

RESEARCH PAPER

## Taxonomic notes on the genus *Ischnobaena* (Hemiptera: Heteroptera: Reduviidae)

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**Abstract.** The previously known species of the thread-legged bug genus *Ischnobaena* Stål, 1871 (Hemiptera: Heteroptera: Reduviidae: Emesinae: Metapterini), namely *I. dohrnii* Stål, 1871, *I. macerrima* Stål, 1871 and *I. staliana* Wygodzinsky, 1966, are reviewed and diagnosed. Lectotypes are designated for *I. dohrnii* and *I. macerrima*. A new species, *I. castroae* sp. nov., from Mindanao Island in the Philippines is described and photographed. The new species can be distinguished from its congeners primarily by the unicolored fore tarsus and several male genital characters. A revised key to species of *Ischnobaena* is provided.

**Key words.** Hemiptera, Heteroptera, Reduviidae, Emesinae, Metapterini, lectotype, new species, taxonomy, Philippines, Oriental Region

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### Introduction

Metapterini Stål, 1874 is the largest tribe of the thread-legged bug subfamily Emesinae, comprising about 300 species in 34 genera worldwide (MALDONADO-CAPRILES 1990, CASTRO-HUERTAS et al. 2021). Wing polymorphism is rather infrequent in Metapterini, with 22 out of 33 genera (except the nymph-based *Roslania* Distant, 1913) being known only from apterous forms, the other seven possessing both apterous and macropterous forms (CASTRO-HUERTAS et al. 2021).

*Ischnobaena* Stål, 1871 is one of the apterous genera of Metapterini. This genus was originally established to include two Philippine species (STÅL 1871). Several species from tropical Africa as well as southern and southeastern Asia were later described in the genus, until WYGODZINSKY (1966) revised the genus and erected new genera for the species outside the Philippines. *Ischnobaena* currently consists of three species, all restricted to the Philippines (MALDONADO-CAPRILES 1990). Although large-sized among assassin bugs, nothing is known about the biology and ecology of *Ischnobaena* species, primarily due to their secretive habits which render them difficult to collect. A single species, *I. staliana* Wygodzinsky, 1966, has been

sampled in the recent morphology-based phylogenetic study of Metapterini (CASTRO-HUERTAS et al. 2021).

In the present paper, the three known species of *Ischnobaena* are reviewed and diagnosed. Some inaccurate records of these species in historical references are noted. The identities of *I. dohrnii* Stål, 1871 and *I. macerrima* Stål, 1871 in MCATEE & MALLOCH (1926) and WYGODZINSKY (1966) are doubtful and have caused taxonomic confusions. In order to stabilize the nomenclature regarding *I. dohrnii* and *I. macerrima*, and to correctly apply the names in the future, we designated lectotypes for the two species. The taxonomic status of *I. dohrnii* is evaluated and considered as *incertae sedis*. A new species from Mindanao Island is described and photographed. Additionally, a revised key to the species of *Ischnobaena* is provided.

### Material and methods

Data labels of specimens are copied verbatim in quotation marks (“ ”); lines on the same label are separated by a backslash (\), different labels are separated by a semicolon (;), and comments on label data are provided in square brackets ([ ]); printed (pr.) and handwritten (hw.) texts are indicated. Abbreviations for depositories:



AMNH American Museum of Natural History, New York, USA;  
 CAU Entomological Museum of China Agricultural University, Beijing, China;  
 NHRS Naturhistoriska Riksmuseet, Stockholm, Sweden;  
 USNM United States National Museum of Natural History, Washington, D.C., USA.

Male genitalia were immersed in hot 10% KOH solution for approximately five minutes to remove soft tissue, rinsed in distilled water, and dissected under a Motic binocular dissecting microscope. The dissected and macerated genitalia were placed in a vial with glycerin and pinned under the corresponding specimen after examination. Photographs were all taken using a Canon 7D Mark II digital camera equipped with a Canon micro lens EF 100 mm and MP-E 65 mm for habitus images, and an Olympus BX51 microscope for the dissected body parts. Helicon Focus version 5.3 was used for image stacking. Measurements were obtained using a calibrated micrometer. Morphological terminology mainly follows WYGODZINSKY (1966), WEIRAUCH (2008a) and CASTRO-HUERTAS et al. (2018). The visible labial segments are numbered as II to IV, given that the first segment is lost or fused into the head capsule in most Reduviidae (WEIRAUCH 2008b, SCHUH et al. 2009).

## Taxonomy

### Genus *Ischnobaena* Stål, 1871

*Ischnobaena* Stål, 1871: 703 (original description). Type species: *Ischnobaena macerrima* Stål, 1871, subsequent designation by DISTANT (1903: 213).

*Ischnobaena*: STÅL (1874: 93, 96) (in key, catalogue); LETHIERRY & SEVERIN (1896: 75) (catalogue); MCATEE & MALLOCH (1926: 119, 146) (in key, listed); WYGODZINSKY (1966: 436, 496, 497) (in key, redescription, distribution, key); MALDONADO-CAPRILES (1990: 131) (catalogue); CASTRO-HUERTAS et al. (2021: File S4) (diagnosis, distribution, in key).

**Diagnosis.** Apterous; labial segment II reaching anterior margin of eyes, more than two times as long as segment III; metathorax as long as or longer than prothorax; anteroventral series of fore femur widely interrupted at base; fore tibia quarter as long as fore femur; fore tarsus not segmented; paramere rod-shaped, without sensory cones; first valvifers of female fused.

**Diversity and distribution.** Four species, endemic to the Philippines.

**Remarks.** A detailed redescription of the genus was presented by WYGODZINSKY (1966), who also proposed the fused first valvifers (as “gonocoxites”) of the female to represent an autapomorphy of the genus. CASTRO-HUERTAS et al. (2021: File S4) revised the generic diagnosis and added a set of male genital characters. References to *Ischnobaena* by DISTANT (1903), JEANNEL (1919), VILLIERS (1948, 1949) and HSIAO (1965) refer to other genera (see WYGODZINSKY 1966).

### *Ischnobaena castroae* sp. nov.

(Figs 1–21)

**Type material.** HOLOTYPE: ♂, “PHILIPPINES, Mindanao \ Bukidnon, Intavas \ (N8.26667°, E124.98333°) \ 2016-IV \ Ent. Mus. CAU. Beijing” [pr.]; “male sex symbol” [pr.]; “HOLOTYPE [pr.] \ *Ischnobaena* [hw.] \

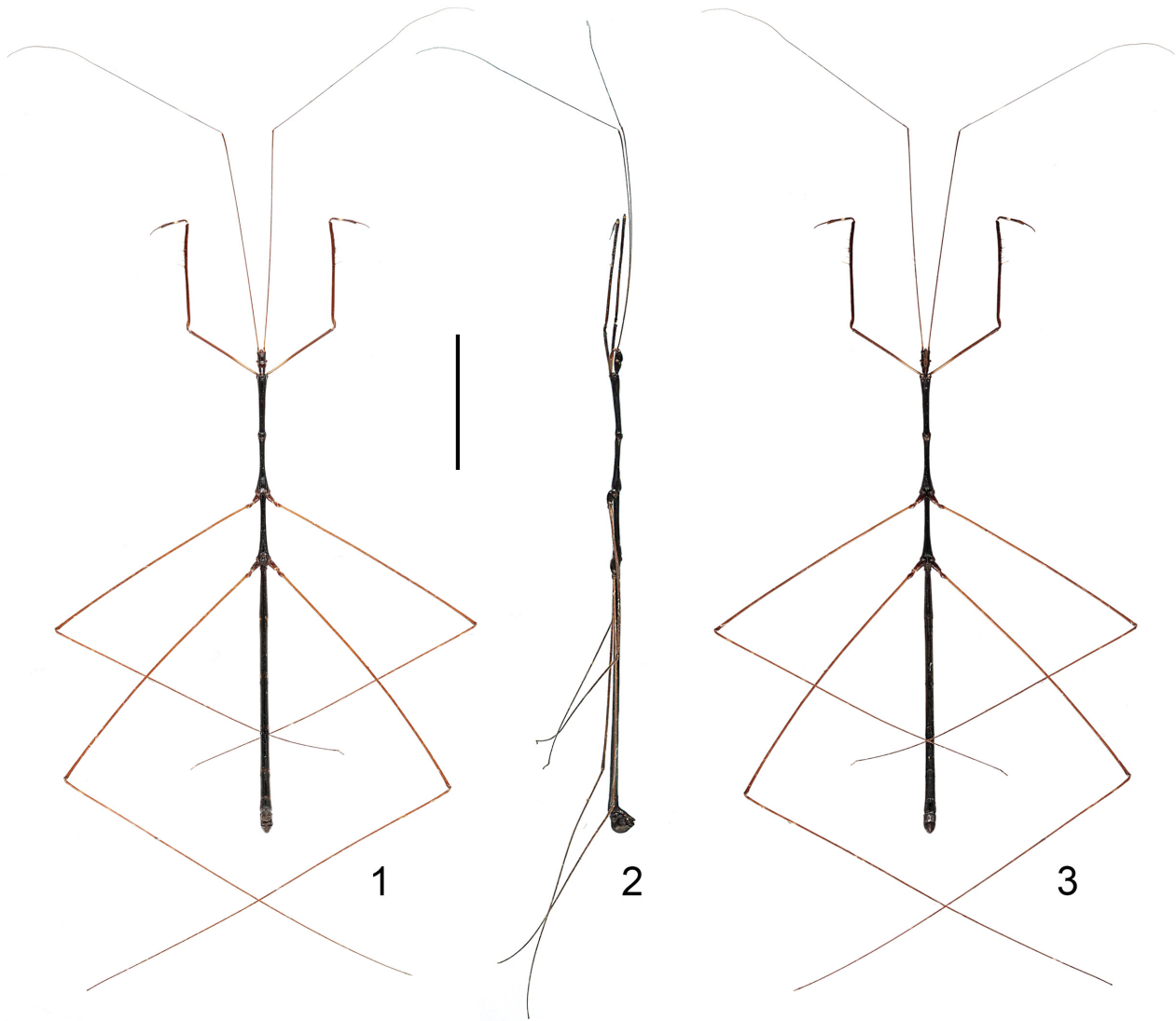
*castroae* sp. n. [hw.] \ Det. CHEN Zhuo [pr.]”; “CAU-RE-0000008 \ Ent. Mus. CAU. Beijing” [pr.]. (CAU).

**Diagnosis.** Body largely blackish-brown; head with two paired yellowish-brown spots dorsally behind eyes; thorax almost uniformly blackish-brown; metathorax as long as prothorax; fore tarsus uniformly dark brown; mid and hind femora nearly unicolored; mid and hind tibiae with three narrow, faint, light-colored annuli on basal third; paramere expanded at midpoint, emarginated at apex, forming two apical projections; apical portion of phallosoma bifid.

**Description.** Apterous male (Figs 1–3). **Coloration.** Body generally blackish-brown. Head (Figs 4–6) with two paired spots dorsally behind eyes, labrum, dorsum of neck and ventral surface yellowish-brown; clypeus and labium brown, labial segment IV slightly darker; eyes reddish; antennal scape brown basally, yellowish-brown subbasally, gradually darkened towards apex; antennal pedicel and flagellomeres dark brown. Thorax rather unicolored; acetabula lighter. Fore leg (Fig. 7) dark brown; fore coxa with basal third light yellowish-brown; fore femur gradually darkened towards apex, with large and medium-sized spiniferous processes yellowish-brown to light brown, apical spine of process black; fore tibia blackish-brown, with a relatively wide, submedial, light yellowish-brown annulus, denticles on ventral surface black; mid and hind coxae and trochanters dark brown; mid and hind femora light brown, gradually darkened towards apex, with extreme apices blackish; mid femur with three, hind femur with two, very narrow light-colored annuli, hard to observe; mid and hind tibiae brown, gradually darkened towards apex, with three narrow light-colored annuli on basal third. Abdominal tergite I dark brown; 1 + 1 lateral spots at intersegmental sutures between tergites II to VII yellowish brown; dorsal laterotergites brown.

**Structure.** Body surface smooth, moderately polished, sparsely covered with tiny, decumbent or suberect, curly setae; ventral surface of labium with tiny, hard-to-observe suberect setae; antennal flagellomeres and apex of pedicel densely covered with short, decumbent pubescence; mesothorax with a triangular velvety area laterally on each side (Fig. 5); ventral surfaces of fore tibia and spiny area of fore femur with relatively long, erect setae intermixed with processes or denticles; apical third of inner surface of fore tibia with long, thick, decumbent golden setae (Fig. 7); ventral surface of fore tarsus with two rows of shorter, thick, decumbent golden setae; mid and hind tibiae covered with short, decumbent or suberect setae, gradually denser towards apex; lateral and ventral surfaces of mid tarsus densely covered with short pubescence; apical half of abdominal tergite VII covered with dense curly setae.

Head (Figs 4–6) subcylindrical, 2.1 times as long as width across eyes, 1.5 times as broad across eyes as interocular space, convex dorsally (especially on anterior lobe) and flattened ventrally; anteocular and postocular parts equal in length (Fig. 5); postocular part converging posteriorly and distinctly constricted at middle in dorsal view (Fig. 4); interocular furrow evenly curved backwards. Eyes rather small, protruding laterally, far remote from dorsal and ventral margins of head in la-



Figs 1–3. *Ischnobaena castroae* sp. nov., holotype, ♂, habitus: 1 – dorsal view; 2 – lateral view; 3 – ventral view. Scale bar: 10.00 mm.

teral view. Antenna gracile; scape slightly longer than pedicel; basiflagellomere extremely short, about a tenth of length of distiflagellomere. Clypeus slightly elevated; labrum finely produced anteroventrally. Labium (Figs 5, 6) long and slender, slightly curved between segments II and III; labial segment II longest, 2.25 times longer than segment III; segment IV 1.75 times longer than segment III, gradually narrowing to apex.

Thorax elongate. Prothorax (Figs 4–6) 2.5 times as long as head, 5.2 times longer than its greatest width, slightly widened anteriorly; pronotum clearly divided into anterior and posterior lobes, with the latter extremely reduced, collar-like. Meso- and metathorax slightly swollen posteriorly, mesothorax 0.8 times as long as prothorax, metathorax as long as prothorax.

Fore leg (Fig. 7) delicate; fore coxa cylindrical, 1.3 times longer than prothorax, very faintly widened towards apex; fore trochanter simple; fore femur long, 1.3 times as long as fore coxa, armed ventrally with two rows of spiniferous processes; anteroventral series composed of one or two

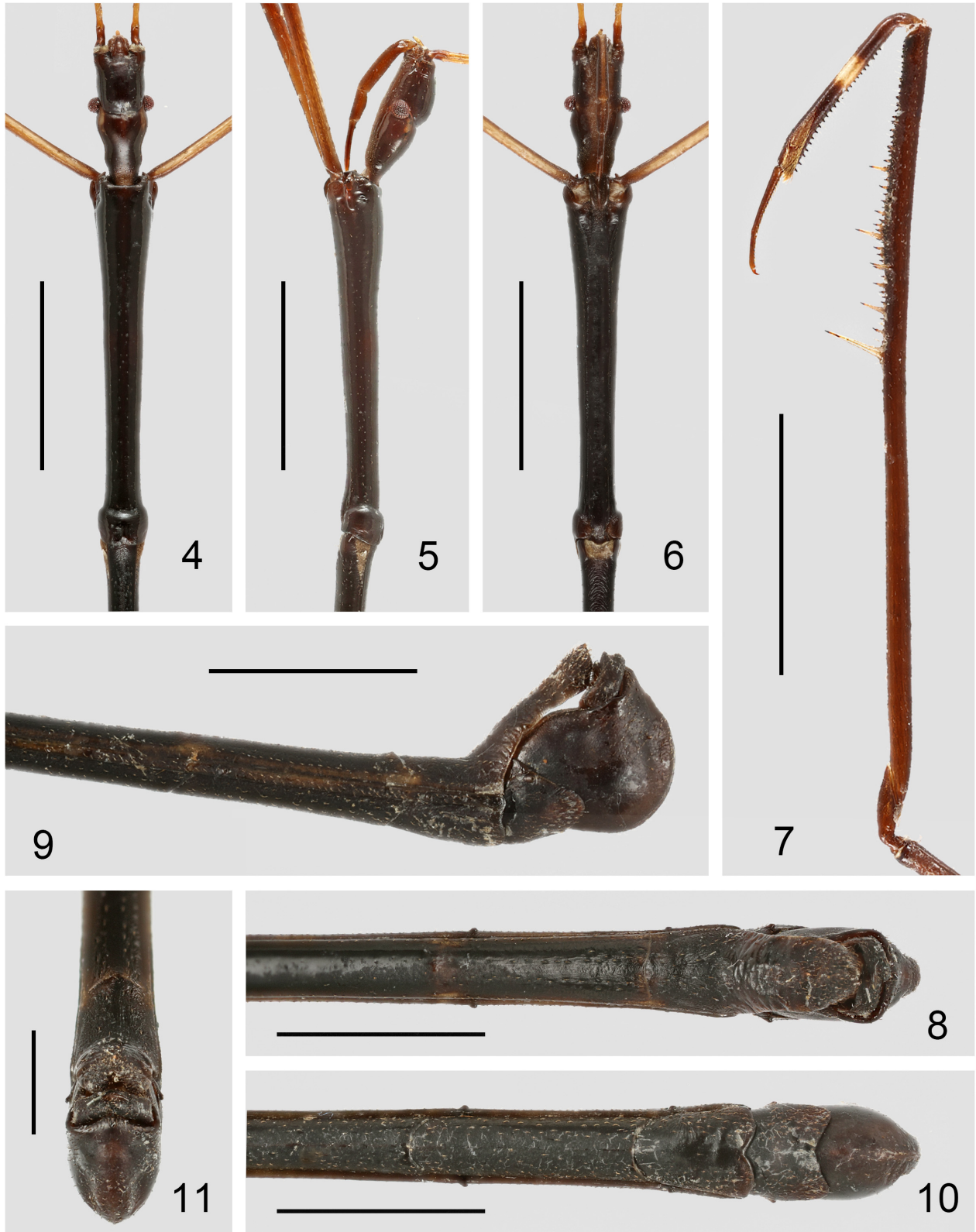
large-sized and about 40 small-sized processes (Fig. 7); posteroventral series composed of four large-sized, seven medium-sized and about 33 small-sized processes, the longest basalmost process situated apicad of midpoint of segment (Fig. 7); fore tibia very short, 0.26 times as long as fore femur, widened apically, armed ventrally with 25 strongly sclerotized denticles (Fig. 7); fore tarsus about half as long as fore tibia, strongly sclerotized (Fig. 7); paired fore claws nearly equal in size. Mid and hind legs slender; hind femur slightly surpassing apex of abdomen; mid and hind tibiae 1.35 and 1.40 times longer than respective femora; mid tarsus with tarsomere I longest and II shortest.

Abdomen elongate, nearly parallel-sided, very weakly widened at apex; abdominal tergite VII (Figs 8, 9, 11) projected posteriorly, warping upward, with apical margin round, leaving parameres and part of pygophore exposed in dorsal view; posterior margin of sternite VII concave at midpoint (Fig. 10); segment VIII (Figs 9, 10, 12) distinctly exposed in lateral and ventral views, with anteromedial and posteromedial margins strongly concave, posterolateral

margin posteriorly produced and rounded. Abdominal spiracles prominent.

**Male genitalia:** Pygophore (Figs 13–15) enlarged, rounded, laterally compressed, covered with tiny curly setae; transverse bridge narrow; anterolateral margin of posterior opening of pygophore forming lamelliform projection (Fig.

14); posterior margin faintly incised at midpoint (Fig. 15). Paramere (Figs 16–18) large and stout, distinctly expanded ventrally at midpoint, strongly emarginated at apex, forming two apical projections, with the dorsal one shorter and round, and the ventral one longer and sharp. Phallus (Figs 19–21) moderately sclerotized, strongly curved;



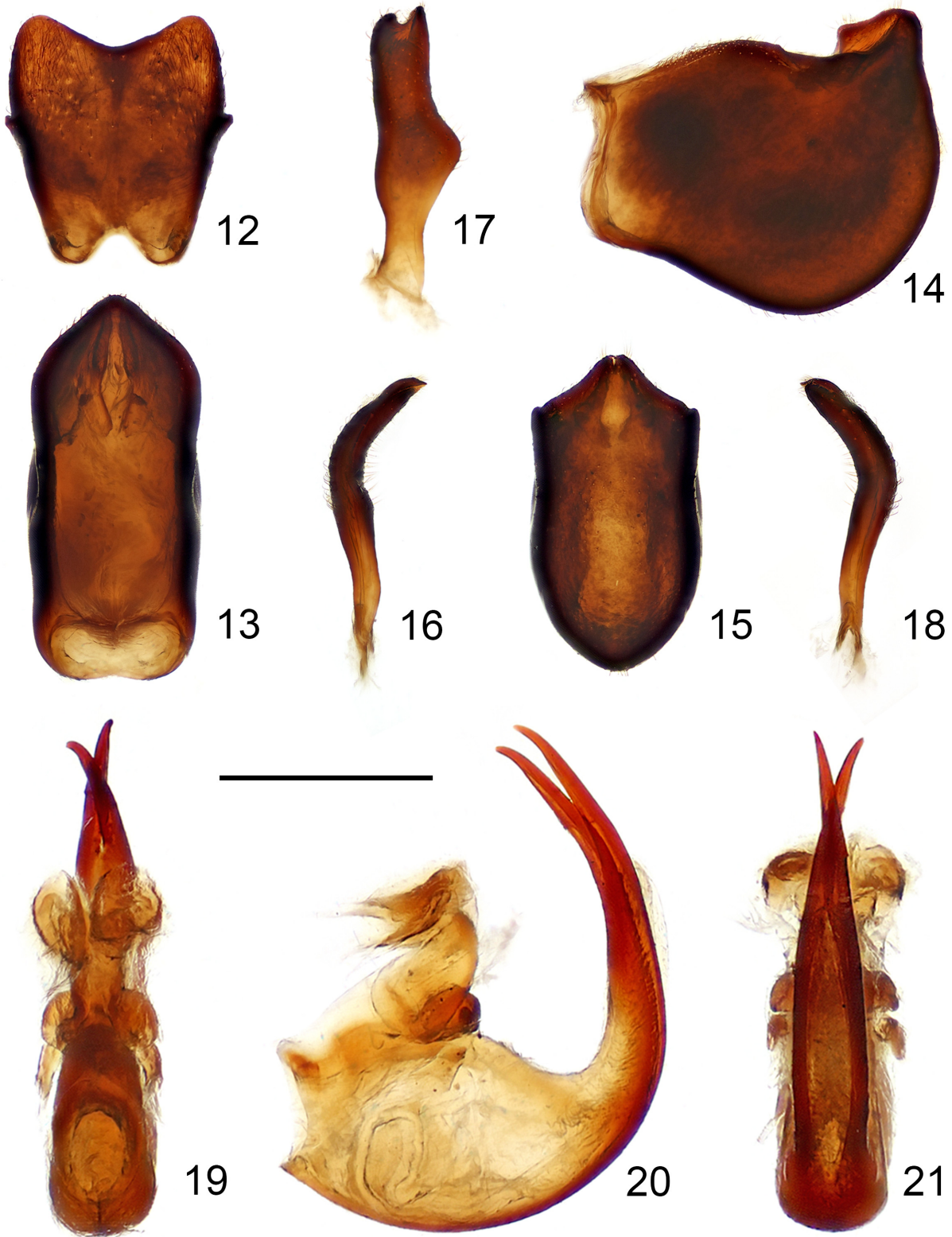
Figs 4–11. *Ischnobaena castroae* sp. nov., holotype, ♂: 4–6 – anterior part of body; 7 – fore leg; 8–11 – posterior part of abdomen. 4, 8 – dorsal view; 5, 9 – lateral view; 6, 7, 10 – ventral view; 11 – caudal view. Scale bars: 4–7 = 2.50 mm; 8–10 = 2.00 mm; 11 = 1.00 mm.

articulatory apparatus thickened, largely fused; apical portion of phallosoma distinctly bifid; endosoma tubular.

**Female.** Unknown.

**Measurements** [in mm, m# (n = 1)]. Length of body 36.10; length of head 1.90; length of anteocular part 0.80; length of postocular part 0.80; width across eyes 0.90; interocular space 0.60; length of antennal segments I–IV =

16.30, 14.40, 0.35, 3.10; length of labial segments II–IV = 0.90, 0.40, 0.70; length of pronotum 4.70; length of anterior pronotal lobe 4.30; length of posterior pronotal lobe 0.40; width of anterior pronotal lobe 0.90; width of posterior pronotal lobe 0.70; length of mesonotum 3.90; length of metanotum 4.70; length of fore coxa, trochanter, femur, tibia, tarsus (without claw) = 6.00, 0.70, 7.70, 2.00, 1.05; length



Figs 12–21. *Ischnobaena castroae* sp. nov., holotype, ♂: 12 – abdominal segment VIII; 13–15 – pygophore; 16–18 – paramere; 19–21 – phallus. 12, 21 – ventral view; 13, 19 – dorsal view; 14, 20 – lateral view; 15 – caudal view. Scale bars: 12–15 = 1.00 mm; 16–18 = 0.80 mm; 19–21 = 0.55 mm.

of mid femur, tibia, tarsus = 17.30, 23.50, 0.80; length of hind femur, tibia, tarsus = 22.00, 30.70, ? (missing); length of abdomen 20.60; maximum width of abdomen 0.90.

**Etymology.** The specific epithet is dedicated to the Colombian entomologist Valentina Castro-Huertas (Museo de La Plata, La Plata, Argentina), for her excellent contributions to Emesinae and her helpful discussions on this study.

**Distribution.** Philippines: Mindanao.

***Ischnobaena dohrnii* Stål, 1871**

(Figs 22–24)

*Ischnobaena Dohrnii* Stål, 1871: 703 (original description). Syntype(s): nymph, Philippines (NHRS).

*Ischnobaena Dohrnii*: STÅL (1874: 96) (catalogue, distribution).

*Ischnobaena Dohrni*: LETHIERRY & SEVERIN (1896: 75) (catalogue, distribution). Incorrect subsequent spelling.

*Ischnobaena dohrnii*: MCATEE & MALLOCH (1926: 146) (synonymy under *I. macerrima*); KERZHNER (1992: 52) (nomenclature).

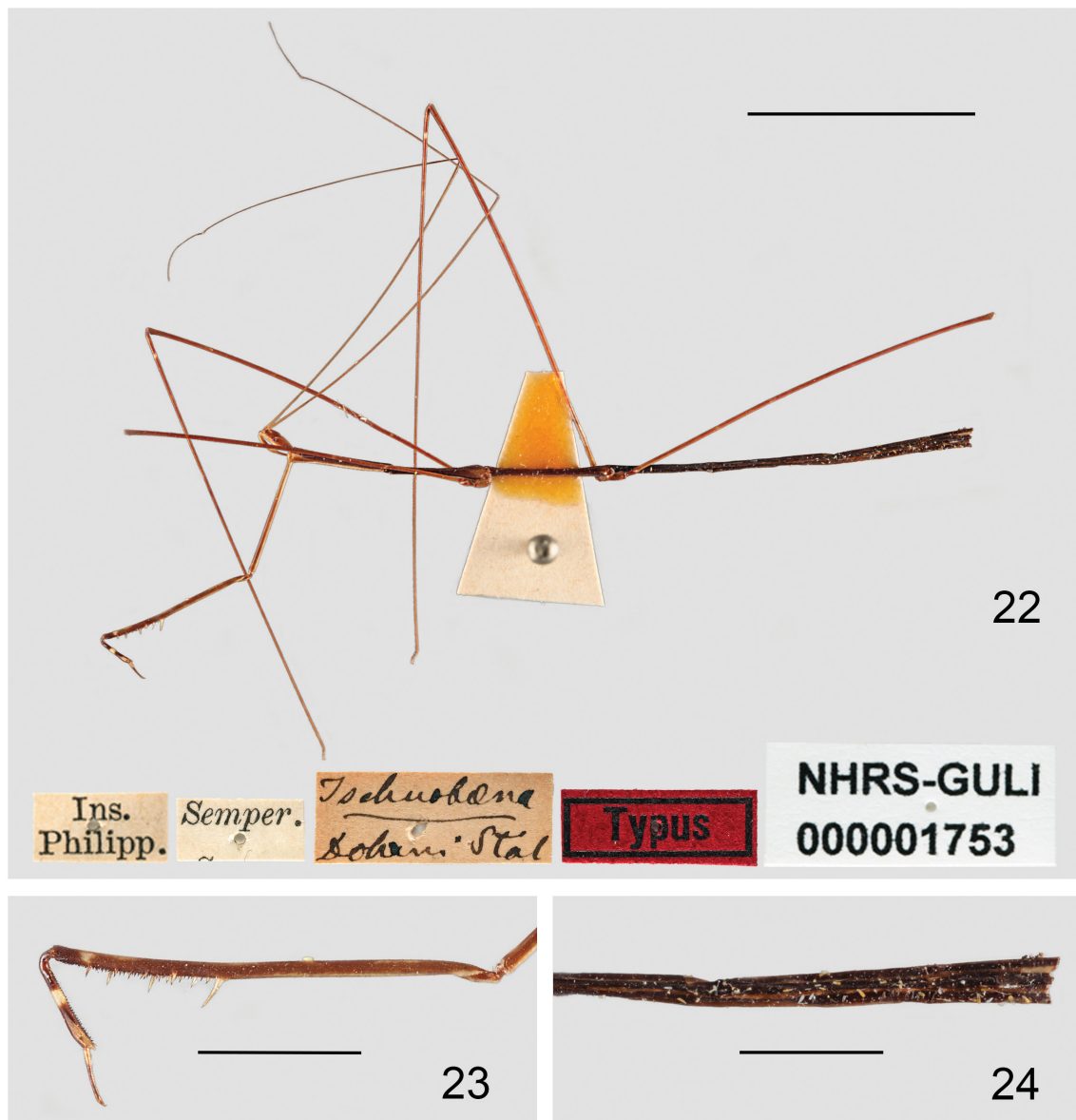
*Ischnobaena dohrni*: WYGODZINSKY (1966: 497) (in key, records, resurrect

as valid species); MALDONADO-CAPRILES (1990: 132) (catalogue, distribution). Incorrect subsequent spelling.

**Type material examined.** LECTOTYPE (present designation): nymph, “Ins. \ Philipp.” [pr.]; “Semper.” [pr.]; “*Ischnobaena* \ Dohrnii Stål” [hw.]; “Typus” [pr., red rectangle with black frame]; “NHRS-GULI \ 000001753” [pr.]. Mounted on triangle; left fore leg, tibiae and tarsi of left mid and hind legs, apex of abdomen missing (NHRS).

**Diagnosis.** This species is based on a last-instar nymph (Fig. 22) and thus cannot be reliably identified (see remarks below). This species is characterized by body generally blackish-brown; fore femur with an incomplete light-colored annulus subapically (Fig. 23); basal third of fore tarsus whitish (Fig. 23); mid and hind femora nearly unicolorous; mid and hind tibiae each with two narrow light-colored annuli on basal fourth, with the basal one clear and the apical one much fainter (Fig. 22).

**Distribution.** Philippines: exact locality unknown (STÅL 1871).

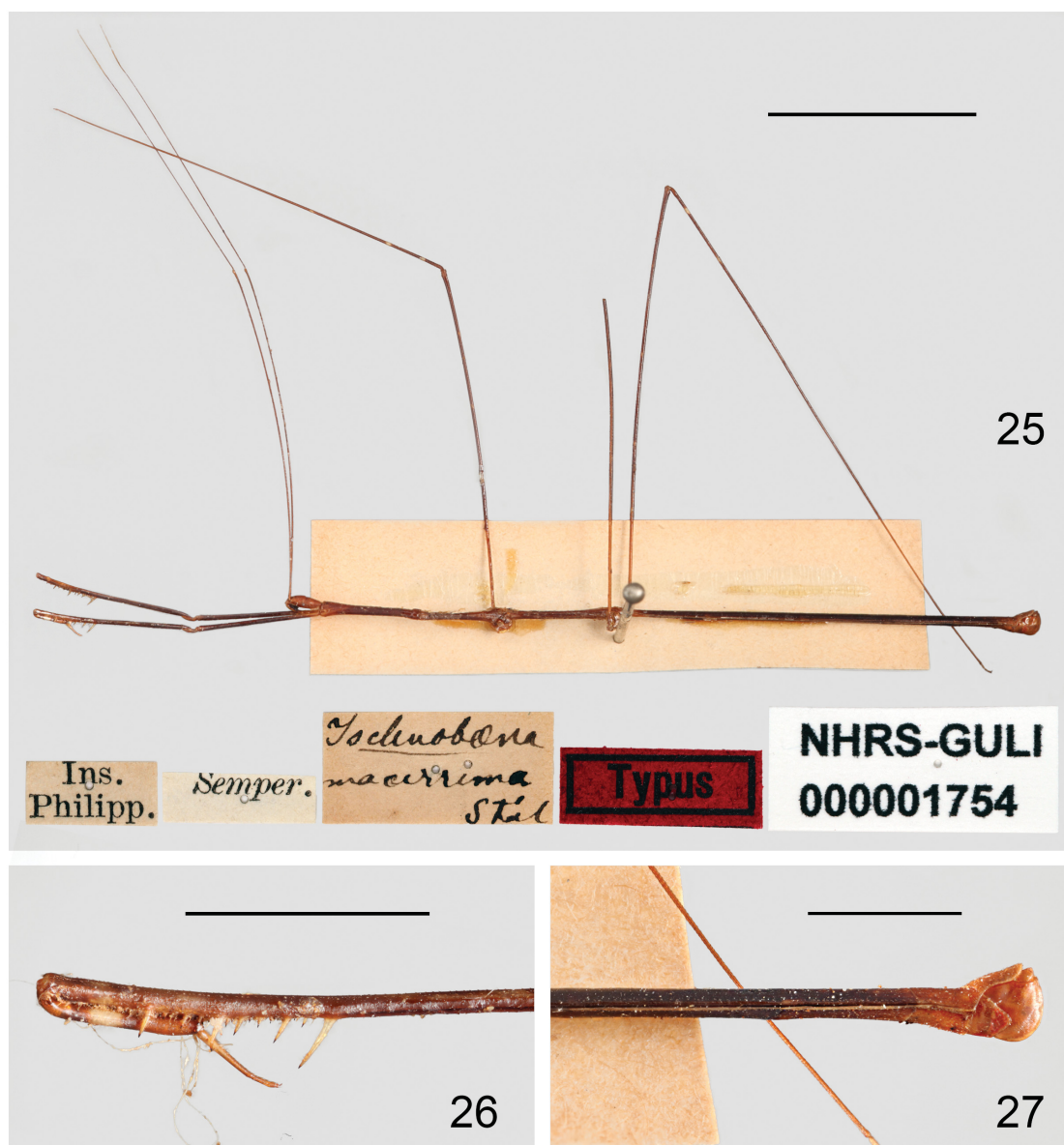


Figs 22–24. *Ischnobaena dohrnii* Stål, 1871, lectotype, nymph, lateral view: 22 – habitus with labels; 23 – fore leg; 24 – posterior part of abdomen. Scale bars: 22 = 10.00 mm; 23, 24 = 2.50 mm. (Photographed by G. Lindberg, ©NHRS, made available by the Swedish Museum of Natural History under Creative Commons Attribution 4.0 International Public License, CC-BY 4.0.)

**Remarks.** STÅL (1871) described this species without stating the sex and the exact number of the type material. WYGODZINSKY (1966) examined the syntype and found it was a last-instar nymph. He also noted that “the tip of the abdomen is lacking, which may explain why STÅL (1871) did not indicate the sex of his specimen” (WYGODZINSKY 1966) (Fig. 24).

*Ischnobaena dohrnii* was synonymized under *I. macerrima* by MCATEE & MALLOCH (1926), as they thought that the color pattern was not a reliable character to distinguish these two species. This opinion was rejected by WYGODZINSKY (1966) and MALDONADO-CAPRILES (1990). WYGODZINSKY (1966) tentatively assigned adults for this species based on leg annulations, which are more pronounced in nymphs than in adults. *Ischnobaena dohrnii* was reported to “virtually lack light-colored annuli” on legs (WYGODZINSKY 1966). However, according to our examination on the lectotype (designated herein),

it has the following light-colored annulations on its legs: fore femur with one incomplete annulus subapically; fore tibia with one complete, relatively wide annulus submedially; mid femur with four, hind femur with three, narrow and faint annuli, widely separated; mid and hind tibiae each with two narrow annuli on basal fourth, with the basal one clear and the apical one much fainter. Although the number and arrangements of leg annulations are different from other congeners, it seems hard to elucidate the taxonomic status of *I. dohrnii* at present. On one hand, the syntype does not have an exact locality (given as “Ins. Philipp.” with no further details), and on the other hand, the morphological characters used for the diagnosis of this species might be nymph-specific. Therefore, we treat *I. dohrnii* as an *incertae sedis* taxon herein. This problem might be solved with molecular techniques, and/or with the acquisition of nymphs from all the known species.



Figs. 25–27. *Ischnobaena macerrima* Stål, 1871, lectotype, ♂, lateral view: 25 – habitus with labels; 26 – fore leg; 27 – posterior part of abdomen. Scale bars: 25 = 10.00 mm; 26, 27 = 2.50 mm. (Photographed by G. Lindberg, ©NHRS, made available by the Swedish Museum of Natural History under Creative Commons Attribution 4.0 International Public License, CC-BY 4.0.)

***Ischnobaena macerrima* Stål, 1871**

(Figs 25–27)

*Ischnobaena macerrima* Stål, 1871: 703 (original description). Syntype(s): ♂, Philippines (NHRS).

*Ischnobaena macerrima*: STÅL (1874: 96) (catalogue, distribution); LETHIERRY & SEVERIN (1896: 75) (catalogue, distribution); MCATEE & MALLOCH (1926: 146) (records); WYGODZINSKY (1966: 497, 499) (in key, records, distribution); MALDONADO-CAPRILES (1990: 132) (catalogue, distribution).

**Type material examined.** LECTOTYPE (present designation): ♂, “Ins. \ Philipp.” [pr.]; “Semper.” [pr.]; “*Ischnobaena* \ *macerrima* \ Stål” [hw.]; “Typus” [pr., red rectangle with black frame]; “NHRS-GULI \ 000001754” [pr.]. Mounted on card; tibia and tarsus of right fore leg, left mid leg, tarsomere III of right mid leg, tibia and tarsus of left hind leg missing (NHRS).

**Diagnosis.** Body length about 36.5 mm; head, anterior part of prothorax and last abdominal segments orangish-brown, strongly contrasting with the rest of body, which is blackish-brown (Fig. 25); metathorax slightly longer than prothorax; basal third of fore tarsus whitish (Fig. 26); mid and hind femora nearly unicolorous; mid tibia with three narrow light-colored annuli on basal third, with the apical one much fainter (Fig. 25); hind tibia with two narrow light-colored annuli on basal fourth, with the apical one fainter; dorsum of abdomen without light-colored spots (Fig. 25).

**Distribution.** Philippines: exact locality unknown (STÅL 1871); ? Luzon (MCATEE & MALLOCH (1926); ? Samar (WYGODZINSKY 1966).

**Remarks.** This species is characterized by its contrasting body color, which has been well documented in the original description (STÅL 1871). WYGODZINSKY (1966) identified a male specimen from Samar Island as this species, and illustrated its genitalia. He also mentioned that this species has “concolorous legs” and thus “can be considered to be the adult of *dohrni* [sic]” (WYGODZINSKY 1966). The lectotype (designated herein) was examined in the present study, and we found some differences from WYGODZINSKY’s (1966) account. Firstly, the legs of *I. macerrima* are not concolorous, and have the following light-colored annulations: fore femur with a faint, incomplete annulus subapically; fore tibia with a complete, relatively wide annulus submedially; mid and hind femora with three to four very faint, widely separated annuli; mid tibia with three annuli on basal third, with the apical most one much fainter; hind tibia with two annuli on basal fourth, with the apical one fainter. The male genitalia are also different from those illustrated by WYGODZINSKY (1966), with the posterolateral margin of abdominal segment VIII produced but not sharply pointed, and the shape of paramere seems different (Fig. 27). Whether the specimen from Samar Island is conspecific with *I. macerrima* requires further study.

MCATEE & MALLOCH (1926) recognized a female specimen from Luzon Island under the name *I. macerrima*, but they also noticed some different characters in their specimen; thus this identification is also doubtful. *Ischnobaena macerrima* cited by DISTANT (1903) actually refers to *Ischnobaenella invisibilis* (Dohrn, 1860) (see WYGODZINSKY 1966).

***Ischnobaena staliana* Wygodzinsky, 1966**

*Ischnobaena staliana* Wygodzinsky, 1966: 497, 499 (original description).

Holotype: ♂, Philippines, Quezon, Lucban (USNM).

*Ischnobaena staliana*: MALDONADO-CAPRILES (1990: 132) (catalogue, distribution).

**Diagnosis.** Body length about 36–38 mm, blackish-brown; head (except ventral surface) uniformly dark brown; pronotum with two paired yellowish-brown spots shortly before middle; metathorax slightly longer than prothorax; basal three fifths of fore tarsus whitish; mid and hind femora with three to four narrow light-colored annuli, widely separated; mid and hind tibiae with three narrow light-colored annuli on basal half; paramere truncated at apex with one apical projection; apical portion of phallosoma not bifid; posterior margin of abdominal sternite VII of female trilobated, tergite VIII wider than long with dorsum flat.

**Distribution.** Philippines: Luzon (WYGODZINSKY 1966).

**Remarks.** This species can be readily recognized by its color pattern and the genital characters of both sexes. The phallus of a paratype deposited in AMNH has been photographed by CASTRO-HUERTAS et al. (2021: fig. S10) and does not need to be reproduced here. A photo of the paramere of the same specimen has also been examined in the present study (V. Castro-Huertas, pers. comm.).

**Discussion**

**Comparative notes.** The non-segmented fore tarsus, the incompletely separated spiracle-bearing area of the male abdominal segment VIII, and the relatively long labial segment II indicate that *I. castroae* sp. nov. belongs to *Ischnobaena*. Several characters of the pygophore, paramere and phallus also support its generic placement. *Ischnobaena castroae* sp. nov. is unique among *Ischnobaena* by its uniformly dark brown fore tarsus, whereas in other congeners it is whitish on its basal part (at least basal third).

*Ischnobaena castroae* sp. nov. can be easily distinguished from *I. macerrima* by its uniform body coloration (vs. the distinctly bicolorous *I. macerrima*). The new species can also be differentiated from the latter by: head with a pair of yellowish-brown spots dorsally behind eyes (vs. uniformly orange-brown in *I. macerrima*); prothorax as long as metathorax (vs. shorter than metathorax in *I. macerrima*); mid and hind tibiae with three narrow, faint, light-colored annuli on basal third (vs. mid tibia with three, hind tibia with two narrow annuli, with the apical-most one much fainter in *I. macerrima*); abdomen with paired yellowish-brown spots on tergites II to VII (vs. without such spots in *I. macerrima*).

*Ischnobaena castroae* sp. nov. can be readily separated from *I. staliana* by its male genital characters. The paramere of *I. castroae* sp. nov. strongly expands ventrally at its midpoint, forming a triangular protrusion (vs. not expanded in *I. staliana*); the apex of the paramere is emarginated in the new species, forming two apical projections, of which the dorsal one is short and round and the ventral one is longer and sharp (vs. apex of paramere truncated with one apical projection in *I. staliana*); the apical portion of the phallosoma is bifid in *I. castroae* sp. nov. (vs. not bifid



in *I. staliana*). Moreover, the posterolateral margin of the male abdominal segment VIII in *I. staliana* is broadly rounded, while in the new species it is more pronounced. *Ischnobaena castroae* sp. nov. can also be distinguished from *I. staliana* by its different color pattern and the equal length of the pro- and metathoraxes.

The markedly different color pattern between *I. castroae* sp. nov. and *I. dohrnii* indicates that they are not conspecific. Since *I. dohrnii* is described by a nymph, its taxonomic status needs to be further evaluated (see the above mentioned remarks).

As *I. macerrima* and the adult of *I. dohrnii* are of doubtful identity in WYGODZINSKY (1966), the key to species provided by him is revised herein. In the revised key below, all the characters of *I. macerrima* are based on its lectotype, and the nymph-based *I. dohrnii* is excluded.

**Systematic position of *Ischnobaena*.** WYGODZINSKY (1966) speculated a close relationship among *Ischnobaena*, *Ischnobaenella* Wygodzinsky, 1966 (Oriental, eight spp.) and *Berlandiana* Villiers, 1949 (Malagasy, nine species). This opinion has been questioned by a recent phylogenetic study of Metapterini, which recovered a sister relationship between *Ischnobaena* and *Bobba* Bergroth, 1914 (Afrotropical, five species) (CASTRO-HUERTAS et al. 2021). Since only one species of *Ischnobaena* was sampled by CASTRO-HUERTAS et al. (2021), more studies are necessary to further elucidate the systematic relationships of this genus.

### Revised key to species of *Ischnobaena* Stål, 1871

- 1 Body distinctly bicolorous, with head, anterior part of prothorax and apex of abdomen orangish-brown, strongly contrasting with the rest of body; mid tibia with three, hind tibia with two, narrow light-colored annuli. .... ***I. macerrima*** Stål, 1871
- Body almost uniformly blackish-brown; mid and hind tibiae with three narrow light-colored annuli. .... 2
- 2 Metathorax as long as prothorax; fore tarsus dark brown; paramere expanded at midpoint, with two projections apically; apical portion of phallosoma bifid. .... ***I. castroae*** sp. nov.
- Metathorax longer than prothorax; fore tarsus with basal three fifths whitish; paramere truncated apically with one projection; apical portion of phallosoma not bifid. .... ***I. staliana*** Wygodzinsky, 1966

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