hat sie von einem männlichen Alfenus calamistratus Sim. genannt (Vol. 2, p. 729 u.) und abgebildet (VoL 2, p. 722). Zu der von Simon (Vol. 2, p. 743) für Viciria tenera gegebenen Zeichnung der Augenregion möchte ich bemerken, daß bei dem ausgewachsenen Exemplar aus Makassar die vordern Augen in dem hervorgehobenen Sinne noch abgesetzter sind und der Cephalothorax sich nach hinten schneller verbreitert.

Die weiblichen Exemplare unterscheiden sich nach der Färbung von den männlichen dadurch, daß sie an Cephalothorax und Beinen keine gebräunten Stellen zeigen; das von den Augen eingeschlossene Feld ist etwas gelblicher als der übrige Cephalothorax und leicht irisierend; es hat in der Mitte einen braunen Flecken. Es fällt ferner noch auf, daß den hintern Augen nach innen braune Flecken anliegen, welche den männlichen Exemplaren fehlen; hinter diesen Flecken ist hier deutlicher als bei den Männchen ein Strich in der Mittellinie des Cephalothorax sichtbar. Das Abdomen ist mit weißen Schuppen dicht besetzt, welche hingegen auf zwei Längsbändern fehlen; diese Bänder sind gegen hinten auf der Außenseite von schwarzen Strichen eingefaßt.

1 $\stackrel{\circ}{\circ}$. Makassar (aus Gebüsch). Länge des Cephalothorax 4,2 mm. Breite des Cephalothorax 3,7. Länge des Abdomens 5,4. Breite des Abdomens (vorn) 2.

 1δ . Kema.

2 $\bigcirc \bigcirc$. Mapane.

1 ♀. Mapane. Zwischen Mapane und Posso-See. Länge des Cephalothorax 4,5 mm. Breite des Cephalothorax 3,3. Länge des Abdomens 7. Breite des Abdomens 4.

Viciria tenera Simon. (Fig. X¹.)

This species is identical with Viciria cristata Thorell and closely related to Viciria rhinoceros v. Hasselt. As a supplement to Simon's descriptions (Vol. 2, pp. 742-744) and the illustrations he provided (Vol. 2, p. 743), I present a drawing of the male palp. Simon's depiction of the palp likely comes from an individual that was not yet fully mature and corresponds to the palp of the smaller specimen from Kema mentioned below. Furthermore, the hook on the penultimate segment is not visible in Simon's drawing due to the slightly twisted position of the palp. The terminal segment of the palp is densely covered with long bristles; the wide groove visible on the left in the drawing is covered with fairly long white hairs. Both of the male specimens available to me are light yellowish in color; only the cephalic region of the cephalothorax with the chelicerae, the tibiae and metatarsi of the front leg pairs, and the terminal segment of the palp are darkened. The leg spination is as described by Simon. On the cephalothorax, between the eyes of the hindmost row, there is a dense tuft of brownish hairs; a row of somewhat shorter hairs connects this tuft with the outer eyes of the first row, although these connecting rows are partially interrupted in the middle. The hair tufts on the cephalothorax are likely typical sexual characteristics, as they are present only in the male forms available to me. Simon referred to such tufts in a male Alfenus calamistratus Sim. (Vol. 2, p. 729) and illustrated them (Vol. 2, p. 722). Regarding the eye region illustration given by Simon (Vol. 2, p. 743) for Viciria tenera, I would note that in the fully grown specimen from Makassar, the front eyes are even more set apart in the emphasized sense, and the cephalothorax widens more rapidly toward the rear.

Identification of Epeus

The female specimens differ in coloration from the males in that they do not show any darkened areas on the cephalothorax or legs; the area enclosed by the eyes is slightly more yellowish than the rest of the cephalothorax and faintly iridescent, with a brown spot in the center. It is also noticeable that, in the females, there are brown spots next to the inner rear eyes, which are absent in the males; behind these spots, a line along the midline of the cephalothorax is more visible than in the males. The abdomen is densely covered with white scales, except for two longitudinal bands; these bands are bordered on the outside toward the rear by black streaks.

1 \circlearrowleft Makassar (from shrubbery). Cephalothorax length: 4.2 mm. Cephalothorax width: 3.7 mm. Abdomen length: 5.4 mm. Abdomen width (front): 2 mm.

 1δ Kema

 $2 \stackrel{\bigcirc}{\downarrow} \stackrel{\bigcirc}{\downarrow} Mapane$

1 $\stackrel{\frown}{_{\sim}}$ Mapane (between Mapane and Lake Posso). Cephalothorax length: 4.5 mm. Cephalothorax width: 3.3 mm. Abdomen length: 7 mm. Abdomen width: 4 mm.

Unidentified *Epeus*

Many records that clearly appear to represent *Epeus* have been posted on *iNaturalist* in recent years, Some that cannot be associated with a described species are shown in Figure 32. Much more work is needed on this genus, particularly field work and the survey of specimens collected at multiple localities to determine not only interspecific differences, but also intraspecific variation. Females, in particular, remain very difficult to identify in most cases. Given the extensive and challenging geography that must be covered to accomplish this, however, it seems likely that we will see only *gradual revision* of the genus as the result of a series of individual initiatives. Even so, those who undertake these local studies should document the relationship of males and females found together, the appearance of these spiders in life, and the detailed structure of the male pedipalp and the female epigynum.



Figure 32 (continued on next page). Unidentified *Epeus* sp. **1**, ♂, Agumbe, Karnataka, iNat. obs. 160696689, © venkatmangudi, CC BY-NC 4.0. **2**, ♂, Yellapur, Karnataka, iNat. obs. 101322600, © ashokdm, CC BY-NC 4.0. **3**, ♂, Hsinchu County, Taiwan, iNat. obs. 41818614, © 彭元岐, CC BY-NC 4.0. **4**, ♀, Nho Quan, Ninh Binh, Vietnam, © Derek Hennen, CC BY 4.0.



Figure 32 (continued from previous page). Unidentified *Epeus* sp. **5-6,** *∂*, Hong Kong, iNat. obs. 200617664 (5) and 202807993 (6), © Lawrence Hylton, CC BY 4.0.

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