



New data on *Asianopsis* (Aranei: Deinopidae) in Southeast Asia

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Abstract

Three new species, *Asianopsis lini* sp. nov. (♂), *A. naumenkoi* sp. nov. (♀), and *A. apo* sp. nov. (♀) are described from Malaysia (Borneo), and Philippines (Luzon, Mindanao). *Asianopsis liukuensis* (Yin, Griswold & Yan, 2002) is reported from Borneo for the first time and its male redescribed. The record of the *A. liukuensis* is the easternmost for its whole range. A new species group, the *Asianopsis apo*-group, is proposed. Detailed descriptions, digital photographs and a distributional map are provided.

Key words: Araneae, *Asianopsis*, biodiversity, new species, new record, species group, ogre-faced spider, Borneo, Philippines

Introduction

Deinopidae C.L. Koch, 1850 is a small family consisting of 68 extant species in three genera (WSC 2024). The majority of ogre-faced spiders have a bright appearance with the giant posterior median eyes. The type genus, *Deinopsis* MacLeay, 1839, is limited in distribution to the Western Hemisphere, while the other two genera, *Asianopsis* Lin & Li, 2020 and *Menneus* Simon, 1877, are widespread mainly in the (sub)tropical regions in the Eastern Hemisphere (WSC 2024). The phylogeny, morphology, and taxonomy of the family were comprehensively revised by Coddington *et al.* (2012), who confirmed the monophyly of Deinopidae and clarified the generic status of *Menneus*. The recently established *Asianopsis* is the only genus of the family known from Southeast Asia (Lin *et al.* 2020b). At the same time, this genus is the most widespread, being also found in Australia, sub-Saharan Africa and even Mexico (Chamberland *et al.* 2022). By now, 34 *Asianopsis* species have been described, and 14 of these species are known from Asia (WSC 2024). *Asianopsis* cannot be considered well-studied: only four Asian species are known from both sexes, while the others are known either only from males (four species) or only from females (six species). Nevertheless, most of Asian species of this genus have been well illustrated in the revision by Lin *et al.* (2020b) and few other publications (Logunov 2018; Lin *et al.* 2020a; Basumatary *et al.* 2020; Fomichev & Omelko 2023). Only four species can be regarded as poorly studied: *A. fasciculiger* (Simon, 1909) is known solely from a textual description without illustrations; *A. kollari* (Doleschall, 1859) is illustrated only by external appearance; *A. labangan* (Barrion-Dupo & Barrion, 2018) and *A. luzonensis* (Barrion-Dupo & Barrion, 2018) are both known only from schematic black-and-white illustrations of external appearance and copulatory organs. Taking into account the good representation of the genus in Southeast Asia, combined with the cryptic lifestyle of these spiders, the discovery of a large number of new species can be expected in the future (Fomichev *et al.* 2023). Indeed, studying the small deinopid collection from Southeast Asia, that we had in our disposal revealed three undescribed species of *Asianopsis* from Malaysia and Philippines, and another species, *A. liukuensis* (Yin, Griswold & Yan, 2002) has been found outside mainland Southeast Asia for the first time. The aims of the present paper are: 1) to describe three new species of *Asianopsis* from Borneo (=Kalimantan) Island and the Philippines, 2) to redescribe and illustrate

the male of *A. liukuensis* and provide the first record of this species from Borneo Island, 3) to map all distributional records of *Asianopsis* in Asia and New Guinea.

Material and methods

Specimens were photographed using a Nikon DSRi2 camera attached to a Nikon SMZ25 stereomicroscope at the Far Eastern Federal University (Vladivostok, Russia). Photographs were taken in dishes filled with alcohol, with soft white paper at the bottom. Digital images were montaged using Zerene Stacker (<https://zerenesystems.com/cms/stacker>) software package. Epigynes were cleared in a boiling KOH/water solution. Distribution map was produced using SimpleMappr (Shorthouse 2010). All measurements are in millimeters. Length of leg segments were measured on the prolateral side, and are shown as: total length (femur, patella, tibia, metatarsus, tarsus). All examined material is deposited in the Zoological Museum of the Moscow State University, Moscow, Russia (ZMMU; curator K.G. Mikhailov), and Bioresource Collection of the Federal Scientific Centre of East Asia Terrestrial Biodiversity of the Far East Branch of the Russian Academy of Sciences (reg. number 2797657), Vladivostok (IBSS; curator M.M. Omelko). Abbreviations used in text and the format of description follow Lin *et al.* 2020b and Fomichev et Omelko 2023, with some modifications.

Eyes: ALE—anterior lateral eye, AME—anterior median eye, MOA—median ocular area, PLE—posterior lateral eye, PME—posterior median eye.

Leg segments: Fe—femur, Mt—metatarsus, Pa—patella, Ti—tibia.

Spinination: d—dorsal, p—prolateral, r—retrolateral, v—ventral.

Copulatory organs: *CD*—copulatory duct, *CO*—copulatory opening, *DL*—distal lobe, *Em*—embolus, *ETA*—embolic terminal apophysis, *Hu*—hump, *MA*—median apophysis, *MP*—median plate, *PL*—proximal lobe, *RD*—receptacle duct, *Re*—receptacle, *SD*—sperm duct, *SP*—short spine.

Species survey

Family Deinopidae C. L. Koch, 1850

Genus *Asianopsis* Lin & Li, 2020

Type species. *Asianopsis zhuanghaoyuni* Lin & Li, 2020, from China (Fujian Province).

Notes. When describing the genus, Lin *et al.* (2020b) initially divided all Asian species into two groups: the *liukuensis*-group containing two species (*A. dumogae* (Merian, 1911) and *A. liukuensis*), and the *zhuanghaoyuni*-group comprising five species (*A. celebensis* (Merian, 1911), *A. konplong* (Logunov, 2018), *A. wangi* Lin & Li, 2020, *A. wuchaoi* Lin & Li, 2020, and *A. zhuanghaoyuni* Lin & Li, 2020). Later, another species, *A. goalparaensis* (Tikader & Malhotra, 1978), from India and Nepal was added to the *liukuensis*-group (Basumatary *et al.* 2020), while *A. gorochovi* Fomichev & Omelko, 2023, from Sumatra, was added to the *zhuanghaoyuni*-group (Fomichev et Omelko 2023). Several Asian species remain unassigned to either of these known groups. *Asianopsis aruensis* (Roewer, 1938) from Indonesia exhibits features of both groups (“epigyne with an anchor-shaped median plate, distinct copulatory openings, and a copulatory duct with 10 coils”); therefore, Lin *et al.* (2020a) did not assign it to any group. Two more species, *A. fasciculiger* and *A. kollari*, whose copulatory organs are not illustrated, cannot be assigned to any group until they are redescribed. Additionally, two species from the Philippines, *A. labangan* (Barrion-Dupo & Barrion, 2018) and *A. luzonensis* (Barrion-Dupo & Barrion, 2018), known only from schematic black-and-white illustrations of habitus and copulatory organs, also cannot be reliably assigned to existing species groups (see also notes section for *A. naumenkoi* sp. nov.). Chamberland *et al.* (2022) transferred twenty non-Asian species (from Africa, the New World, New Guinea, and Australia) from *Deinopsis* to *Asianopsis*, without assigning them to any existing species groups.

All Asian species of *Asianopsis*, except *A. liukuensis*, are local endemics and known mostly from single records. *Asianopsis liukuensis* is the only species with a wide distribution, ranging from India to Borneo (WSC 2024 and new data).

***Asianopsis lini* sp. nov.**

(Figs 1–2, 11, 16, 21–23, 30, 34, 53)

Material examined. HOLOTYPE ♂ (ZMMU), MALAYSIA: Borneo, Sabah Prov., Crocker Mts, 5°24'N 116°6'E, on grass, 1050 m., 9.02.1993 (A.M. Emelyanov).

Etymology. The specific name is a patronym in honour of Yejie Lin (Beijing, China), well-known Chinese arachnologist, one of the authors who established *Asianopsis* and described several new species in it.

Comments. Although several species of *Asianopsis* known only from females occur in Southeast Asia, we consider that *A. lini* sp. nov. cannot be conspecific with any of them, as the ranges of all known species in the genus, except for *A. liukuensis*, are local, and none of these species occur in Borneo.

Diagnosis. By the structure of the palp (shape of median apophysis and presence of embolic terminal apophysis) the new species is similar to *A. wuchaoi* (China, Yunnan Prov.) and *A. gorochovi* (Indonesia, Sumatra Is.). The male of *A. lini* sp. nov. can be easily distinguished from that of *A. wuchaoi* by carapace lacking lateral bands (vs. with distinct bands; cf. Fig. 1 and Lin *et al.* 2020b: fig. 13C), significantly longer carapace length (5.32 vs. 4.0) and the strongly curved embolic terminal apophysis (*ETA*) (vs. straight; cf. Fig. 34 and Lin *et al.* 2020b: fig. 21B). From *A. gorochovi* it can be differed by the light brown body color (vs. dark gray; cf. Figs 1–2 and 3–4), cephalic part the same color as thoracic part (vs. contrasting white; cf. Figs 1 and 3) and by embolus originates at ca. 1 o'clock and ending at 12 (vs. 6 and 4 o'clock, correspondingly; cf. Fig. 22 and 25).

Description. Male. Total length 16.95. Carapace: 5.32 long, 4.04 wide. Abdomen: 12.14 long, 2.76 wide. Eye sizes and interdistances: AME 0.19, ALE 0.33, PME 0.60, PLE 0.32, AME–AME 0.29, AME–ALE 0.97, PME–PME 0.21, PME–PLE 0.75, AME–PME 0.21. Palp measurements: 7.58 (3.73, 0.99, 1.26, -, 1.60). Leg measurements: I: 70.58 (17.32, 2.45, 20.32, 24.54, 5.95). II: 50.18 (14.92, 2.60, 14.39, 12.48, 5.79). III: 30.08 (10.06, 1.83, 8.22, 8.37, 1.60). IV: 30.4 (9.56, 1.93, 8.84, 8.65, 1.42).

Coloration. Clypeus yellow. Areas around AME, ALE, PLE covered with sparse whitish setae. Chelicerae yellow with gray lateral sides, 3 pro-, 1 retrolateral teeth and number of retrolateral denticles. Carapace light brown with poorly visible median band, lateral bands absent. Sternum yellow with couple of black dots on lateral edges. Labium and endites yellow.

Palpal femur, patella and tibia yellow, cymbium brown. Legs coloration. Coxae grayish ventrally, yellow laterally; femora yellow; patellae and tibiae yellow; metatarsi I–II light brown, III–IV yellow; tarsi I–II brown proximally and yellow distally, III–IV yellow.

Abdomen light yellow dorsally, with brown longitudinal stripe. Sides of abdomen yellow. Ventral part of abdomen light yellow with dark gray areas around epigastric fold, in front of spinnerets and with couple of small black dots medially. Spinnerets brown.

Male palp as shown in Figs 21–23, 30, 34. Femur twice as long as cymbium, length/width ratio ca. 2.52. Patella 1.4 times shorter than tibia. Tibia 2.7 times shorter than femur. Cymbium 1.3 times longer than tibia. Cymbial length/width ratio 1.1. Tegulum and sperm duct completely hidden behind embolic coils. Centrally located median apophysis (*MA*) consists of two lobes: proximal (*PL*) and distal (*DL*). Proximal lobe reverse comma-shaped, situated along the longitudinal axis of bulb. Distal lobe almost diagonal to *PL*. Embolus (*Em*) long, its coils cover whole tegulum except for its central part, originates at 1 o'clock, coiling ca 1440° around *MA* and ending at 12 o'clock. Distal part of embolus with curved terminal apophysis (*ETA*), tip of embolus widened.

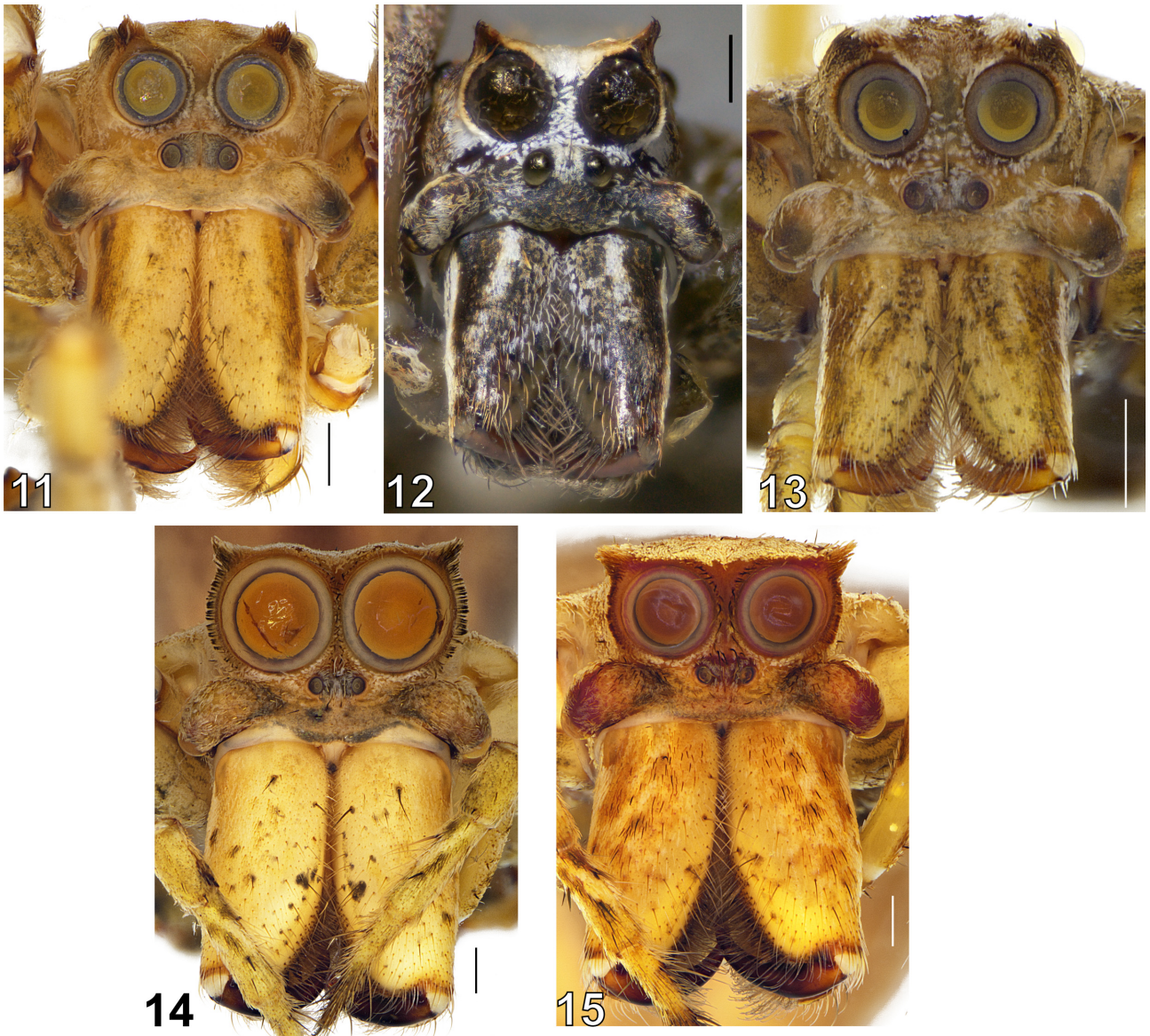
Female unknown.

Notes. Judging by the structures of the male palp (tegulum partly obscured by embolic coils; embolus long and strongly coiled around median apophysis more than 1400°, widened subapically; median apophysis with two lobes) *Asianopsis lini* sp. nov. belongs to *zhuanghaoyuni*-group. Thus, this group now consists of seven species: *A. celebensis*, *A. gorochovi*, *A. konplong*, *A. lini* sp. nov., *A. wangi*, *A. wuchaoi* and *A. zhuanghaoyuni*.

Distribution. Type locality only, Borneo (=Kalimantan) (Fig. 53).



FIGURES 1–10. General appearance of *Asianopis lini* **sp. nov.** (1–2), *A. gorochovi* (3–4), *A. liukuensis* (5–6), *A. naumenkoi* **sp. nov.** (7–8) and *A. apo* **sp. nov.** (9–10). 1, 3, 5—male, dorsal; 2, 4, 6—ditto, ventral; 7, 9—female, dorsal; 8, 10—ditto, ventral. Scale bars: 2 mm.



FIGURES 11–15. Prosoma of *Asianopis lini* sp. nov. (11), *A. gorochovi* (12), *A. liukuensis* (13), *A. naumenkoi* sp. nov. (14) and *A. apo* sp. nov. (15). 11–15—anterior. Scale bars: 0.5 mm.

***Asianopis gorochovi* Fomichev & Omelko, 2023**

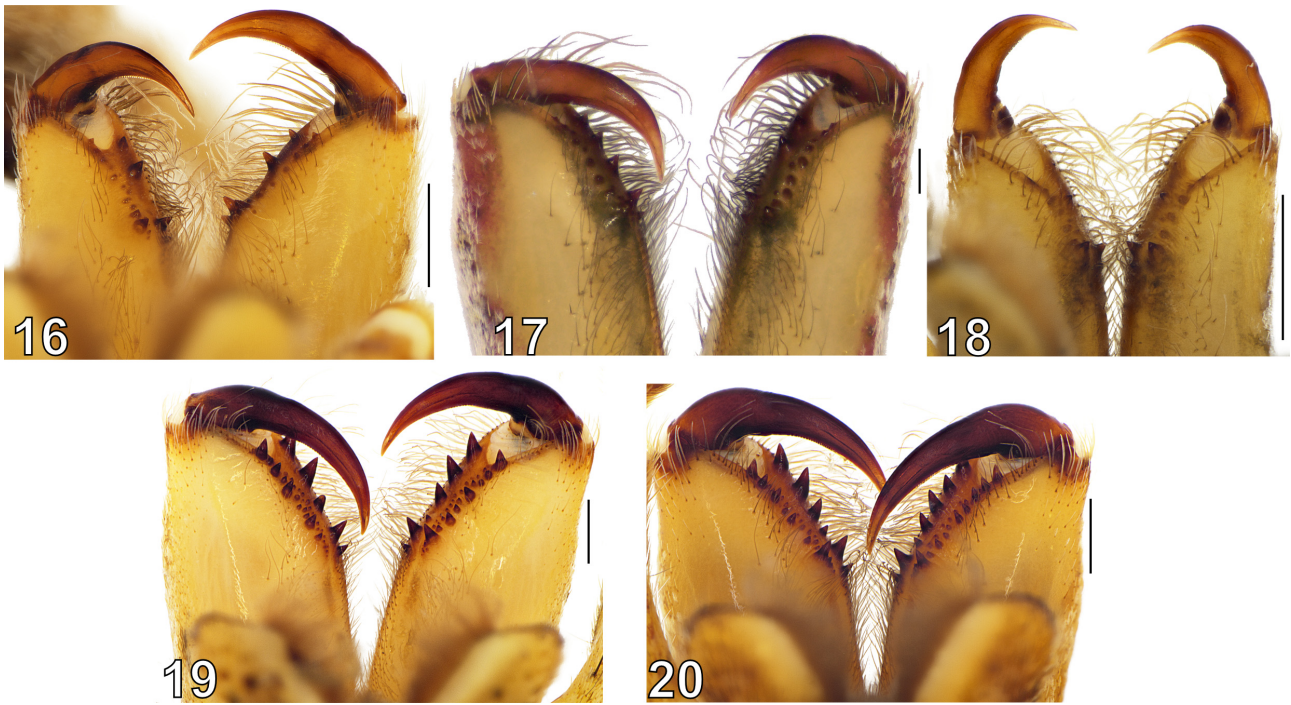
(Figs 3–4, 12, 17, 24–26, 32–33, 53)

Asianopis gorochovi Fomichev et Omelko, 2023: 363, f. 1–11 (♂).

Material examined. HOLOTYPE ♂ (ISEA, 001.8984), INDONESIA: Sumatra Island, North Sumatra Province, Bukit Lawang Village, 3°33'N, 98°07'E, 18–22.02.2023 (A.V. Gorochov, M.M. Omelko, A.A. Fomichev).

Notes. This species was well described in Fomichev et Omelko (2023). Here we provide its photos for comparative purposes, as a species is closely related to *A. lini* sp. nov. This species belongs to *zhuanghaoyuni*-group. See also the discussion about *Asianopis* from the Sunda Is. in Fomichev et Omelko (2023).

Distribution. Indonesia, Sumatra (Fig. 53).



FIGURES 16–20. Chelicerae of *Asianopis lini* sp. nov. (16), *A. gorochovi* (17), *A. liukuensis* (18), *A. naumenkoi* sp. nov. (19) and *A. apo* sp. nov. (20). 16–20—posterior. Scale bars: 0.5 mm.

***Asianopis liukuensis* (Yin, Griswold & Yan, 2002)**

(Figs 5–6, 13, 18, 27–29, 31, 53)

Deinopis liukuensis Yin, Griswold & Yan, 2002: 610, figs 1–7 (♂).

Deinopis scrubjunglei: Caleb & Mathai 2014: 2, figs 1–20 (♂).

Asianopis liukuensis: Lin *et al.* 2020b: 74, figs 2B, E–F, I, 4A–F, 5A–B, 6A–B, 7A–B, 8A–B, 19A–C, 21A, 22A, G (♂♀).

Material examined. ♂ (IBSS), MALAYSIA: Borneo, Sabah Prov., Crocker Mts, 5°24′N 116°6′E, on grass, 1050 m., 8.02.1993 (A.M. Emelyanov).

Description. Male. Total length 13.31. Carapace: 3.99 long, 2.44 wide. Abdomen: 9.34 long, 1.57 wide. Eye sizes and interdistances: AME 0.12, ALE 0.25, PME 0.44, PLE 0.25, AME–AME 0.18, AME–ALE 0.63, PME–PME 0.18, PME–PLE 0.53, AME–PME 0.14. Palp measurements: 5.1 (2.46, 0.53, 1.11, -, 1.00). Leg measurements: I: 46.77 (12.78, 1.65, 13.49, 14.58, 4.27). II: 33.75 (11.06, 1.63, 9.11, 8.18, 3.77). III: 23 (8.33, 1.36, 6.49, 5.56, 1.26). IV: 22.78 (8.20, 1.36, 6.66, 5.52, 1.04).

Coloration. Clypeus brown. Areas around AME, ALE and PME covered with white plumose setae. Chelicerae anteriorly yellow with tiny dark brown spots and stripes, lateral sides dark brown, 1 pro-, 1 retrolateral teeth and number of both pro- and retrolateral denticles. Carapace dark brown with yellow white median band and yellowish lateral stripes. Sternum black, with longitudinal light-yellow stripe. Labium completely brown. Endites and coxae dark gray.

Palpal femur yellowish proximally and brown distally; patella brown; tibia and cymbium dark brown. Legs coloration. Coxae dark gray; femora I dark brown, II–IV brown; patellae I dark brown, II–IV brown; tibiae brown; metatarsi I–III brown, IV yellowish; tarsi I, III brown, II, IV yellowish.

Abdomen brown dorsally, with a longitudinal dark stripe and series of indistinct slash stripes posteriorly. Sides of abdomen dark gray with brown longitudinal stripes. Ventral part of abdomen yellowish medially, dark gray anteriorly and posteriorly, spinnerets black.



FIGURES 21–26. Terminal part of male palp of *Asianopis lini* sp. nov. (21–23) and *A. gorochovi* (24–26). 21, 24—prolateral; 22, 25—ventral; 23, 26—retrolateral. Scale bars=0.5 mm. Abbreviations: *DL*—distal lobe, *Em*—embolus, *MA*—median apophysis, *PL*—proximal lobe.



FIGURES 27–29. Terminal part of male palp of *Asianopis liukuensis*. 27—prolateral; 28—ventral; 29—retrolateral. Scale bar=0.5 mm. Abbreviations: *Em*—embolus, *MA*—median apophysis, *SD*—sperm duct, *Te*—tegulum.

Male palp as shown in Figs 27–29, 31. Femur 2.5 times longer than cymbium. Patella 1.8 times shorter than tibia. Tibia 2.4 times shorter than femur. Cymbium of almost same length as tibia. Cymbial length/width ratio 1.4. Tegulum (*Te*) wider than the diameter of embolic coil. Sperm duct (*SD*) clearly visible in pro- and retrolateral view. Median apophysis (*MA*) small, its basal lobe poorly visible; distal lobe thin, hook-like in prolateral view. Embolus (*Em*) originates at 6 o'clock, coiling ca 1260° around *MA* and ending at 12 o'clock. Tip of embolus slightly curved and widened, embolic middle apophysis large, semi-transparent (invisible without dissection of embolus).

Notes. This record of *A. liukuensis* from Borneo is the easternmost and southmost in its entire range. The nearest known location, in China, is nearly 1600 km to the northwest (Fig. 51). The species belongs to *liukuensis*-group.

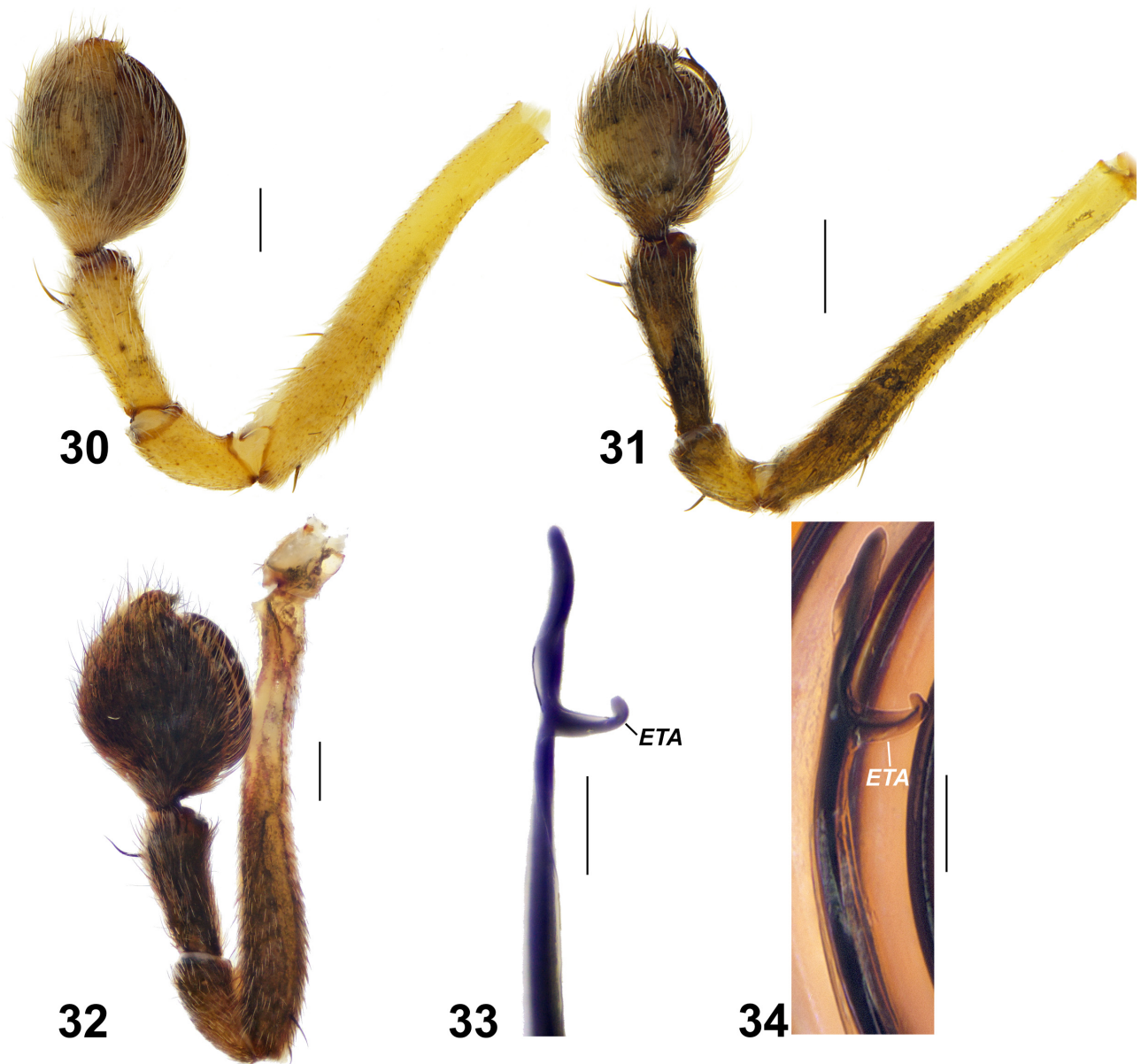
Distribution. India (Tamil Nadu), China (Guangxi, Hainan, Yunnan), Malaysia (Borneo; new record) (Fig. 53).

***Asianopis naumenkoi* sp. nov.**

(Figs 7–8, 14, 19, 39–42, 45–48, 53)

Material examined. HOLOTYPE ♀ (ZMMU), PHILIPPINES: Luzon Isl.: Nueva Ecija Prov., 15°39'N, 121°16'E, 370 m, 10–18.02.1995 (A.M. Emelyanov).

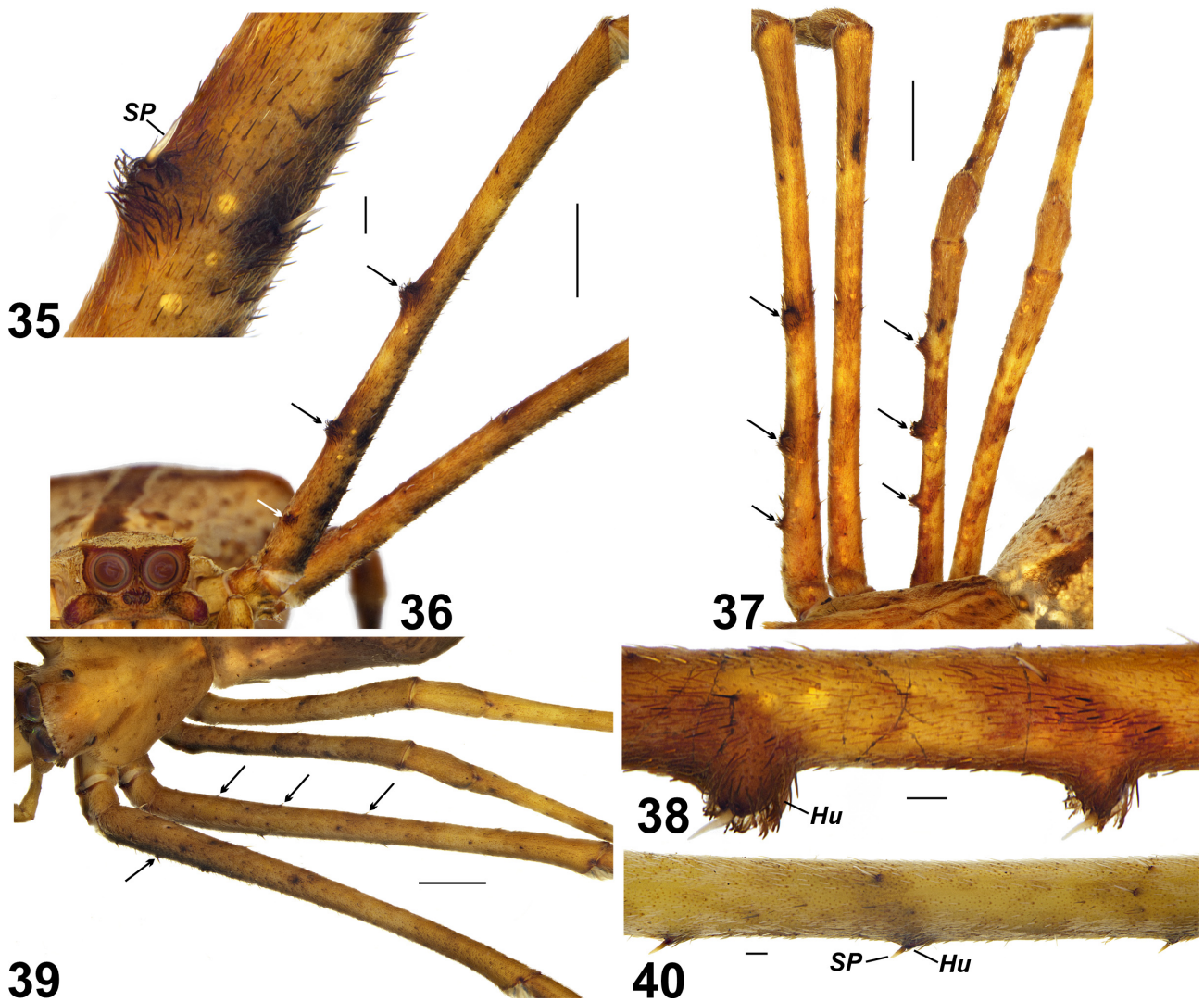
Etymology. The specific name is a patronym honoring Ivan Naumenko (Nakhodka, Russia), a well-known Russian macro photographer who has taken pictures of many spider species as well as other arthropods around the world.



FIGURES 30–34. Whole male palp (30–32) and tip of embolus (33–34) of *Asianopis lini* sp. nov. (30, 34), *A. liukuensis* (31) and *A. gorochovi* (32–33). Scale bars=0.5 mm (30–32), 0.1 mm (33–34). Abbreviations: *ETA*—embolic terminal apophysis.

Diagnosis. Female of *Asianopis naumenkoi* sp. nov. is most similar to this of *A. apo* sp. nov. by body coloration and structure of the copulatory organs but can be easily distinguished by barely visible humps on femora I–III (vs. well distinct and large, on femora I, III; cf. Figs 39–40 and 35–38), high median plate in posterior-ventral view (vs. low; cf. Fig. 47 and 51) and the smaller number of copulatory ducts turns (4 vs. 5; cf. Figs 46 and 50). From *A. luzonensis* the new species differs by the pattern of the lateral sides of abdomen (large, dark brown triangular spots medially vs. wide white bands anteriorly; cf. Fig. 41 and Barrion-Dupo & Barrion 2018: fig. 6D). For differences from species of the *liukuensis*- and *zhuanghaoyuni*-group, see Table 1.

Description. Female. Total length 20.79. Carapace: 7.02 long, 4.66 wide. Abdomen: 13.86 long, 5.29 wide. Eye sizes and interdistances: AME 0.17, ALE 0.36, PME 1.27, PLE 0.36, AME–AME 0.31, AME–ALE 1.41, PME–PME 0.09, PME–PLE 1.17, AME–PME 0.16. Palp measurements: 2.38, 1.00, 1.26, -, 1.75 (6.39). Leg measurements: I: 52.75 (15.66, 2.50, 14.09, 17.32, 3.18). II: 48.63 (15.25, 2.61, 13.69, 14.07, 3.01). III: 29.64 (10.61, 2.19, 7.56, 7.66, 1.62). IV: 28.78 (10.01, 2.14, 7.99, 7.45, 1.19).



FIGURES 35–40. Legs of *Asianopis apo* sp. nov. (35–38) and *A. naumenkoi* sp. nov. (39–40). 35—humps with spines on femora I; 38, 40—ditto, on femora I and III, prolateral; 36—femora I–II; 37, 39—all legs, dorsal. Arrows indicate short spines. Scale bars: 0.2 mm (35, 38, 40), 2 mm (36, 37, 39). Abbreviations: *Hu*—hump, *SP*—short spine.

TABLE 1. Characteristics and composition of *Asianopis* species groups.

Feature	<i>liukuensis</i> -group	<i>zhuanghaoyuni</i> -group	<i>apo</i> -group
Male			
Chelicerae promarginal teeth	1	4	unknown
Cheliceral retromarginal teeth	1–2	2–6	unknown
Cheliceral denticles	absent	absent	unknown
Tegulum	wider than the diameter of embolic coils	obscured by embolic coils	unknown
Median apophysis	small, with two lobes: basal lobe small, distal lobe narrow with two apophyses	large, with two lobes: basal lobe large, distal lobe kidney-shaped	unknown
Embolic tip	straight, with middle apophysis	widened subapically, folded, may have terminal apophysis	unknown
Embolus coiling	1200°	1400°–3300°	unknown

.....continued on the next page

TABLE 1. (Continued)

Feature	<i>liukuensis</i> -group	<i>zhuanghaoyuni</i> -group	<i>apo</i> -group
Female			
Chelicerae promarginal teeth	4	4	5–6
Chelicerae retromarginal teeth	7	8–13	4–6
Chelicerae denticles	many	absent	many
Femora I proximally	enlarged	unmodified	unmodified
Median plate of epigyne ventrally	anchor-shaped	trapesoidal or triangular	anchor-shaped
Copulatory opening	distinct	obscured by median plate	distinct
Copulatory duct coils	3	7–8	4–5
Composition	<i>A. dumogae</i> <i>A. liukuensis</i> <i>A. goalparaensis</i>	<i>A. celebensis</i> <i>A. konplong</i> <i>A. wangi</i> <i>A. wuchaoi</i> <i>A. zhuanghaoyuni</i> <i>A. gorochovi</i> <i>A. lini</i> sp. nov.	<i>A. naumenkoi</i> sp. nov. nov. <i>A. apo</i> sp. nov.

Coloration. Clypeus grayish brown. Areas around AME, ALE and PME covered with white plumose setae. PME also surrounded by black setae. Chelicerae yellow with few black spots anteriorly, 5 pro-, 4 retrolateral teeth and number of retrolateral denticles. Carapace light brown with distinct median band, lateral bands absent. Cephalic part covered with white plumose setae. Sternum yellow with light brown edges. Labium yellow. Endites dark brown with black spots.

Palpal femur yellowish; patella and tibia yellowish with black spots; cymbium yellowish. Legs coloration. Coxa yellowish gray; femora I–II brown with black ventral side proximally, III brown with black ventral side, IV brown, with black spots on ventral side; patellae I–II, IV light brown, III brown; tibiae I–II, IV light brown, III brown with black semi rings; metatarsi I–III brown, IV light brown; tarsi I–III brown, IV light brown. Calamistrum represented by dense row of short black setae (Fig. 42). Calamistrum length/metatarsus length ratio ca. 0.27. Femora I–III with small humps (*Hp*) covered with strong short spines (*SP*, figs 39–40). Humps height/femur width ratio ca. 0.42.

Abdomen dorsally light brown, with thin, longitudinal dark brown stripe and number of tiny yellow spots forming longitudinal stripes. Sides of abdomen light brown with thin, yellow longitudinal stripes and large, dark brown triangular spots. Ventral part of abdomen yellow with dark brown longitudinal stripes and small irregular spots. Spinnerets dark brown.

Epigyne as in Figs 45–48. Median plate (*MP*) anchor-shaped in ventral view, trapezoidal postero-ventrally, width/length ratio 4. Copulatory openings (*CO*) distinct. Copulatory ducts (*CD*) with four turns. Receptacles (*Re*) rounded, spaced by distance equal to their diameter. Receptacle duct (*RD*) narrow.

Male unknown.

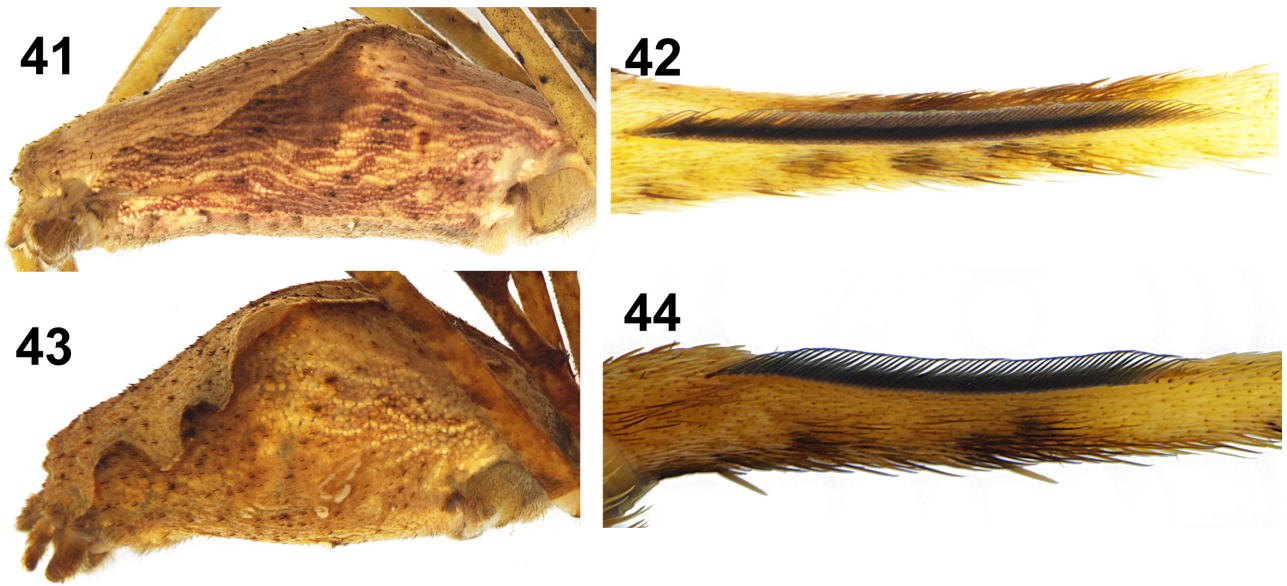
Notes. Currently, two species groups are distinguished in *Asianopsis*: the *liukuensis*-group and the *zhuanghaoyuni*-group (Lin *et al.* 2020b). Since, based on the combination of characteristics, *A. naumenkoi* **sp. nov.** and *A. apo* **sp. nov.** cannot be assigned to either of the aforementioned groups, we propose to unite these new species into the *apo*-group. Although *A. labangan* and *A. luzonensis* show some similarity to the new species from the Philippines, we cannot confidently assign them to any species group until they are thoroughly redescribed. See the characteristics of all groups in Table 1. See also notes section of *A. apo* **sp. nov.** below.

Distribution. Type locality only, Philippines (Fig. 53).

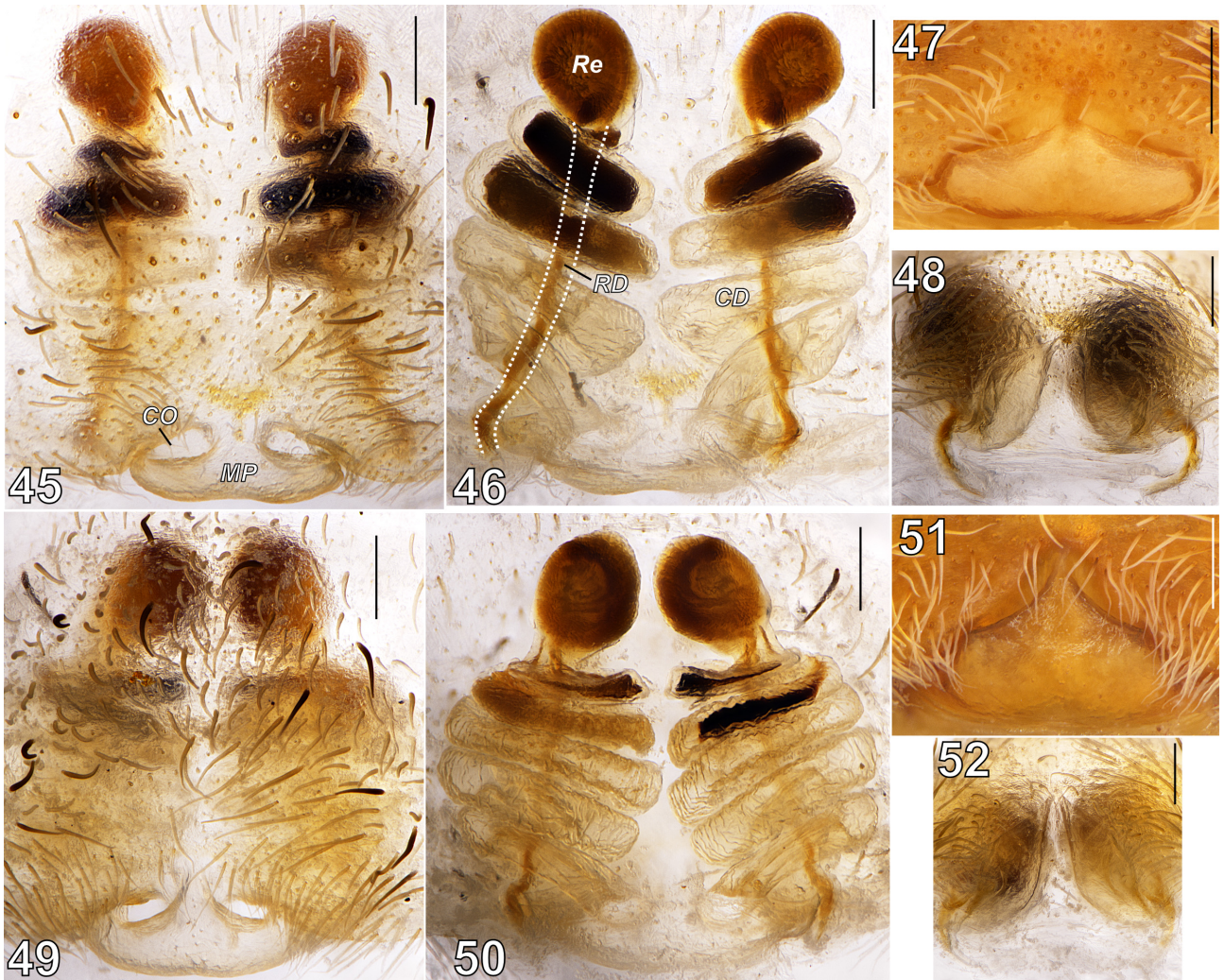
Asianopsis apo **sp. nov.**

(Figs 9–10, 15, 20, 35–38, 43–44, 49–53)

Material examined. HOLOTYPE ♀ (ZMMU), PHILIPPINES: Mindanao Isl.: Cotabato Prov., Apo Mt., 7° 1'N, 125° 13'E, 1350 m, 26–30.01.1995 (A.M. Emelyanov).



FIGURES 41–44. Lateral side of abdomen (41, 43) and calamistrum on metatarsus IV (42, 44) of *Asianopis naumenkoi* sp. nov. (41–42) and *A. apo* sp. nov. (43–44). Scale bars: 0.5 mm.



FIGURES 45–52. Epigyne of *A. naumenkoi* sp. nov. (45–48) and *A. apo* sp. nov. (49–52). 45, 49—ventral; 46, 50—dorsal; 47, 51—median plate, posterior-ventral; 48, 52—ditto, posterior. Scale bars=0.2 mm. Abbreviations: CD—copulatory duct, CO—copulatory opening, MP—median plate, Re—receptacle.

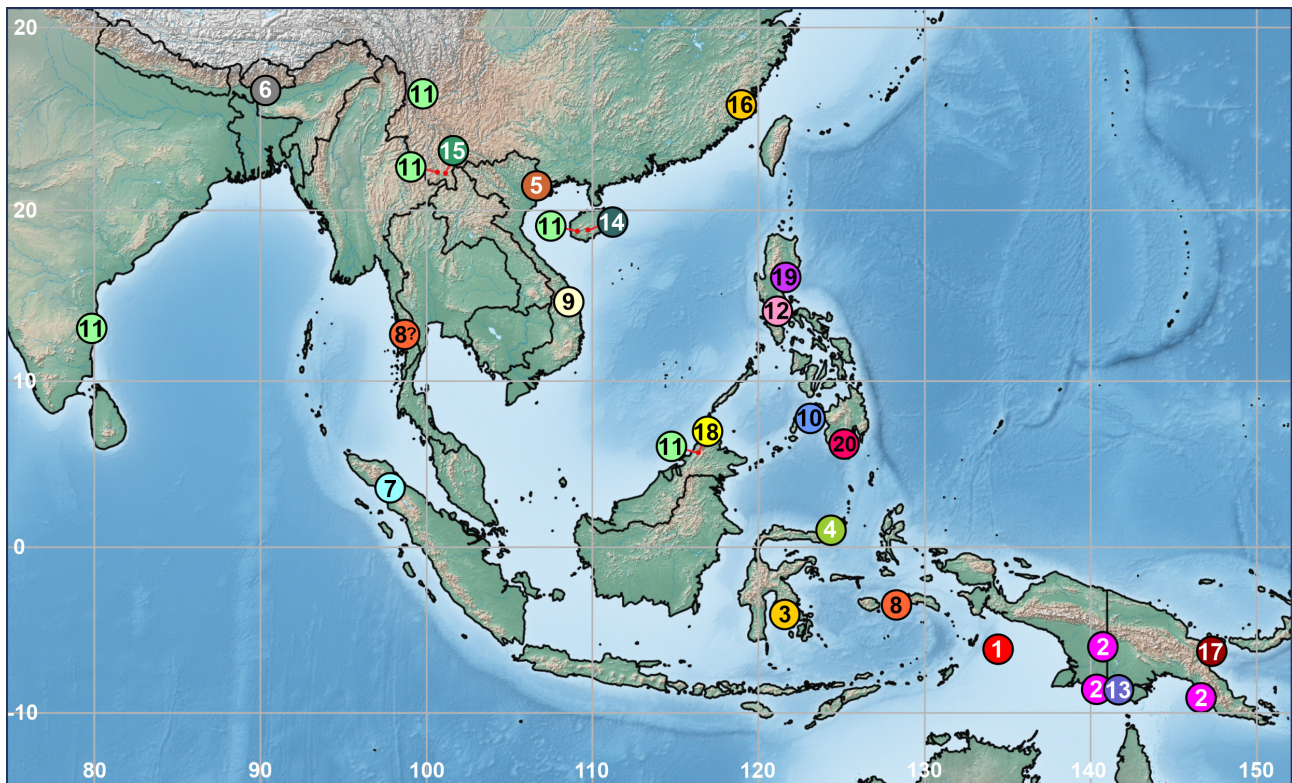


FIGURE 53. Distribution records of *Asianopis* spp in Indomalayan Realm and New Guinea: *A. aruensis* (1), *A. camela* (2), *A. celebensis* (3), *A. dumogae* (4), *A. fasciculiger* (5), *A. goalparaensis* (6), *A. gorochovi* (7), *A. kollari* (8), *A. konplong* (9); *A. labangan* (10), *A. liukuensis* (11), *A. luzonensis* (12), *A. reticulata* (13), *A. wangi* (14), *A. wuchaoi* (15), *A. zhuanghaoyuni* (16), *A. mediocris* (17), *A. lini* sp. nov. (18), *A. naumenkoi* sp. nov. (19), *A. apo* sp. nov. (20).

Etymology. The species is named after Mount Apo, where it was collected, noun in apposition

Diagnosis. Female of *A. apo* sp. nov. is most similar to those of *A. naumenkoi* sp. nov. (see diagnosis of the latter species). From *A. labangan* the new species can be distinguished by the number of copulatory ducts turns (5 vs. 3; cf. Fig. 50 and Barrion-Dupo & Barrion 2018: fig. 5A).

Description. Female. Total length 18.48. Carapace: 6.07 long, 4.21 wide. Abdomen: 12.44 long, 6.20 wide. Eye sizes and interdistances: AME 0.17, ALE 0.39, PME 0.90, PLE 0.34, AME–AME 0.28, AME–ALE 1.30, PME–PME 0.21, PME–PLE 1.29, AME–PME 0.19. Palp measurements: 5.97 (2.15, 0.80, 1.15, -, 1.87). Leg measurements: I: 46.16 (13.82, 2.38, 12.18, 15.11, 2.67). II: 40.97 (13.23, 2.30, 11.28, 11.47, 2.69). III: 24.56 (8.69, 1.85, 6.11, 6.42, 1.49). IV: 24.42 (8.61, 1.79, 6.80, 6.13, 1.09).

Coloration. Clypeus brown. Areas around AME, ALE and PME covered with white plumose setae. Chelicerae yellow with brown spits and stripes anteriorly, 6 pro-, 6 retrolateral teeth and number of retrolateral denticles. Carapace brown posteriorly and yellow anteriorly with yellow median and lateral bands. Sternum light brown with darker edges. Labium and endites yellow.

Palpal femur, patella and tibia light brown; cymbium light brown proximally, dark brown distally. Legs coloration. Coxae dark gray with irregular yellow spots; femora I brown with proximal parts on ventral side black, II brown, with black and light brown spots ventrally, III brown with black ventral side and light spots; IV brown with light yellow spots ventrally; patellae I–II light brown, III–IV brown; tibiae I–II light brown, III–IV brown with yellow irregular spots; metatarsi I light brown with brown spots, II brown, III brown with yellow irregular spots, IV brown proximally, light brown distally; tarsi brown. Calamistrum represented by dense row of short black setae (Fig. 44). Calamistrum length/metatarsus length ratio ca. 0.28. Femora I, III with large humps (*Hu*) covered with strong short spines (*SP*, figs 35–38). Humps height/femur width ratio ca. 0.16.

Dorsal side of abdomen yellow anteriorly and dark brown posteriorly, with longitudinal dark stripe and two thin slash stripes medially. Sides of abdomen light brown with numerous yellow spots and wavy line. Venter light yellow with brown longitudinal stripe and two spots medially. Spinnerets dark brown.

Epigyne as in Figs 49–52. Median plate (*MP*) anchor-shaped in ventral view, trapezoidal postero-ventrally, width/length ratio 2. Copulatory openings (*CO*) distinct. Copulatory ducts (*CD*) with five loops. Receptacles (*Re*) oval, almost touching each other. Receptacle ducts (*RD*) long, narrow.

Male unknown.

Notes. Currently, two species of *Asianopsis* are known from the Philippines: *A. labangan* and *A. luzonensis* (Mindanao and Luzon, respectively). Both of these species are known only from the original descriptions (Barrion-Dupo & Barrion 2018) by females. Unfortunately, a precise comparison between the species previously known from Philippines and the newly described *Asianopsis naumenkoi* **sp. nov.** and *A. apo* **sp. nov.** is difficult because the original description is accompanied by only very schematic black-and-white illustrations, and for *A. luzonensis*, the internal structures of the epigyne are not illustrated. We sent photographs of our new *Asianopsis* species to Mrs. Barrion-Dupo for comparison with the types of *A. labangan* and *A. luzonensis*, and received a response stating, ‘...these may be different...’, but unfortunately, extensive searches for the types in the museum collection were unsuccessful. It is important to note that *A. naumenkoi* **sp. nov.** and *A. apo* **sp. nov.** were found far from the type localities of *A. labangan* and *A. luzonensis*. The type locality of *A. apo* **sp. nov.** and the locality of *A. labangan* differ in elevation, with the former occurring in high-altitude areas and the latter in low-altitude areas. The distance between the type locality of *A. naumenkoi* **sp. nov.** and *A. luzonensis* is about 170 kilometers, with the species found in isolated mountain ranges. Given these geographical differences, as well as the morphological distinctions indicated in the diagnoses, we believe that *A. naumenkoi* **sp. nov.** and *A. apo* **sp. nov.** are distinct species, and the likelihood that they are junior synonyms of known Philippine species is very low.

Distribution. Type locality only, Philippines (Fig. 53).

Discussion

Looking at the distribution of *Asianopsis* in Indomalayan Realm, it is easy to find that almost all species of the genus are local endemics (Fig. 53). The only reliably known exception is *A. liukuensis*, which is distributed from India to Borneo Island. Findings of the poorly known *A. kollari* (Doleschall, 1859) from Indonesia (Ambon) and Myanmar very likely represent two different species. Furthermore, most species are concentrated on the mainland, particularly in tropical parts of China and in Indochina. The island faunas appear much poorer, with only one species recorded from Sumatra and up to four species in the Philippines. We believe that the current data on the diversity and distribution of this genus in Indomalayan Realm do not accurately reflect the true situation. The high number of *Asianopsis* species known from tropical China and adjacent areas primarily reflects the efforts of Chinese arachnologists, rather than the true diversity of the genus across the region. The rain forests of the equatorial belt, such as those on Sumatra, Borneo, may be home to at least as many *Asianopsis* species as the continental part, if not more.

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