

## A new species of *Cyclocosmia* Ausserer, 1871 from Vietnam (Araneae: Halonoproctidae)

## Новый вид *Cyclocosmia* Ausserer, 1871 из Вьетнама (Araneae: Halonoproctidae)

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КЛЮЧЕВЫЕ СЛОВА: Aranei, морфология, Mygalomorphae, новая находка, систематика, таксономия.

**ABSTRACT.** A new species of the genus *Cyclocosmia* Ausserer, 1871 is described from Vietnam: *Cyclocosmia abramovi* sp.n., based on males collected from Nghe An Province.

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**РЕЗЮМЕ.** Описан новый вид из рода *Cyclocosmia* Ausserer, 1871 по самцам, собранным во вьетнамской провинции Нге Ан: *Cyclocosmia abramovi* sp.n.

### Introduction

Ausserer [1875] established *Cyclocosmia* Ausserer, 1871 to house *Mygale truncata* Hentz, 1841, described from the southern United States of America. In the same work, he also described *Chorizops* Ausserer, 1871 to house *Actinopus loricatus* C.L. Koch, 1842 from Mexico. Pocock [1901] described *Halonoproctus ricketti* Pocock, 1901 from China based on a holotype female housed in the British Museum of Natural History (now Natural History Museum, London). The transferral of this species to *Cyclocosmia* by Simon [1903] signified the first Asian species to be included in this genus.

In subsequent works [Gertsch, Platnick, 1975; Schwendinger, 2005; Zhu *et al.*, 2006; Xu *et al.*, 2017; Yu, Zhang, 2018; Lin *et al.*, 2022; Yu *et al.*, 2023] a number of new species were described from the USA and across Asia, and the missing sexes of some historical species have also been described. Currently, eight species are known from Asia: *Cyclocosmia lannaensis* Schwendinger, 2005 from China and Thailand, *C. latusicosta* Zhu, J.X. Zhang et F. Zhang, 2006 from China and Vietnam, *C. liui* Xu, Xu et Li, 2017, *C. ricketti* (Pocock, 1901), *C. ruyi* Yu et Zhang, 2023, *C. sublatusicosta* Yu et Zhang, 2018 and *C. subricketti* Yu et Zhang, 2018 endemic to China, and *C. siamensis* Schwendinger, 2005 from Thailand and Laos.

In this work, based on three males recently collected in Vietnam and sent to the author for identification, a second, novel, species is reported for the country.

### Material and methods

This work is based on the spider specimens collected by Dr Alexey V. Abramov (Zoological Institute of the Russian Academy of Sciences, St. Petersburg) during his 2019 field trip to Vietnam (supported by the Russian-Vietnamese Tropical Centre).

Specimens were examined using a stereomicroscope. Photographs were taken using a Canon EOS 6D Mark II attached to a Leica MZ12.5 stereomicroscope, with images stacked using Helicon Focus software. Description style is modified from that used for paratropidids by Sherwood *et al.* [2022]. Abbreviations: ALE — anterior lateral eyes; AME — anterior median eyes; MMUE — Manchester Museum, Manchester, United Kingdom (curator: D. Arzuza Buelvas); PLE — posterior lateral eyes; PME — posterior median eyes; PLS — posterior lateral spinnerets; PMS — posterior lateral spinnerets; ZISP — Zoological Institute, the Russian Academy of Sciences, St. Petersburg, Russia (curator: D.V. Logunov). Palpal bulb keel terminology follows Bertani [2000] with modification to the nomenclature of the retrolateral keel and definition of the ventral median depression (Figs 12–20): A — apical keel; D — ventral median depression; PS — prolateral superior keel; RS — retrolateral superior keel. All measurements are in mm.

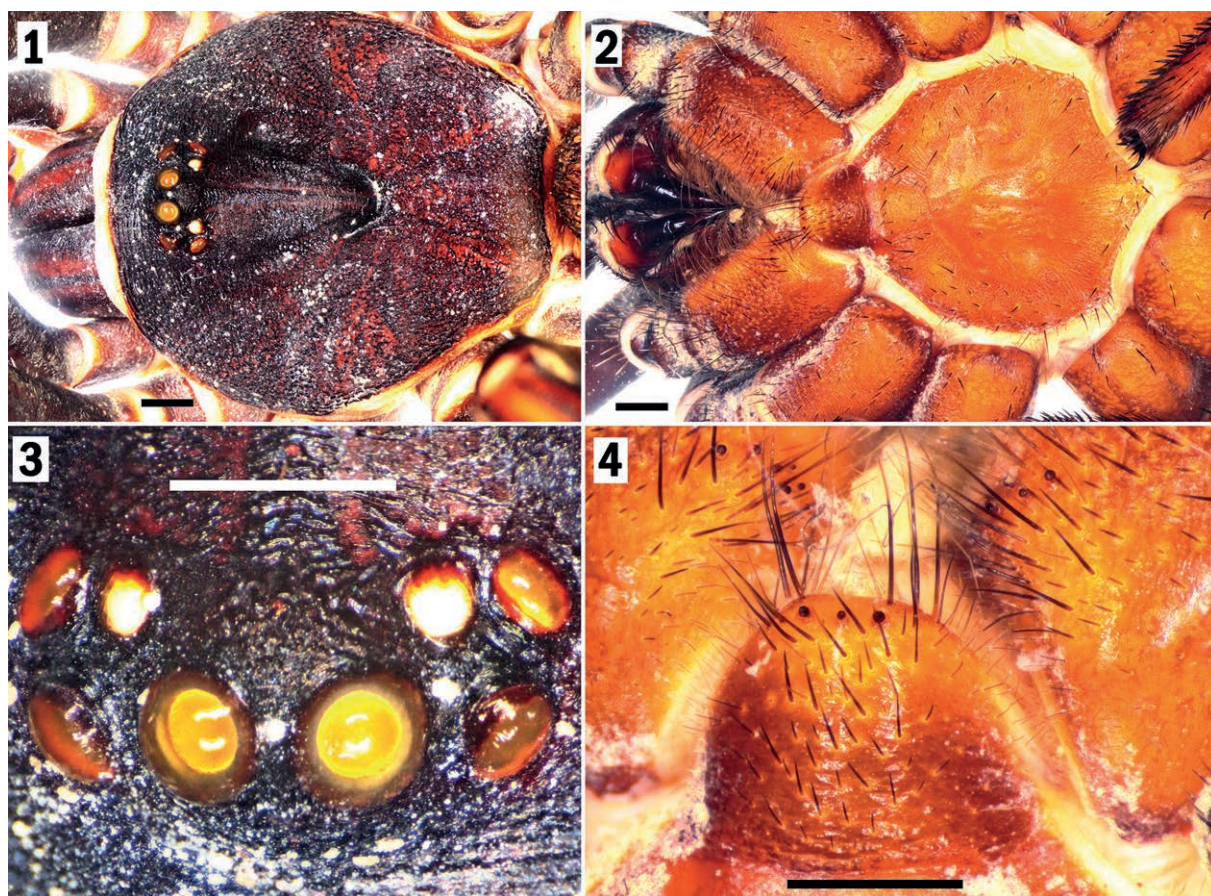
A distributional map was produced by using the online mapping software SimpleMappr [Shorthouse, 2010].

### Taxonomy

*Cyclocosmia abramovi* sp.n.  
Figs 1–20, Map.

**TYPES.** HOLOTYPE ♂ (MMUE, G7633.143), Vietnam, Nghe An Province, c. 33 km southwest of Con Cuong Town, Put Mat National Park (18°57'25.5"N, 104°41'07.6"E), 200 m a.s.l., 11–12.04.2019, A.V. Abramov. — PARATYPES: 2 ♂♂ (ZISP, ARA\_ARA\_0000395), together with the holotype.

**ETYMOLOGY.** The specific epithet is a patronym, formed from the surname of the collector, Dr Alexey V. Abramov (ZISP, St. Petersburg, Russia).



Figs 1–4: *Cyclocosmia abramovi* sp.n. holotype male (MMUE, G7633.143): 1 — carapace, dorsal view; 2 — labium, maxillae and sternum, ventral view; 3 — ocular tubercle, dorsal view; 4 — labium and basal quarter of maxillae, ventral view. Scale bars: 1 mm.

Рис. 1–4: *Cyclocosmia abramovi* sp.n. голотип самец (MMUE, G7633.143): 1 — головогрудь, вид сверху; 2 — лабиум, максиллы и стернум, вид снизу; 3 — глазной бугорок, вид сверху; 4 — лабиум и базальная четверть максилл, вид снизу. Масштаб: 1 мм.

**DIAGNOSIS.** Males of *Cyclocosmia abramovi* sp.n. can be distinguished from *C. lannaensis*, *C. lautusicosta*, *C. ryui*, *C. sublatusicosta* and *C. subricketti* by the presence of 29 ribs on each side of the opisthosomal disk (vs.  $\leq 23$  ribs in *C. lannaensis* and *C. lautusicosta*,  $\geq 32$  ribs in *C. sublatusicosta* and *C. subricketti*, and  $\geq 44$  in *C. ryui*), from *C. siamensis* by the apical quarter of the embolus curved upwards (vs. straight in *C. siamensis*) and the pronounced sigillae and ribs of the opisthosomal disk (not pronounced in *C. siamensis*), and from *C. ricketti* by the apical third of the embolus much thinner than the median and basal thirds (all thirds of approximate same width in *C. ricketti*) and presence of a ventral median depression (absent in *C. ricketti*).

**DESCRIPTION** (the holotype). Total length including chelicerae: 20.0. Carapace: length 8.3, width 7.6 (Fig. 1). Caput: raised. Eye tubercle: highly raised, length 1.2, width 2.0, AME>ALE, ALE>PLE, PLE>PME (Fig. 3). Fovea: deep, procurved. Abdomen: length 7.2, width 8.8. Chelicera: length 2.6, width 1.8. Maxilla: with 5 (left-hand maxilla)/4 (right-hand maxilla) cuspules, distributed basally (Fig. 2). Labium: length 1.2, width 1.4, with 3 cuspules, grouped distally (Fig. 4). Labio-sternum mounds: joined to sternum. Sternum: length 5.0, width 4.3 (Fig. 2). Tarsi and metatarsi I–IV ascopulate. Lengths of legs and palpal segments see table 1, legs 4123. Thorn like setae covering dorsal and lateral surfaces of palpal femora, and dorsal, lateral and ventral faces of femora, tibiae, and metatarsi I–IV. Trichobothria: tibia I d8, II d9, III d8, IV d9, palp d5. Spination: tibia I v17, r8, II v15, r3, III v5, IV v8,

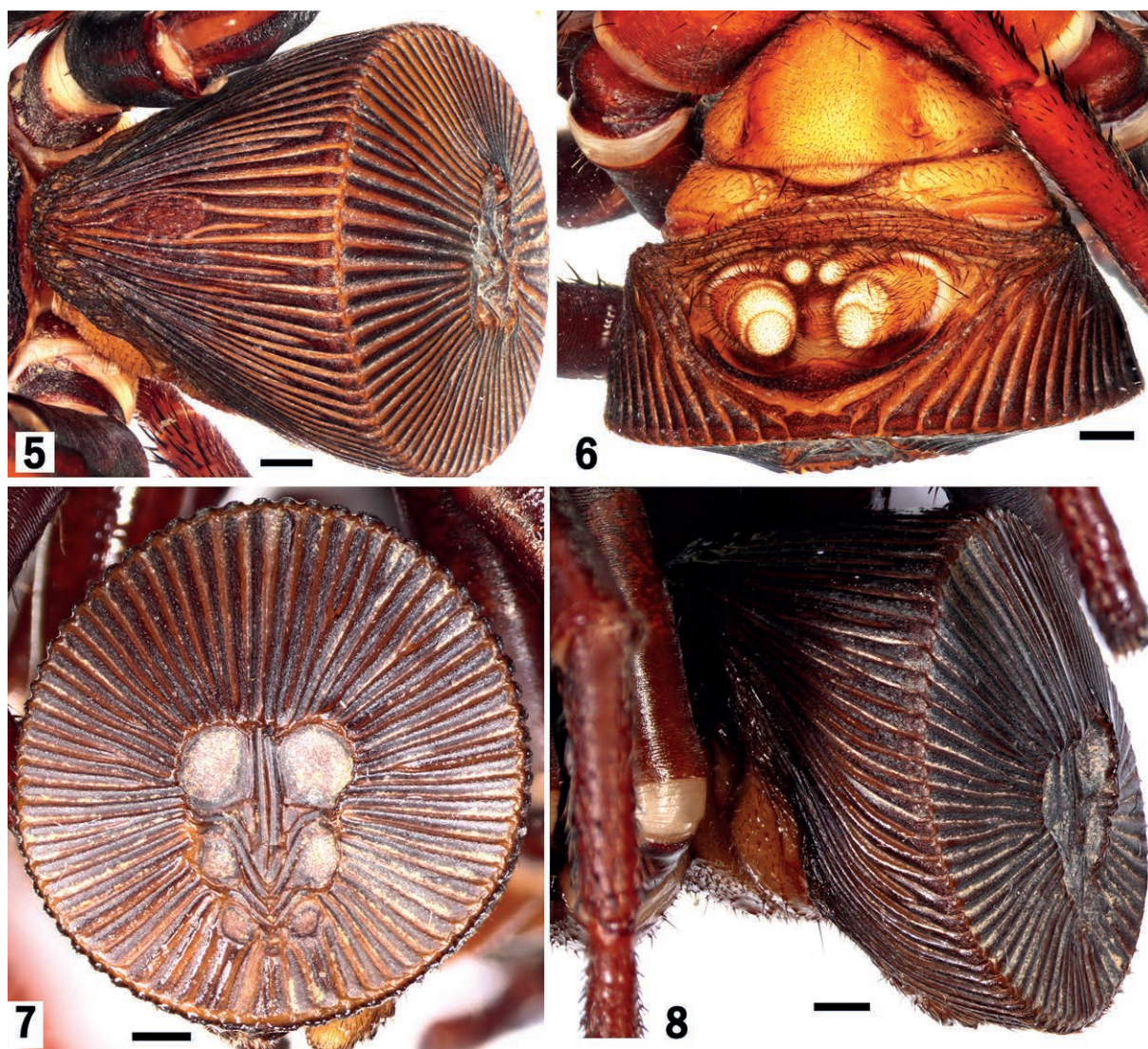
metatarsus I v26, p10, r5, II 5d, v23, p7, r12, III d3, v13, p6, r5, IV d2, v26, p14, r6, tarsus I v12, p7, r13, II v21, p7, r13, III v15, p13, r25, IV v36, p10, r17. Posterior median spinnerets with single segment, 1.2 long. Posterior lateral spinnerets with 3 segments, basal 0.5, median 1.0, digitiform apical 0.6, basal and median segments incrassate, apical segment domed. Opisthosomal disk with 29 ribs on either side, length of disk 9.1 (Figs 5, 7, 8) Palp: incrassate, cymbium with two unequal lobes separated by a sclerotized groove (Figs 9–11). Palpal bulb with embolus of moderate length, tapering from base of apical third, apex of apical third curved upwards; PS, RS and A weakly developed, sperm pore situated ventro-laterally, D weakly developed (Figs 12–20). Colouration: dorsally, overall dark brown, legs reddish brown on all faces, ventrally, orange-brown except for opisthosomal disk, dark brown, and apex of spinnerets, beige (Figs 1–8).

**DISTRIBUTION.** Known only from the type locality (Map). The new species is the second species of *Cyclocosmia* to be recorded from Vietnam and represents a new provincial record for the genus.

## Discussion

This work presents the second *Cyclocosmia* species for Vietnam (Map), the ninth for Asia, and the twelfth species worldwide. Most recently-described species in





Figs 5–8: *Cyclocosmia abramovi* sp.n. holotype male (MMUE, G7633.143), opisthosoma: 5 — dorsal view; 6 — ventral view, showing spinnerets; 7 — detail of opisthosomal disk; 8 — lateral view (left-hand side). Scale bars: 1 mm.

Рис. 5–8: *Cyclocosmia abramovi* sp.n. голотип самец (MMUE, G7633.143), брюшко: 5 — вид сверху; 6 — вид снизу, показаны паутинные бородавки; 7 — детали брюшного диска; 8 — вид сбоку (левая сторона). Масштаб: 1 мм.

Asia are known only from their type localities. Further work is needed to establish whether this genus has a large radiation of short-range endemics or whether this is an artefact of under sampling. Future molecular work could explore the phylogenetic relationship of New World species with those from Asia.

During the course this work, I detected keels at the apex of the embolus (Figs 17–20), a character hitherto not yet properly recognised and discussed in detail for *Cyclocosmia* (mentioned briefly as an “apophysis” by Lin *et al.* [2022] and indirectly as a “hook-like structure” by Yu *et al.* [2023: 16]). These keels have been standardised herein. *Cyclocosmia abramovi* sp.n. also has a ventral median depression (Figs 12–13: D), hitherto not formally reported for the genus in prior works. Examination of the literature pertaining to *Cyclocosmia* shows that keels oc-

Table. *Cyclocosmia abramovi* sp.n., holotype male (MMUE, G7633.143), podomere lengths.

Таблица. *Cyclocosmia abramovi* sp.n., голотип самец (MMUE, G7633.143), длина сегментов ног.

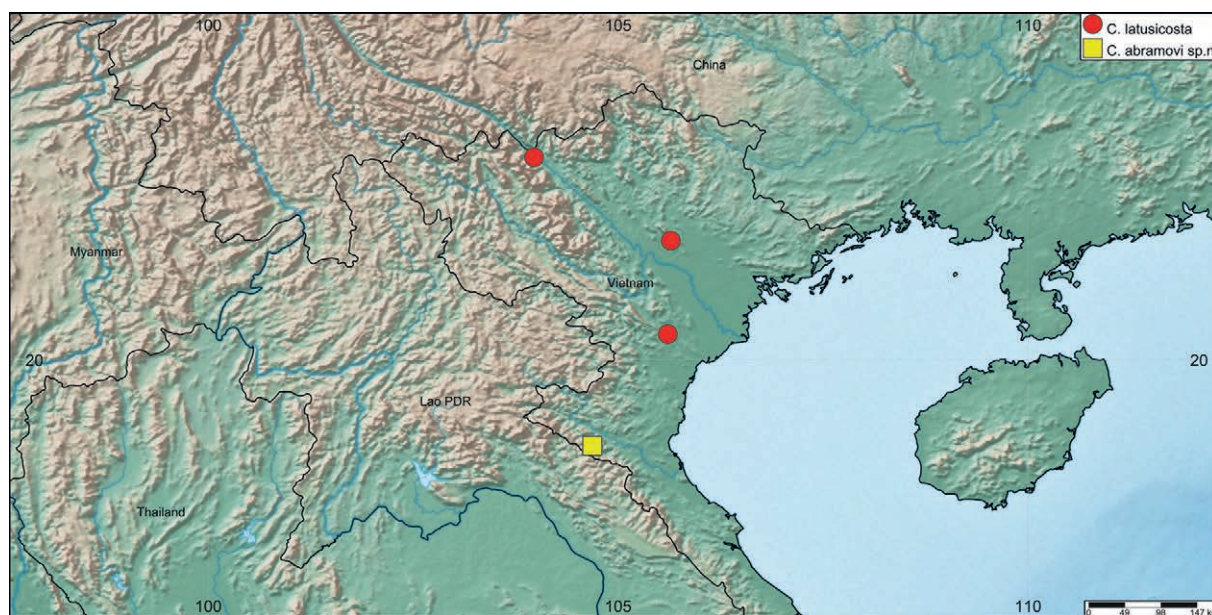
	I	II	III	IV	Palp
Femur	7.9	7.7	6.9	7.6	6.2
Patella	3.7	3.3	3.3	3.9	3.1
Tibia	5.7	4.4	3.8	5.4	4.3
Metatarsus	5.8	4.9	5.1	7.5	–
Tarsus	2.7	2.5	2.7	2.8	2.1
Total	25.8	22.8	21.8	27.2	15.7





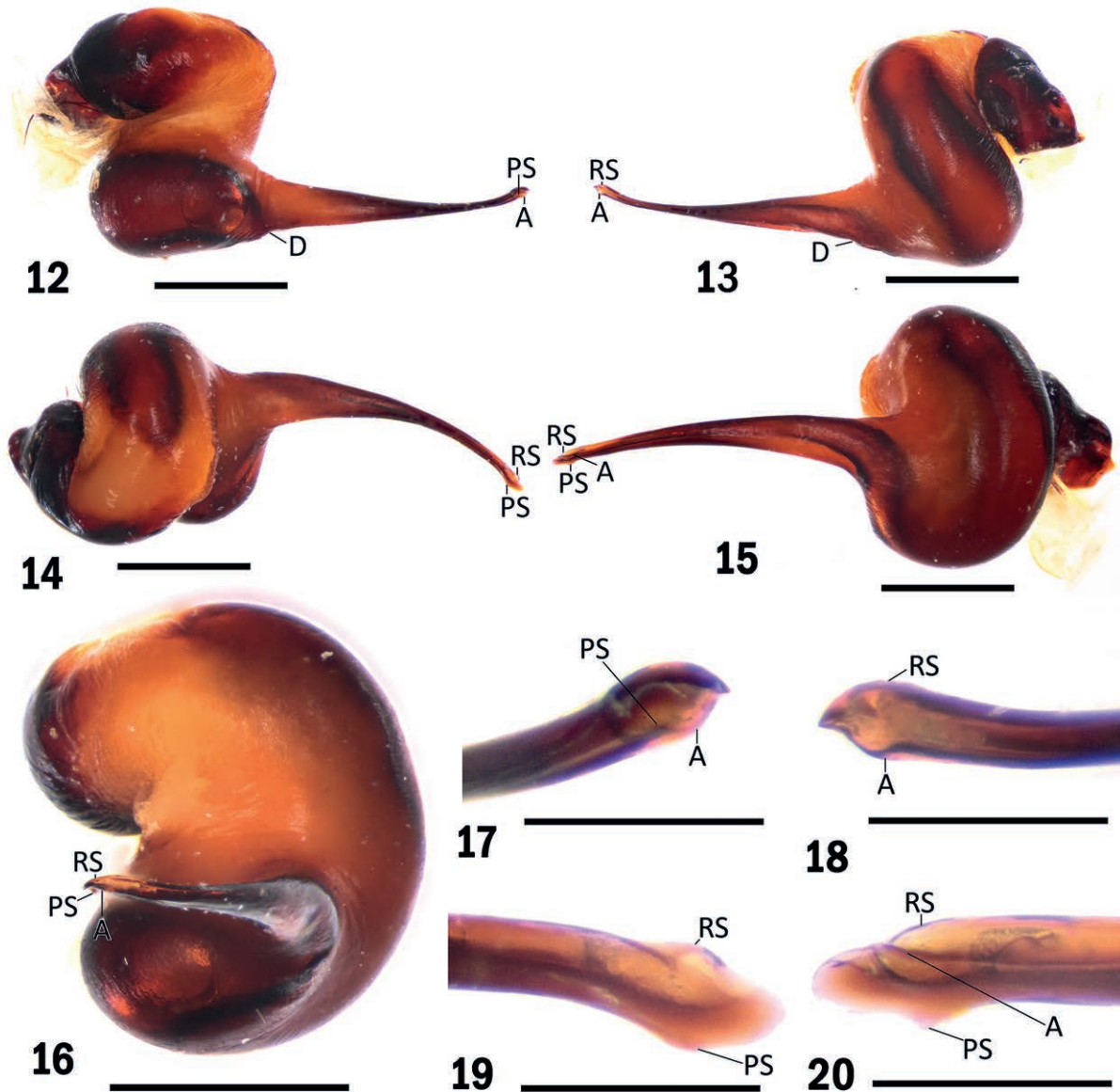
Figs 9–11: *Cyclocosmia abramovi* sp.n. holotype male (MMUE, G7633.143), palp: 9 — prolateral view (palpal bulb in ventral view); 10 — ventral view (palpal bulb in prolatero-ventral view); 11 — retrolateral view (palpal bulb in dorso-prolateral view). Scale bars: 1 mm.

Рис. 9–11: *Cyclocosmia abramovi* sp.n. голотип самец (MMUE, G7633.143), палпы: 9 — вид спереди-сбоку (бульбус снизу); 10 — вид снизу (бульбус спереди-снизу); 11 — вид сзади-сбоку (бульбус спереди-сбоку). Масштаб: 1 мм.



Map. Collecting localities of *Cyclocosmia latusicosta* Zhu, J.X. Zhang et F. Zhang, 2006 (red circles) and *C. abramovi* sp.n. (yellow quadrangle) in Vietnam.

Карта. Точки находок *Cyclocosmia latusicosta* Zhu, J.X. Zhang et F. Zhang, 2006 (красные кружки) и *C. abramovi* sp.n. (желтый квадрат) во Вьетнаме.



Figs 12–20: *Cyclocosmia abramovi* sp.n. holotype male (MMUE, G7633.143), palpal bulb (left-hand side): 12 — prolateral view; 13 — retrolateral view; 14 — dorsal view; 15 — ventral view; 16 — apical view; 17 — tip of embolus, prolateral view; 18 — same, retrolateral view; 19 — same, dorsal view; 20 same, ventral view. Scale bars: 1 mm (12–16), 0.25 mm (17–20). Abbreviations as explained in “Material and methods”.

Рис. 12–20: *Cyclocosmia abramovi* sp.n. голотип самец (MMUE, G7633.143), левый бульбус: 12 — вид спереди-сбоку; 13 — вид сзади-сбоку; 14 — вид сверху; 15 — вид снизу; 16 — вид спереди; 17 — вершина эмболюса, вид сбоку-спереди; 18 — то же, вид сзади-сбоку; 19 — то же, вид сверху; 20 — то же, вид снизу. Масштаб: 1 мм (12–16), 0,25 мм (17–20). Сокращения, как объяснено в «Материалах и методах».

cur in other species of the genus where photographs are available (e.g., Xu *et al.* [2017]; Yu, Zhang [2018]; De Luna *et al.* [2021]; Lin *et al.* [2022]; Yu *et al.* [2023]). I suspect they are present in species known only from drawings also, yet this must be confirmed (and the precise morphology of the keels of all other species described in detail) through re-examination of the material. The presence/absence of a D must be checked carefully in other species, illustrations in the literature vary and not all are from angles which can definitely confirm the character state (e.g. some “retrolateral” views are actually ventro-retrolateral views, where the presence of a D would

not be noticeable due to the angle). Nonetheless, for *C. ricketti* the absence of a D can be ascertained from the literature, as Lin *et al.* [2022] dissected the palpal bulb and provided accurate prolateral and retrolateral views, providing another character to differentiate *C. abramovi* sp.n. from this species.

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