Zootaxa 3709 (2): 134–148
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3709.2.2
http://zoobank.org/urn:lsid:zoobank.org:pub:5FEF432E-5363-46C4-885F-3E402123A9A6

The Oriental lanternfly genus *Scamandra*: new species and taxonomical notes (Hemiptera: Fulgoromorpha: Fulgoridae)

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Abstract

Three new species and one new subspecies are described: *Scamandra lumawigi* **sp. n.** (Luzon, Philippines), *S. huangi* **sp. n.** (Taliabu Island off Sulawesi), *S. vanvyvei* **sp. n.** (Sulawesi) and *S. vanvyvei pelengana* **ssp. n.** (Peleng Island off Sulawesi). The status of *Scamandra mucorea* Gerstaecker, 1895 is revised and the species is no more considered a subspecies of *S. hermione* Stål, 1864. The new name *Scamandra stanjakli* Constant, 2013 is proposed to replace *S. jakli* Chew Kea Foo et al., 2010 which is a junior homonym of *S. jakli* Rolcík, 2008. Male genitalia are illustrated for *S. huangi*, *S. hermione*, *S. lumawigi*, *S. mucorea* and *S. jakli*. Habitus illustrations are provided for all species except *S. stanjakli*. New distribution records are given for *S. mucorea* and S. *stanjakli*.

Key words: taxonomy, lanternbug, Aphaeninae, planthoppers

Introduction

The genus *Scamandra* was described by Stål (1863) to accommodate *Aphana rosea* Guérin-Méneville, 1834 (Sumatra and Java) and 3 other species: *S. hecuba* Stål, 1863 (Malaysia), *S. semele* Stål, 1863 (Malaysia) and *S. lachesis* Stål, 1863 (Philippines). Gradually species were added and 21 species and 4 subspecies are presently recorded in the genus, distributed from Peninsular Malaysia to the Philippines and Sulawesi and neighbouring islands (Metcalf, 1947; Lallemand, 1963; Nagai & Porion 1996, 2002 and 2004; Rolcík, 2008; Chew Kea Foo et al., 2010). The genus is placed in the Aphaenini Distant, 1906 of the Aphaeninae Blanchard, 1847 (Metcalf, 1947).

In the process of identifying recent material of Fulgoridae from SE Asia, three new species and one new subspecies of *Scamandra* Stål, 1863 have been found: *Scamandra lumawigi* sp. n. (Luzon, Philippines), *S. huangi* sp. n. (Taliabu Island off Sulawesi), *S. vanvyvei* sp. n. (Sulawesi) and *S. vanvyvei pelengana* ssp. n. (Peleng Island off Sulawesi). It also appeared obvious that some taxonomical changes have to be proposed within the genus: *Scamandra mucorea* Gerstaecker, 1895 is a good species and not a subspecies of *S. hermione* Stål, 1864, and the new name *S. stanjakli* Constant, 2013 is proposed to replace *S. jakli* Chew Kea Foo et al., 2010 which is a junior homonym of *S. jakli* Rolcík, 2008. The genus *Scamandra* now contains 25 species and 4 subspecies.

A set of characters allowing easy recognition is given for each species treated in the present paper. More taxonomic work is necessary on the genus, especially within the species from the Greater Sunda, Philippines and Sulawesi, before any identification key can be proposed.

Material and methods

The type specimens or photos of the types of all species mentioned have been examined.

The genitalia were extracted after boiling the abdomen or its last segments for about one hour in a 10% solution of potassium hydroxide (KOH) at about 100°C. The pygofer was separated from the remains of the abdomen and after examination in ethanol, the whole placed in glycerine for preservation. Observations were done with a Leica MZ8 stereomicroscope. Pictures were taken with a Canon EOS 300 D camera with Sigma DG Macro lens and optimized with Photoshop CS3.

 Accepted by A. Stroinski: 6 Jun. 2013; published: 4 Sept. 2013

The genitalia as well as other characters useful for identification are figured. A distribution map was produced by the software *CFF 2.0* (Barbier & Rasmont 2000).

For the labels of the types, the wording on each single label is limited by square brackets. The type specimens of the new species here described bear a red manuscript label of the following type: [Holotype / Paratype ♂ / ♀ *Genus species* n. sp. Jérôme Constant det. 2013]. The etymology of the scientific names is given.

The measurements were taken as in Constant (2004), except for those of the vertex which were taken as illustrated in Fig. 1, and the following acronyms are used: BF—breadth of the frons, BT—breadth of the thorax, BTg—breadth of the tegmen, BV—breadth of the vertex, LF—length of the frons, LM—length of the mesonotum, LP—length of the pronotum, LT—total length, LTg—length of the tegmen, LV—length of the vertex.

The definition of the genus *Scamandra* given by Lallemand (1963) is here followed.

Acronyms used for the collections (name of the curator in parentheses)

BMNH	The Natural History Museum, London, United Kingdom (Mick Webb)
CAS	California Academy of Sciences, San Francisco, USA (Norman D. Penny)
CAVV	collection Alain van Vyve
FSAG	Faculté des Sciences agronomiques de Gembloux, Gembloux, Belgium (Eric Haubruge)
MHNL	Muséum d'Histoire Naturelle de Lyon, France (Cédric Audibert)
NHRS	Naturhistoriska riksmuseet, Stockholm, Sweden (Gunvi Lindberg)
OUMNH	Hope Entomological Collections, Oxford University Museum of Natural History, Oxford, United Kingdom (D. Mann & Z. Simons).
RBINS	Royal Belgian Institute of Natural Sciences, Brussels, Belgium (Wouter Dekoninck)
RMNH	Nationaal Natuurhistorisch Museum (Naturalis), Leiden, The Netherlands (Yvonne van Nierop)
ZIMG	Zoologisches Institut und Museum Greifswald, Greifswald, Germany (Peter Michalik)

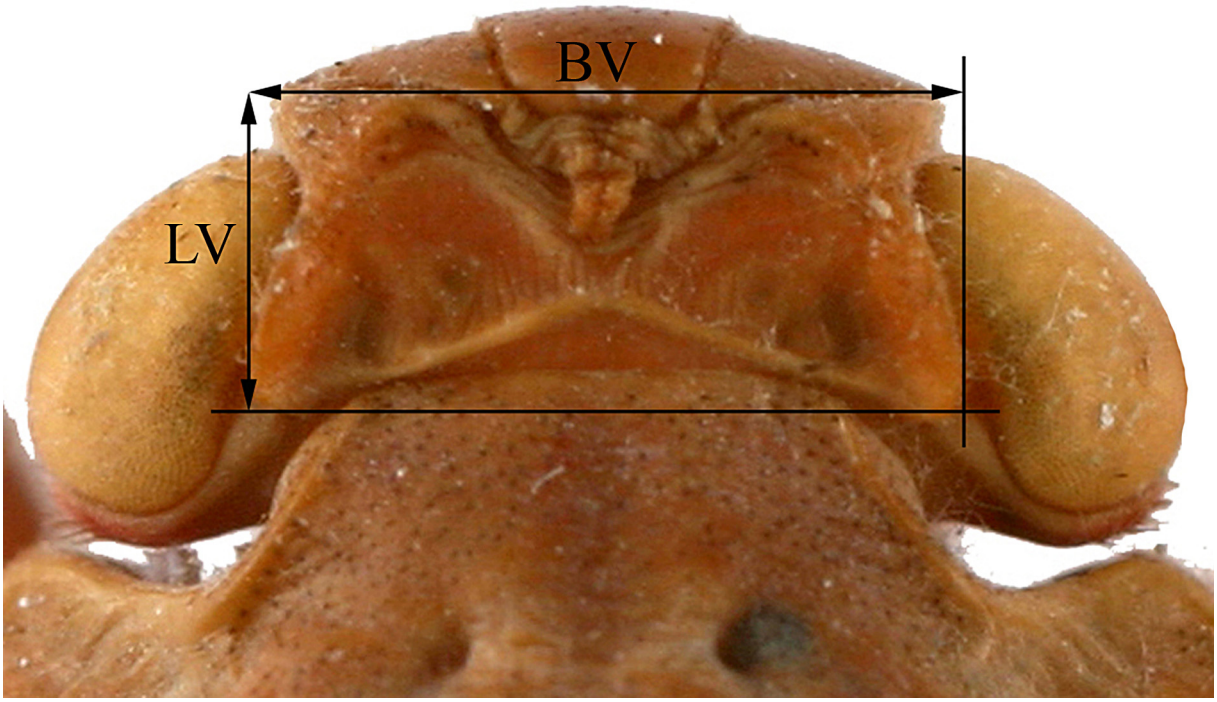


FIGURE 1. Measurements of the vertex.

Taxonomy

Family Fulgoridae Latreille, 1807

Subfamily Aphaeninae Blanchard, 1847

Tribe Aphaenini Distant, 1906

Genus *Scamandra* Stål, 1863

Type-species: *Scamandra rosea* (Guérin-Méneville, 1834).
Note. Sexual dimorphism: males 15–25 % smaller than females.

Distribution. Oriental region, from Peninsular Malaysia to Sulawesi and Flores, including Greater and Lesser Sunda Islands and the Philippines.

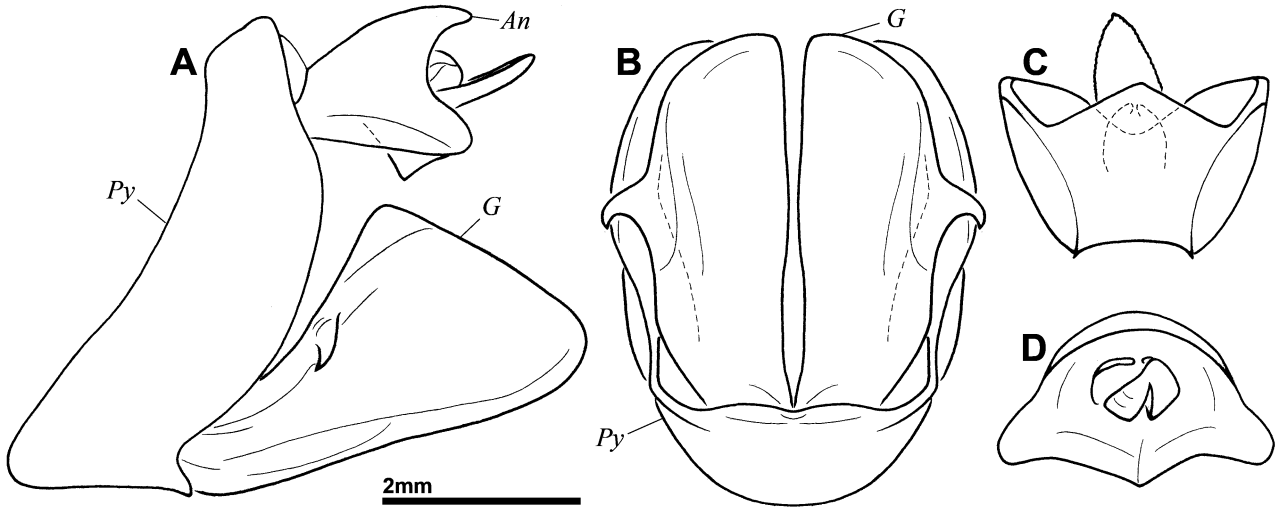
***Scamandra huangi* sp. n.**
Figs 2A–D; 7A–E; 16.

Etymology. The species is dedicated to Mr. Fang-Ying Huang (Chia-yi city , Taiwan) who provided the first specimens of this new species.

Type material. Holotype, ♂ (dissected, genitalia in glycerine on the same pin): [Coll. I.R.Sc.N.B., Indonesia, Taliabu Island, i.2008, I.G.: 31.318] (RBINS).
Paratypes (25): 5 ♀: same data as holotype (RBINS); 1 ♂: [Coll. I.R.Sc.N.B., Indonesia, Taliabu Isl., v.2006, purchased from A. Chaminade, I.G.: 31.400] (RBINS); 1 ♀: [Coll. I.R.Sc.N.B., Indonesia, Taliabu Isl., iv.2008, purchased from A. van Vyve, I.G.: 31.502] (RBINS); 1 ♀: idem, x.2005 (RBINS); 1 ♂: idem, ii.2007 (RBINS); 1 ♂: idem, xii.2006 (RBINS); 1 ♂: idem, vii.2006 (RBINS); 1 ♂: idem, v.2006 (RBINS); 3 ♂, 7 ♀: [Taliabu Isl., Indonésie, 1.05, Coll. Thierry Porion] (MHNL); 1 ♂, 1 ♀: [Taliabu, Jan. 05] (MHNL); 1 ♀: idem, xii.2006 (MHNL). Coordinates of Taliabu Island: 1°48'S 124°48'E

Additional material examined. 1 ♂: Indonesia, Taliabu Isl., ii.2006 (CAVV); 1 ♀: idem, iv.2008 (CAVV); 1 ♀: idem, x.2005 (CAVV).

Diagnostic characters. (1) disc of frons and mesonotum dark black-brown (Fig. 7 C–D); (2) nodal line of tegmina C-shaped in middle (Fig. 7 A, E); (3) hind wings with anal and sutural zones red (Fig. 7 A); (4) femora black-brown (Fig. 7 B).



FIGURES 2A–D. *Scamandra huangi*, male genitalia. A. pygofer, anal tube and gonostylus, left lateral view; B. gonostyli and pygofer, postero-ventral view; C. anal tube, dorsal view; D anal tube, posterior view.

Description. LT: ♂ (n = 7): 29.0 mm (28.5–29.6); ♀: (n = 9): 35.9 mm (34.0–38.8).

HEAD. Yellow-brown to red-brown, with frons black-brown except sides, clypeus dark brown and labium brown. Cephalic process not reaching posterior margin of vertex; vertex short, with disc wrinkled, and lateral and

posterior margins carinate; frons coriaceous with short hairs and 3 longitudinal carinae distinct only on dorsal half (Figs 7 C–D); labium surpassing hind trochanters (Fig. 7 B); pedicel of antennae kidney-shaped with flagellum inserted dorso-laterally; ratio BV/LV: 3.7; BF/LF: 1.04.

THORAX. pronotum yellow-brown to red-brown as head, with short hairs, 2 impressed points on disc and numerous minute black points; median carina obsolete, barely distinct (Fig. 7 C); lateral pleura of pronotum largely black-brown (Fig. 7 D); mesonotum red-brown with disc black-brown, without carina (Fig. 7 C); ratio BT/LP + LM: 1.16; LM/LP: 1.72.

Tegmina olivaceous to olivaceous-brown with membrane yellow-brown; dorsally base red-brown, costal margin green in middle, narrow, yellow curved transverse band at half length, yellow spot at base of vein M and sometimes small yellow spots along sutural margin of clavus; limit between corium and clavus strongly bisinuate with large brown to black C-shaped marking in middle (Fig. 7 A); ventrally, corium dark red-brown with base red and membrane red-brown, one spot and one transverse band of white wax at level of dorsal yellow markings (Fig. 7 B); ratio LTg/BTg: 2.32.

Hind wings: ventrally and dorsally disc dark red-brown with turquoise veinlets, base and anal margin broadly bright red, membrane brown (Figs. 7 A–B).

Legs: dark red-brown with femora darker, black-brown; anterior femora inflated apically; hind tibiae with 4–5 lateral spines, basal one well developed, and 7 apical spines (Figs. 7 A–B).

Abdomen: red (Figs. 7 A–B).

MALE GENITALIA. Pygofer 2.9 times higher than long in middle in lateral view, with posterior margin slightly sinuate on dorsal ¼ (Fig. 2 A); anal tube short, transverse, about 1.5 times broader than long in dorsal view, and slightly more than twice broader at apex than at base; sides sligtly rounded, apical margin pointed in middle dorsally, projecting downwards ventrally, strongly roundly emarginate in lateral view (Figs. 2 C, D); gonostyli longer than high in lateral view, subtriangular with apical margin rounded (Fig. 2 A); latero-dorsal tooth of gonostyli projecting latero-ventrally (Figs. 2 A, B).

***Scamandra lumawigi* sp. n.**

Figs 3A–C; 8A–E; 16.

Etymology. The species is dedicated to Mr Ismael Lumawig (Philippines) who provided the specimens.

Type material. Holotype, ♂: [Coll. I.R.Sc.N.B., Philippines, E Luzon, Sierra Madre, Aurora, ix.2007, achat I. & M. Lumawig, I.G. 30.887] (RBINS).

Paratypes (8): 1 ♂, 6 ♀: same data (RBINS). Coordinates of Aurora: 16°20'N 122°00'E; 1 ♀: [Philippines, N. Luzon, Sierra Madre, Quirino, viii.2008] (MHNL). Coordinates of Quirino: 16°17'N 121°35'E.

Diagnostic characters. (1) disc of hind wings red without white along sutural margin and with small white markings along claval fold (Fig. 8 A); (2) tegmina red with white waxy markings (Fig. 8 A); (3) legs red (Fig. 8 B); (4) large sized: more than 30 mm in ♂ and more than 38 mm in ♀.

Distribution. Known only from the Philippines.

Description. LT: ♂ (n = 2): 31.35 mm (31.3–31.4); ♀: (n = 6): 38.8 mm (38.5–39.3).

HEAD. Yellow-brown, with labium red; cephalic process not reaching posterior margin of vertex; disc of vertex wrinkled with lateral and posterior margins carinate; frons with 3 longitudinal carinae, median one sharper (Figs. 8 C–D); labium surpassing hind trochanters (Figs. 8 B); pedicel of antennae kidney-shaped with flagellum inserted dorso-laterally; ratio BV/LV: 2.24; BF/LF: 1.06.

THORAX. Pronotum yellow-brown as head, with 2 impressed points on disc and numerous minute black points; median carina obsolete, barely distinct; mesonotum red-brown, without carina (Fig. 8 C); ratio BT/LP + LM: 1.26; LM/LP: 1.63.

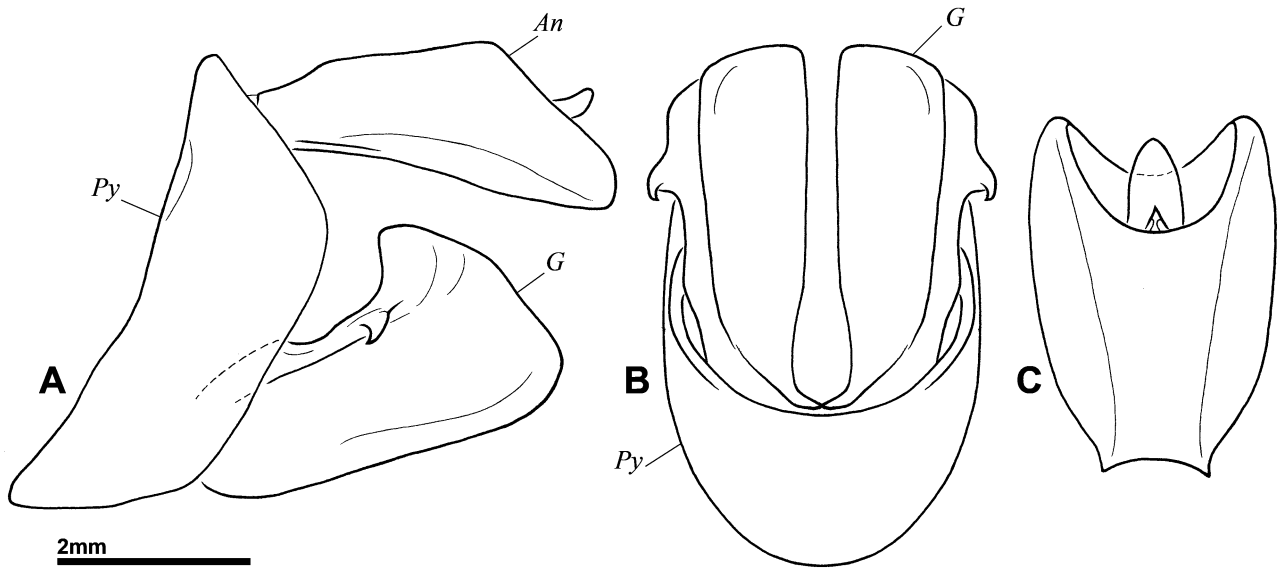
Tegmina: red with membrane yellow-brown; dorsally disc and costal cell covered with white wax except 2 oblique bands on disc, basal one sometimes reduced to coalescent spots; membrane with broad B-shaped white waxy marking dorsally and ventrally (Figs. 8 A, B); ventrally, white waxy marking basally and disc red without waxy markings (Fig. 8 B); ratio LTg/BTg: 2.38.

Hind wings: ventrally and dorsally bright red with base covered with white wax and membrane yellow-brown; sutural margin narrowly white in median third; 2 rows of small, narrow, transverse white markings along claval fold; membrane with broad white waxy marking subparallel to apical margin (Figs. 8. A, B).

Legs: entirely red; anterior femora slightly inflated apically; hind tibiae with 4 lateral spines, basal one small, and 7 apical spines (Figs. 8. A, B).

Abdomen: yellow-brown (Figs. 8. A, B).

MALE GENITALIA. Pygofer 2.75 times higher than long in lateral view, with posterior margin obliquely emarginate on dorsal ¼ (Fig. 3 A); anal tube elongate, about 1.5 times longer than broad in dorsal view; sides sligtly rounded and sinuate near base, apical margin roundly emarginate dorsally and ventrally, more strongly so dorsally (Fig. 3 C); gonostyli longer than high in lateral view, with dorsal margin strongly produced dorsad near apex; process rounded apically (Fig. 3 B); latero-dorsal tooth of gonostyli projecting latero-ventrally (Fig. 3 B–C).



FIGURES 3A–C. *Scamandra lumawigi*, male genitalia. A. pygofer, anal tube and gonostylus, left lateral view; B. gonostyli and pygofer, postero-ventral view; C. anal tube, dorsal view.

***Scamandra vanvyvei* sp. n.**
Figs 9A–E; 16.

Etymology. The species is dedicated to Mr Alain van Vyve (France) who provided the first specimens.

Type material. Holotype, ♀: [Coll. I.R.Sc.N.B., Indonesia, C E Sulawesi, Luwuk, iv.2008, Purchased from A. van Vyve, I.G.: 31.502] (RBINS).

Paratypes (19): 1 ♀: same data, xii.2007 (RBINS); 8 ♀: [Coll. I.R.Sc.N.B., Indonesia, E Sulawesi, Luwuk, vi.2007, exchange S. Jakl, I.G.: 31.970] (RBINS); 8 ♀: [Indonesie, E-Sulawesi, Luwuk, 2/09] (MHNL); 1 ♀: [Luwuk, 3.07, C.E. Sulawesi] (MHNL); 1♀: [Luwuk, E-Sulawesi, 3/07] (MHNL). Coordinates of Luwuk: 0°55'48.32"S 122°47'45.96"E.

Additional material examined. 2 ♀: C E Sulawesi, Luwuk, ii.2008 (CAVV); 1 ♀: idem, iv.2008 (CAVV); 1 ♀: idem, xii.2007 (CAVV).

Diagnostic characters. (1) Tegmina dark green on corium and with a C-shaped black marking on nodal line (Fig. 9 A); (2) hind wings with apex and sutural margin black-brown (Fig. 9 A); (3) numerous veinlets visible on hind wings, suffused with blue-green on disc (Fig. 9 A); (4) all legs red (Fig. 9 B).

Distribution. Known from Sulawesi.

Description. LT: ♀: (n = 14): 30.8 mm (28.9–32.1).

HEAD. Red; cephalic process reaching or nearly reaching posterior margin of vertex; disc of vertex wrinkled with lateral and posterior margins carinate; frons coriaceous, covered with short golden hairs and with 2 longitudinal obsolete carinae on dorsal half, barely visible (Figs. 9 C–D); labium surpassing hind trochanters (Fig. 9 B); pedicel of antennae kidney-shaped with flagellum inserted dorso-laterally; ratio BV/LV: 4.0; BF/LF: 1.06.

THORAX. Pro- and mesonotum red as head; pronotum with 2 impressed points on disc and numerous minute black points; median carina obsolete, barely distinct; mesonotum wrinkled without carina (Figs. 9 C–D); ratio BT/LP + LM: 1.16; LM/LP: 1.94.

Tegmina: dark green with base of corium red and curved yellow band at mid-length, not extending beyong costal vein; irregular yellow markings along sutural margin of clavus; nodal line with C-shaped black marking in middle; membrane dark brown-black with veins white and green and base whitish; pale whitish spot along sutural margin, after clavus (Fig. 9 A); ventrally coloured like dorsally except band of white waxy at level of dorsal yellow markings, and narrow band of white wax along nodal line (Fig. 9 B); ratio LTg/BTg: 2.01.

Hind wings: base red; disc dark olivaceous green; membrane and sutural third dark brown-black; veinlets blue-green on disc and white-green on brown-black parts (Fig. 9 A); ventrally, a narrow band of white wax between disc and membrane (Fig. 9 B).

Legs: entirely red; anterior femora very slightly inflated apically; hind tibiae with 5 lateral spines, basal one big and sharp, and 7 apical spines (Fig. 9 B).

Abdomen: yellow-orange with external genitalia red (Figs. 9 A, B).

***Scamandra vanvyvei pelengana* ssp. n.**
Figs 10A–E; 16.

Etymology. The name of the subspecies refers to its *locus typicus*: Peleng Island off Sulawesi.

Type material. Holotype, ♀: [Coll. I.R.Sc.N.B., Indonesia, Peleng Island, xi.2008, I.G.: 31.318] (RBINS). Paratypes: 2 ♀: same data (RBINS). Coordinates of Peleng Island: 1°24′S 123°10′E

Diagnostic characters. (1) Tegmina mainly brown on corium and with a C-shaped black marking on nodal line (Fig. 10 A); (2) hind wings with apex and sutural margin black-brown (Fig. 10 A); (3) numerous veinlets visible on hind wings, suffused with white or blue-green on disc (Fig. 10 A); (4) all legs red (Fig. 10 B).

Distribution. Known from Peleng Island of Sulawesi.

Description. LT: ♀: (n = 3): 30.3 mm (30.0–30.5).

HEAD. Red; cephalic process reaching or nearly reaching posterior margin of vertex; disc of vertex wrinkled with lateral and posterior margins carinate; frons coriaceous, covered with short golden hairs and with 2 longitudinal obsolete carinae on dorsal half, barely visible (Figs. 10 C–D); labium surpassing hind trochanters (Fig. 10 B); pedicel of antennae kidney-shaped with flagellum inserted dorso-laterally; ratio BV/LV: 4.0; BF/LF: 1.05.

THORAX. Pro- and mesonotum red as head; pronotum with 2 impressed points on disc and numerous minute black points; median carina obsolete, barely distinct; mesonotum wrinkled without carina (Figs. 10 C, D); ratio BT/LP + LM: 1.23; LM/LP: 1.59.

Tegmina: brown with base of corium red and curved yellow band at mid-length, not extending beyong costal vein; irregular yellow markings along sutural margin of clavus; nodal line with C-shaped black marking in middle; sometimes greenish markings between yellow band and C-shaped marking, and on clavus; membrane dark brown-black with veins white and green and base whitish; pale whitish spot along sutural margin, after clavus (Fig. 10 A); ventrally coloured like dorsally except band of white waxy at level of dorsal yellow markings, and narrow band of white wax along nodal line (Fig. 10 B); ratio LTg/BTg: 2.12.

Hind wings: base red; disc dark olivaceous green or dark brown; membrane and sutural third dark brown-black; veinlets blue-green on disc and white-green on brown-black parts (Fig. 10 A); ventrally, a narrow band of white wax between disc and membrane (Fig. 10 B).

Legs: entirely red; anterior femora very slightly inflated apically; hind tibiae with 5 lateral spines, basal one big and sharp, and 7 apical spines (Fig. 10 B).

Abdomen: yellow-orange with external genitalia red (Figs 10 A–B).

***Scamandra hermione* Stål, 1864**
Figs 4A–C, 11A–E, 14, 16.

Scamandra hermione Stål, 1864: 62 [Type locality: Manilla, Philippines].

Type material. Holotype, ♂ (dissected, genitalia in glycerine): [Manilla] [Thorey] [Scamandra Hermione Stål] [372, 61] [Allotypus] [NHRS-HEMI 000000214] (NHRS).

Additional material examined: 2 ♂, 2 ♀: Philippines, Luzon, Laguna prov., Barangay Prinza, Summit Hill, 12°12’43.5”N 121°32’19.1”E, 15.iv.2011, leg. J. Bresseel (RBINS); 1 ♀: Philippines, Luzon, Quezon N.P.,

Pinagbanderahan trail, Atimonan, 12.iv.2011, leg. J. Bresseel & N. Bellemans (RBINS); 1 ♂: Philippines, Luzon, Mt Makiling, Baker (FSAG); 1 ♂: Philippines, Manilla (FSAG); 1 ♂: idem (OUMNH).

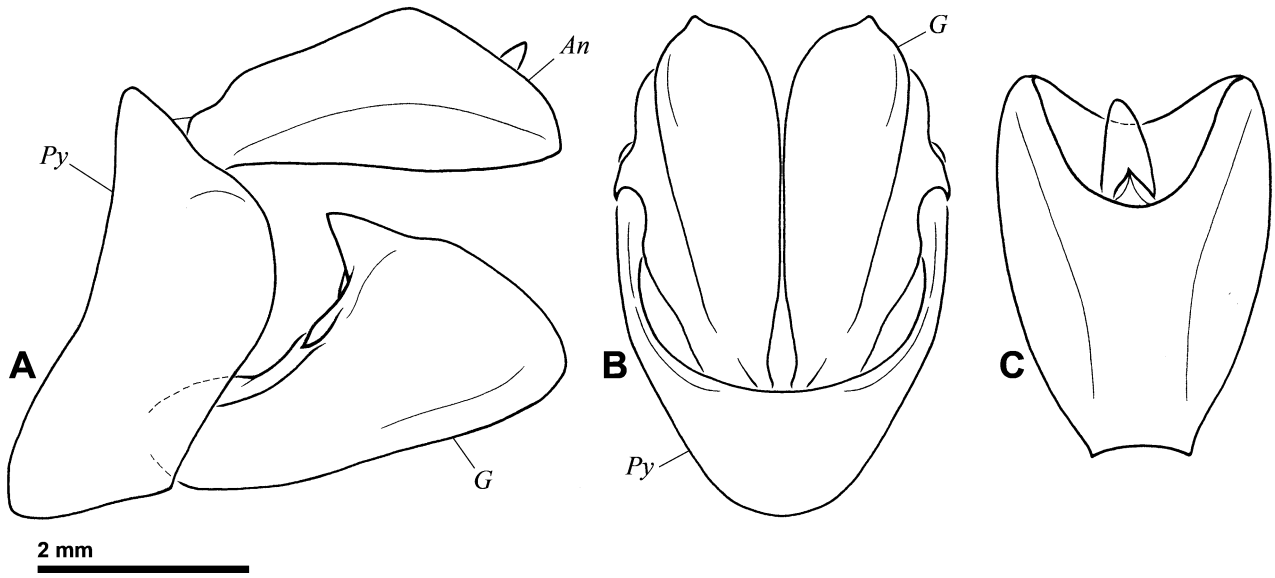
Note. In the NHRS collections, another specimen erroneously bears a label [Typus]. That specimen is not a type because Stål (1864) based his description on a single male from Manilla, and this specimen is a female from "Ins. Philipp." collected by Semper.

Diagnostic characters. (1) Tegmina red-brown with nodal line straight at 2/3 of length (Fig. 11 A); (2) hind wings with square-shaped bright orange marking on disc and narrow white lines along claval fold, anal and sutural margins broadly bordered with white and apical 1/3 brown (Fig. 11 A); (3) all legs orange (Fig. 11 B).

Distribution. Known from the Philippines (Luzon).

Description. Measurements: LT: ♂ (n = 3): 27.0 mm (26.0–28.0); ♀ (n = 3): 31.6 mm (30.9–32.1); ratio BV/LV: 2.29; BF/LF: 0.86; LTg/BTg: 2.38.

MALE GENITALIA. Pygofer 2.15 times higher than long in lateral view, with posterior margin obliquely emarginate on dorsal ¼ and rounded in middle (Fig. 4 A); anal tube elongate, about 1.4 times longer than broad in dorsal view; sides rounded and slightly sinuate basally, apical margin roundly emarginate dorsally and ventrally, more strongly so dorsally (Fig. 4 C); gonostyli longer than high in lateral view, with dorsal margin strongly produced dorsad near apex; process pointed (Fig. 4 A); latero-dorsal tooth of gonostyli projecting laterally (Figs. 4 A, B).



FIGURES 4A–C. *Scamandra hermione*, male genitalia. A. pygofer, anal tube and gonostylus, left lateral view; B. gonostyli and pygofer, postero-ventral view; C. anal tube, dorsal view.

Scamandra mucorea Gerstaecker, 1895 stat. rev.

Figs 5A–C, 12A–E, 13, 16.

Scamandra mucorea Gerstaecker, 1895: 23 [Type locality: Palawan].
Scamandra hermione mucorea Gerstaecker, 1895: Nagai & Porion, 1996: 17.

Note. After examination of pictures of the type and of specimens of *S. mucorea* from Palawan, and of the holotype and of specimens of *S. hermione* Stål, 1864, and examination of male genitalia of both species, it appears that *S. mucorea* is a distinct species.

Type material. Holotype, ♀ (on photograph): [Scamandra mucorea Gerst.*, Palawan, Sédgo. *(?)*] [Zool. Mus. Greifswald, II 27384a] (ZIMG).

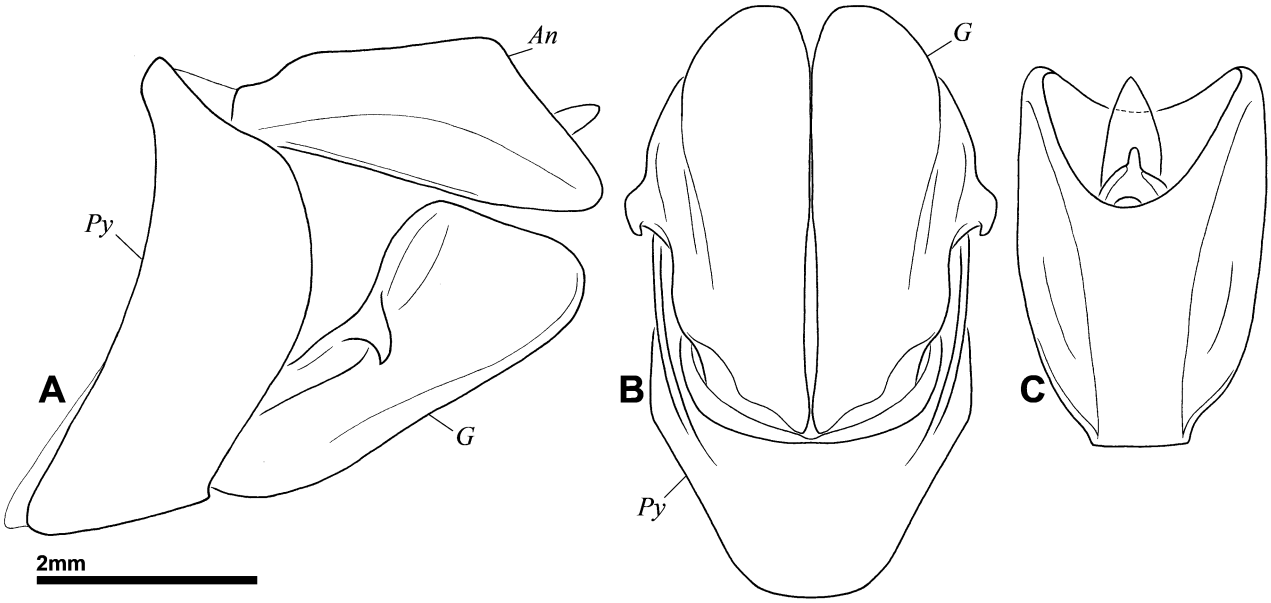
Additional material examined: 2 ♀: Palawan, Brooke's Point, 1.vii.1980, 325m, R.B. Rodriguez (RMNH); 1 ♀: Palawan, Brooke's Point, 26.x.1980 (RBINS); 2 ♂: Palawan, N of Narra, W of Dumanguena, 4.ix.1970, forest on river, J.E. Tobler (CAS, RBINS); 1 ♂: idem, 7.ix.1970 (CAS); 3 ♀: Palawan (FSAG); 1 ♀ (on photograph): no data (ZIMG); 1 ♀: Mindoro, Mt Halcon, vii.2008 (MHNL).

Diagnostic characters. (1) tegmina rosy-brown with nodal line strongly curved and marked with bright red before 1/2 of length (Fig. 12 A); (2) tegmina with crescent-shaped white marking along anterior margin of nodal line (Fig. 12 A); (3) hind wings with square-shaped bright orange marking on disc and narrow white lines along claval fold, anal and sutural margins broadly bordered with white and apical 1/3 brown (Fig. 12 A); (4) all legs orange (Fig. 12 B).

Distribution. Known from Palawan and Mindoro Islands (Philippines). The data from Mindoro needs confirmation.

Description. Measurements: LT: ♂ (n = 2): 26.1 mm (26.0-26.3), wingspan (n = 1): 48.8 mm; ♀ (n = 2): 34.5 mm (34.0–35.0); ratio BV/LV: 2.34; BF/LF: 1.01; LTg/BTg: 2.32.

MALE GENITALIA. Pygofer 2.25 times higher than long in lateral view, with posterior margin slightly sinuate and obliquely emarginate on dorsal ¼ (Fig. 5 A); anal tube elongate, about 1.5 times longer than broad in dorsal view; sides subparallel on posterior 2/3 and rounded and slightly sinuate near base, apical margin roundly emarginate dorsally and ventrally, more strongly so dorsally (Fig. 5 C); gonostyli elongate in lateral view, with dorsal margin sinuate (Fig. 5 A); latero-dorsal tooth of gonostyli projecting latero-ventrally (Figs. 5 A, B).



FIGURES 5A–C. *Scamandra mucorea*, male genitalia. A. pygofer, anal tube and gonostylus, left lateral view; B. Gonostyli and pygofer, postero-ventral view; C. anal tube, dorsal view.

Scamandra jakli Rolcík, 2008

Figs 6A–C, 15A–E, 16.

Scamandra jakli Rolcík, 2008: 56 [Type-locality: Indonesia: Mentawai archipelago, Siberut Island]

Material examined. 1 ♂, 1 ♀: Mentawai, S Siberut Island, Salappa village, ii.2007, S. Jakl, 50-100m, exchange S. Jakl (RBINS); 2 ♂: Mentawai, Siberut Island, ii.2007, purchased from A. van Vyve (RBINS); 2 ♀: Mentawai, Siberut Island, xi.2008 (RBINS); 1 ♂, 2 ♀: Mentawai, S Siberut Island, Salappa village, x.2006, 50–100m, leg. S. Jakl (MHNL); 2 ♂, 2 ♀: Mentawai, Siberut Island, ii.2005 (MHNL); 1 ♀: idem, i.2005 (MHNL) 1 ♂: Mentawai, Sipora Island, 31.x.1924, H.H. Karny,ex FMS Museum (BMNH); 2 ♂: Mentawai, Sipora Island, x.1924, B.K. and N., ex FMS Museum (BMNH); 1 ♀: Mentawai, Sipora Island, ii.2006, 20 m, S. Jakl (MHNL); 1 ♂: Mentawai, Pagai Island, viii.2009, exchange S. Jakl (RBINS); 1 ♂: idem, vi.2009 (RBINS); 1 ♂: Mentawai, Pagai Island, vi.2009 (MHNL); 1 ♀: idem, iv.2009 (MHNL).

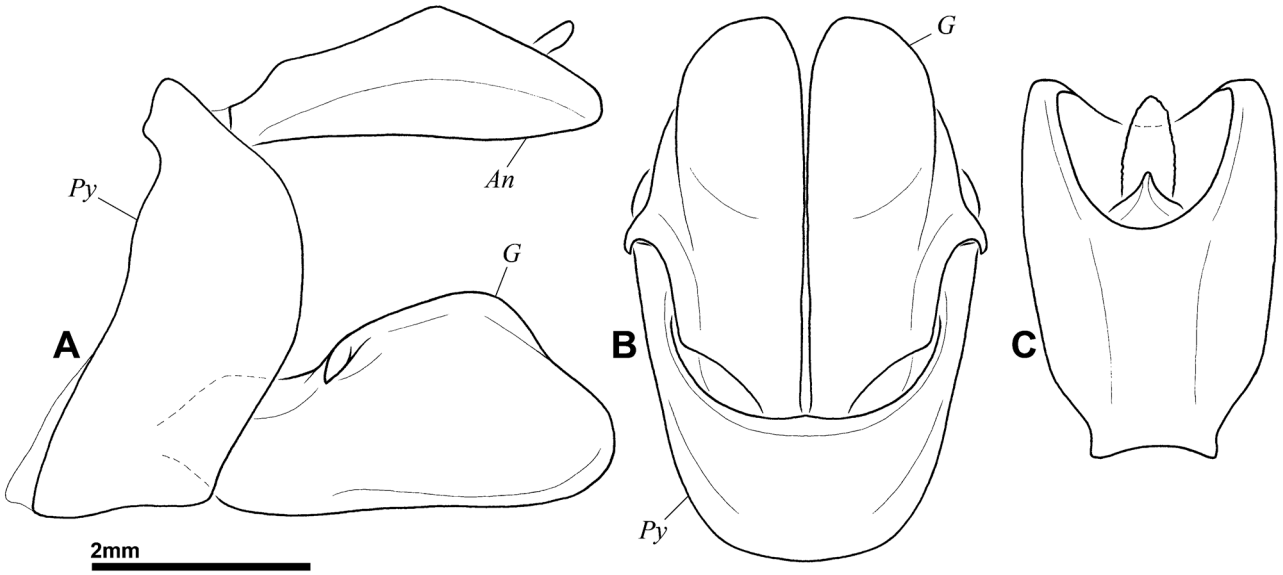
Diagnostic characters. (1) Fore wings brownish red with nodal line bisinuate and apical third brown (Fig. 15 A); (2) hind wings red with apical third brown and without white along sutural margin (Fig. 15 A); (3) all legs red (Fig. 15 B); (4) medium sized: 24–26 mm in ♂ and 32–34 mm in ♀.

Note. The species is much closer to *S. undulata* Lallemand, 1959 described from Pulau Babi in the Mentawai archipelago, than to *S. hecuba* Stål, 1863 (Sumatra) and *S. semele* Stål, 1863 (Malaysia) as stated by Rolcík (2008). The hind wings of *S. undulata* are white along sutural margin.

Distribution. Known from Siberut, Sipora and Pagai Islands in Mentawai archipelago, off West Sumatra. Sipora and Pagai Islands are new records for the species.

Description. Measurements: LT: ♂ (n = 8): 25.2 mm (24.8–25.9); ♀(n = 3): 32.9 mm (32.6–33.3); ratio BV/LV: 2.6; BF/LF: 1.01; LTg/BTg: 2.32.

MALE GENITALIA. Pygofer 2.2 times higher than long in lateral view, with posterior margin slightly sinuate and obliquely emarginate on dorsal ¼ (Fig. 6 A); anal tube elongate, about 1.5 times longer than broad in dorsal view; sides subparallel, sligtly rounded and sinuate near base, apical margin roundly emarginate dorsally and ventrally, more strongly so dorsally (Fig. 6 C); gonostyli longer than high in lateral view, with dorsal and apical margins sinuate (Fig. 6 A); latero-dorsal tooth of gonostyli projecting latero-ventrally (Figs. 6 A, B).



FIGURES 6A–C. *Scamandra jakli*, male genitalia. A. pygofer, anal tube and gonostylus, left lateral view; B. gonostyli and pygofer, postero-ventral view; C. anal tube, dorsal view.

***Scamandra stanjakli* nom. nov.**
Fig. 16.

Scamandra jakli Chew Kea Foo, Porion & Audibert, 2010: 57 *nec S. jakli* Rolcík, 2008.

Type material. Holotype, ♀: [Sumpol, 2.08, S. Kalimantan] [Indonésie, S. Kalimantan, Sumpol, Feb. 2008, S. Jakl leg.] [Scamandra jakli n.sp. S. Chew et T. Porion 2009, Holotype mâle] (MHNL).

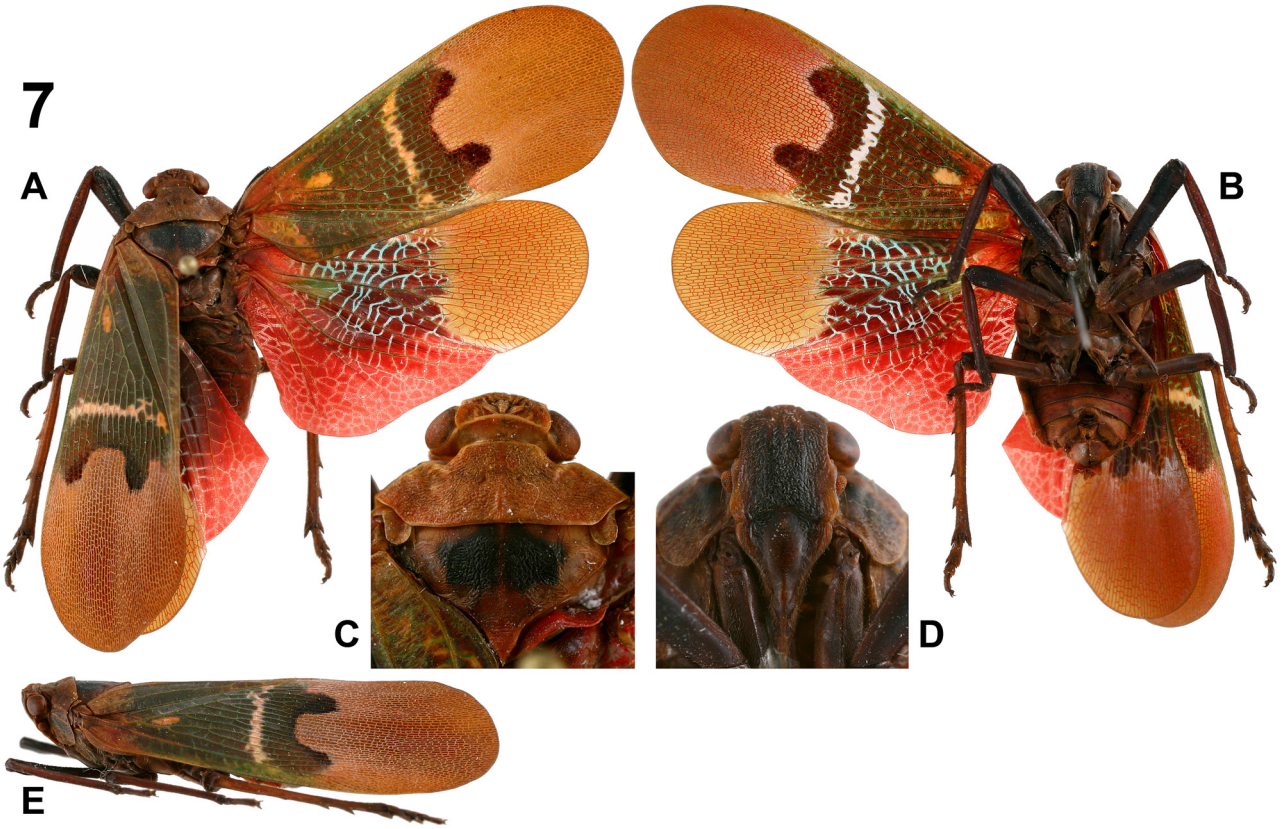
Note. The type was described as a male in Chew Kea Foo & al (2010) but is actually a female.

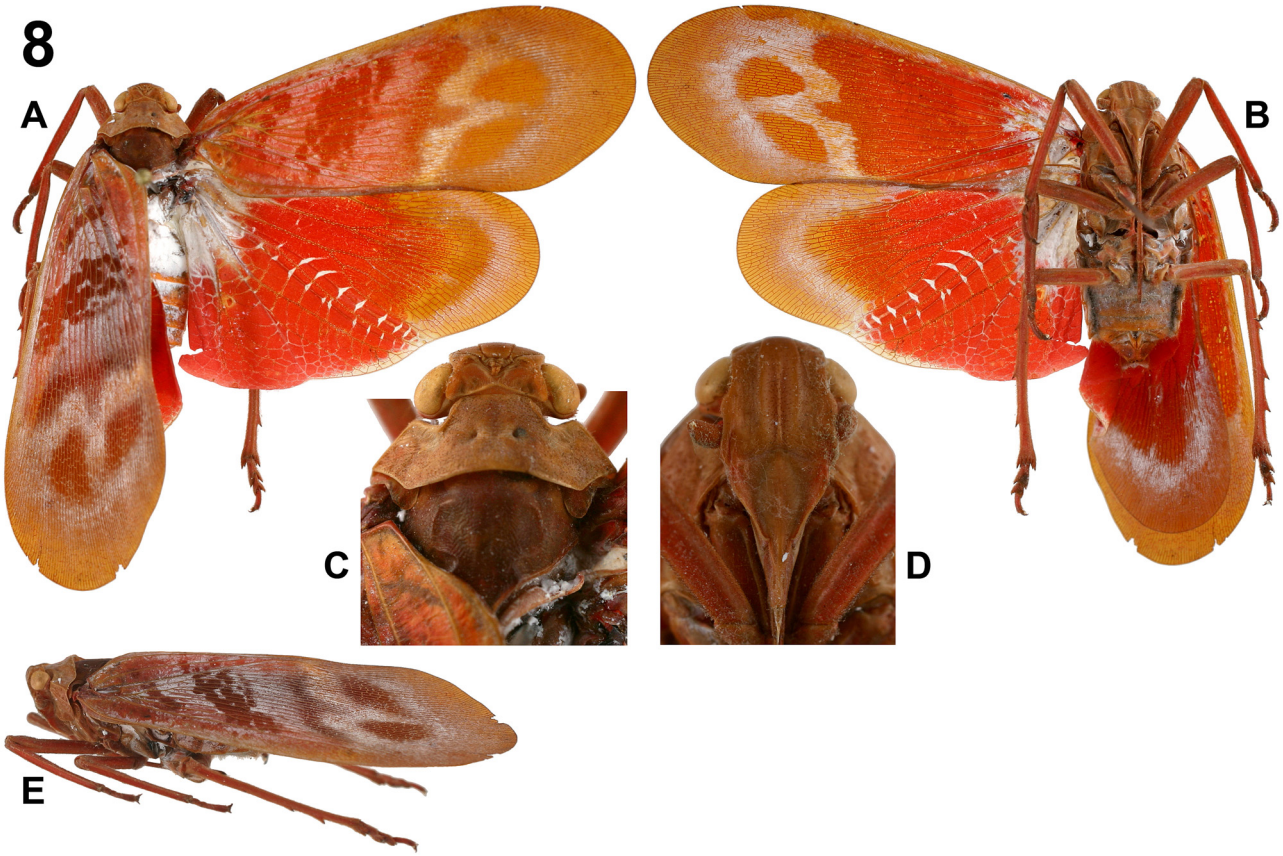
Diagnostic characters. (1) Ground colour of tegmina olivaceous green; (2) basal 2/3 of hind wings bright orange with numerous black-brown spots and without white margin; (3) all legs brown; (4) apex of tegmina subquadrate.

Distribution. Known from Indonesia, Borneo: South Kalimantan.

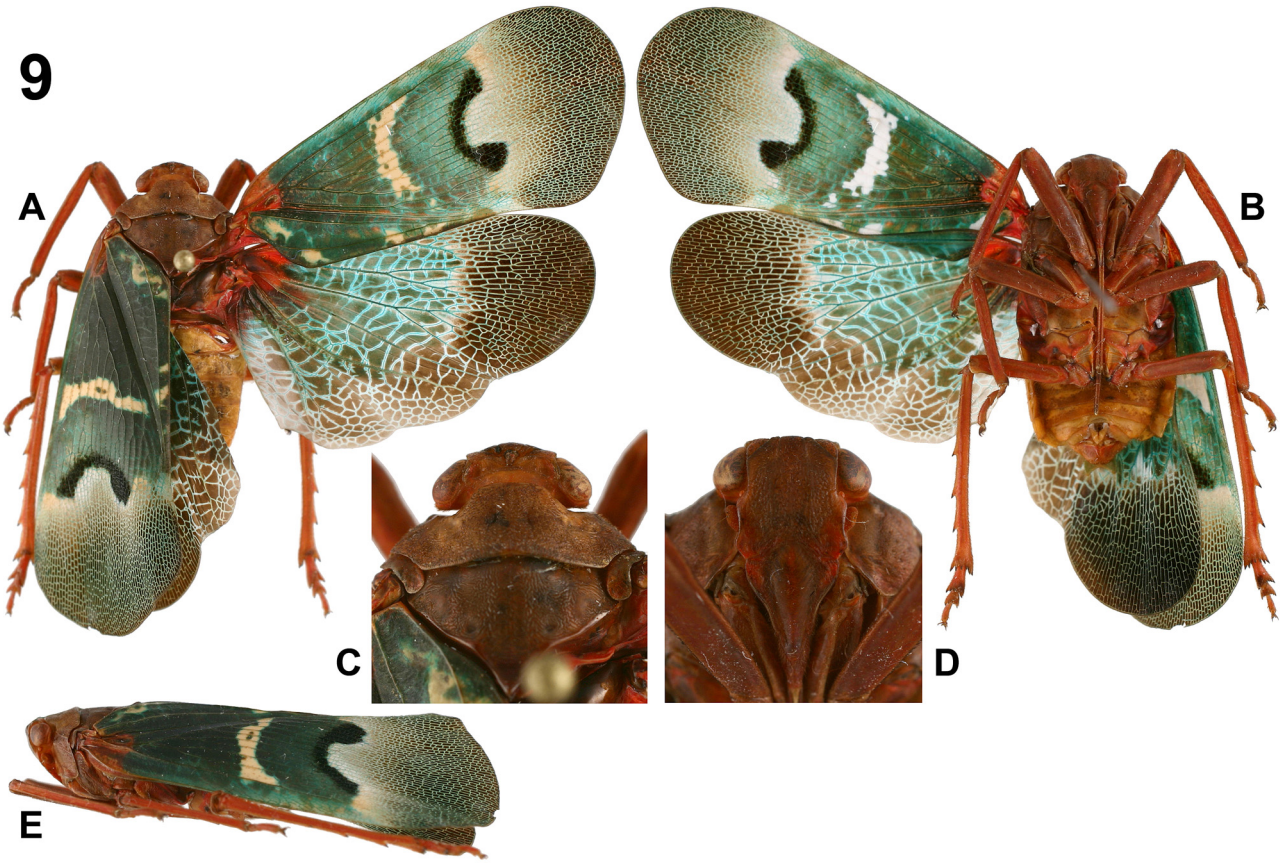
Discussion

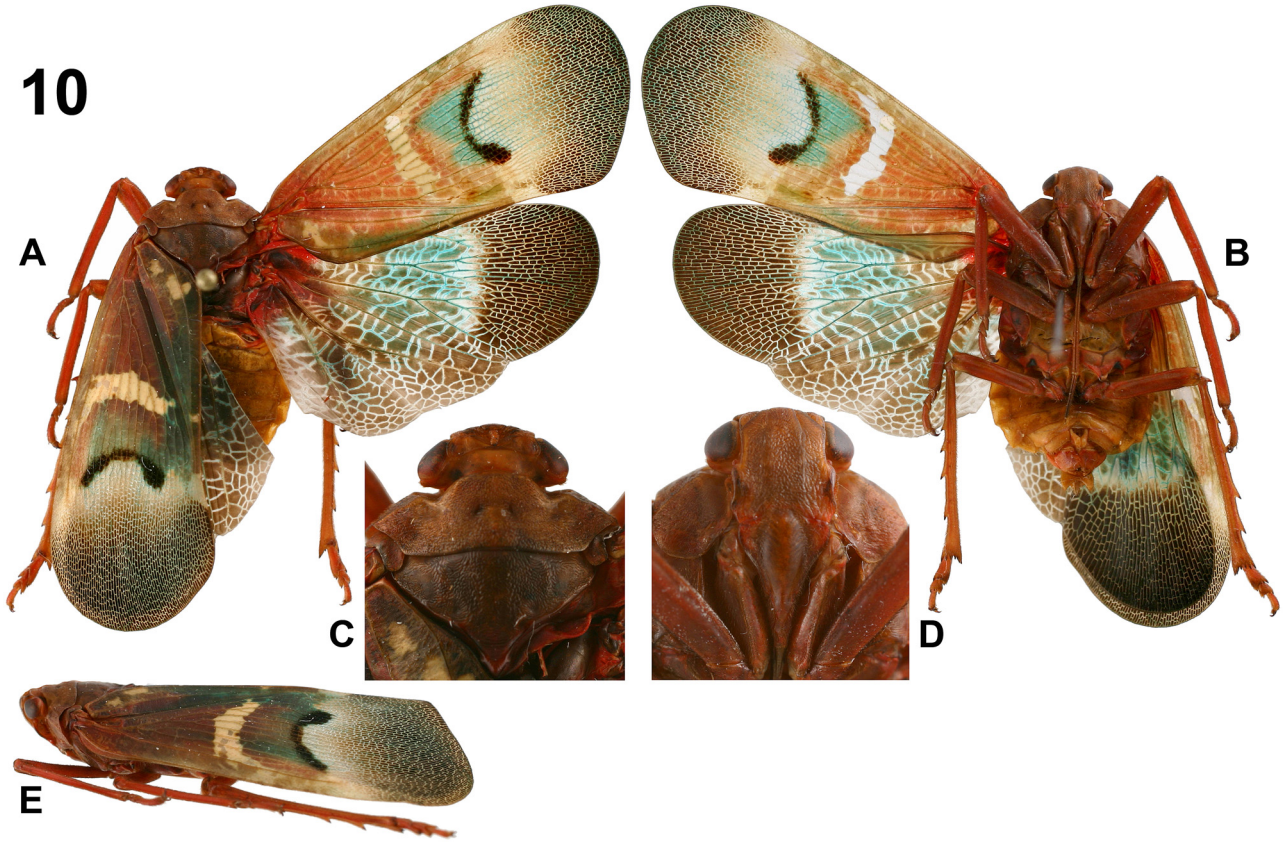
Although they can be locally abundant, *Scamandra* specimens are not common in the collections. More material, especially males, is necessary to achieve a complete revision of the genus, and in regions such as the Greater Sunda, the Philippines or Sulawesi, molecular data would be welcome to support species or subspecies separation. It is obvious also that more new species will be found in the future in yet unexplored localities and islands.



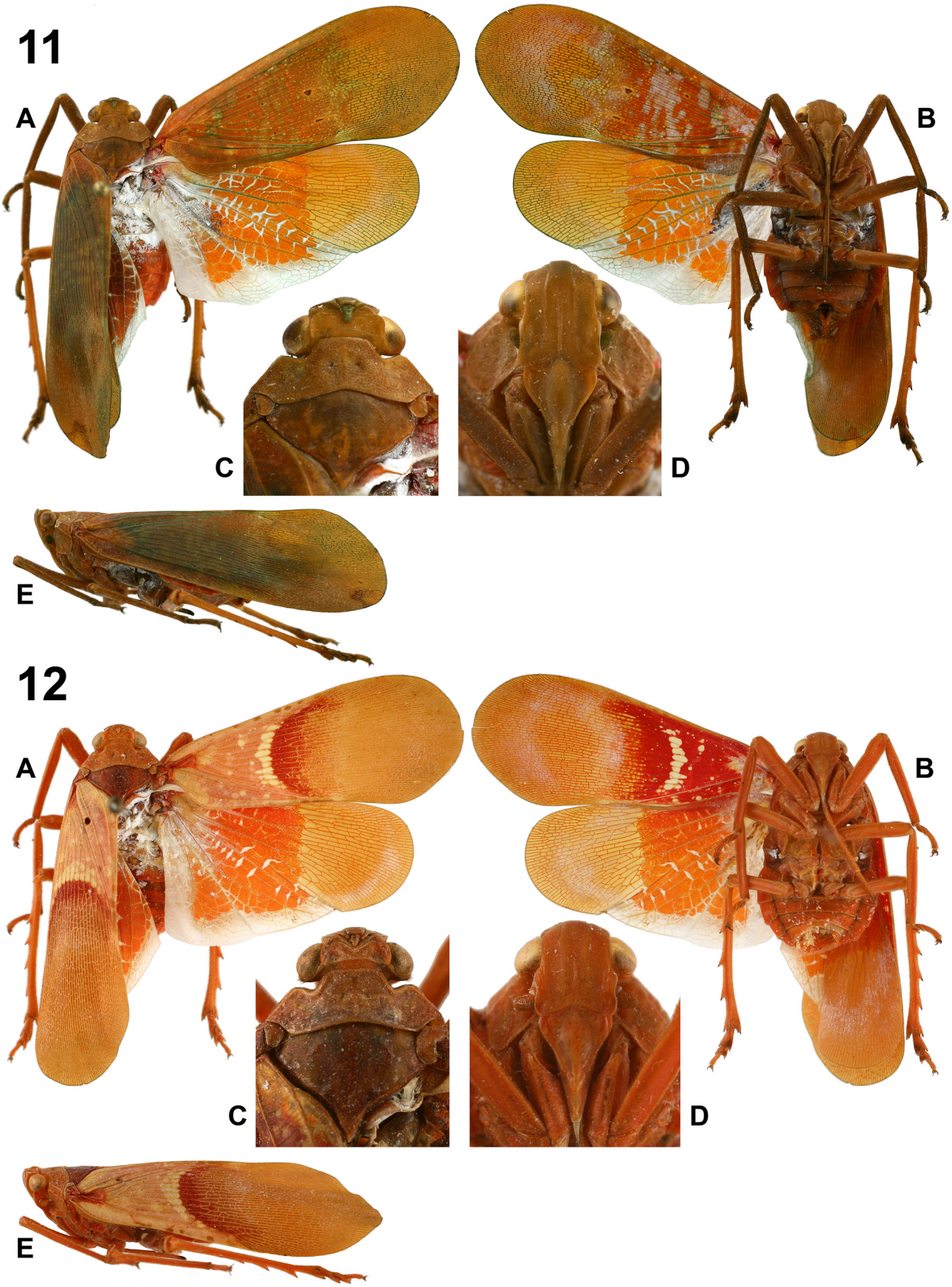


FIGURES 7–8. 7. *Scamandra huangi.* 8. *S. lumawigi*. A. habitus, dorsal view; B habitus, ventral view; C. vertex, pro and mesonotum, dorsal view; D. frons, normal view; E. habitus, lateral view.

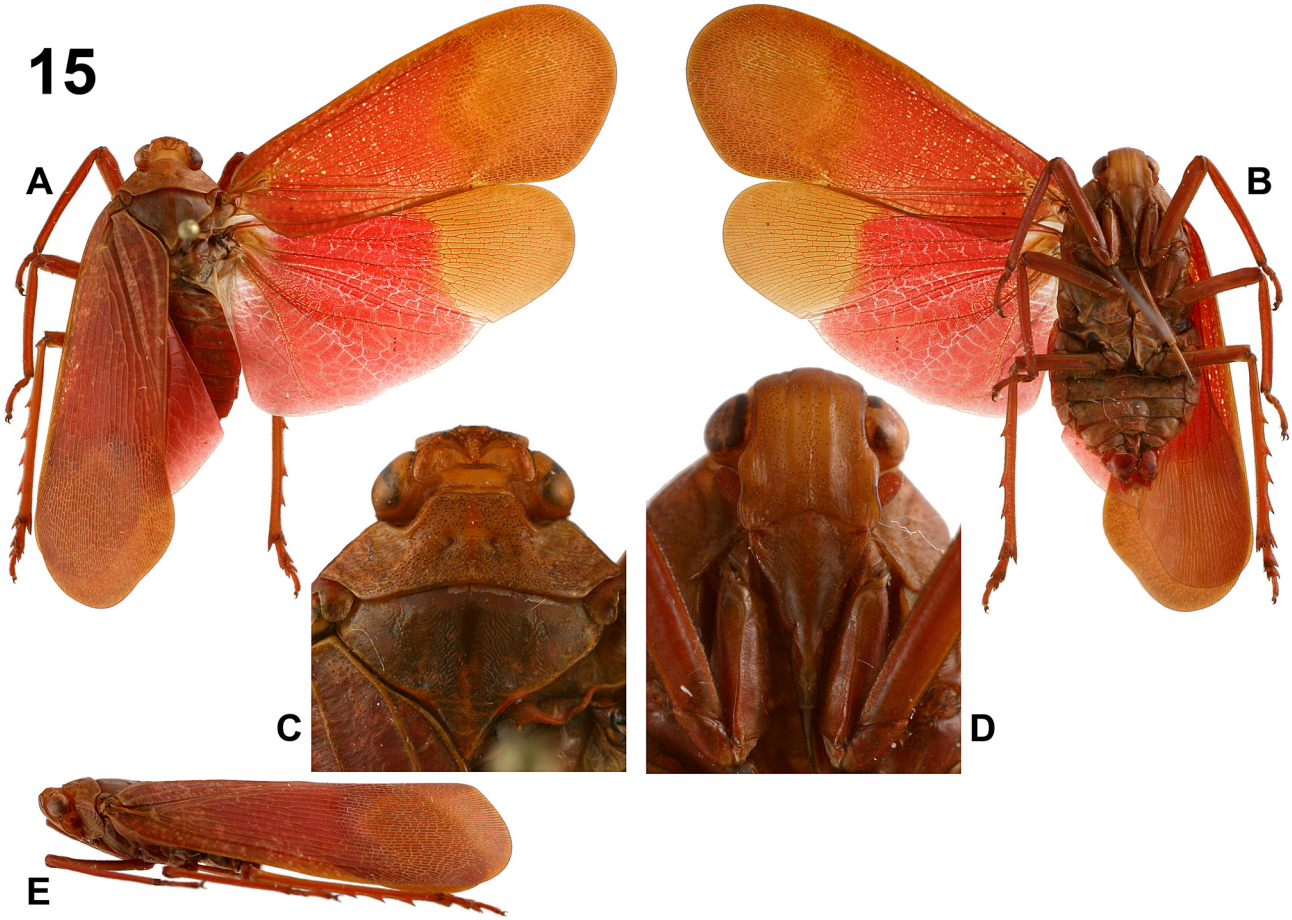




FIGURES 9–10. 9. *Scamandra vanvyvei*; 10. *S. vanvyvei pelengana*. A. habitus, dorsal view; B. habitus, ventral view. C. vertex, pro and mesonotum, dorsal view; D. frons, normal view; E. habitus, lateral view.



FIGURES 11–12. 11, *Scamandra hermione.* 12, *S. mucorea*. A: habitus, dorsal view; B: habitus, ventral view. C: vertex, pro and mesonotum, dorsal view; D: frons, normal view; E: habitus, lateral view.



FIGURES 13–15. 13, *Scamandra mucorea* in Palawan, near Sabang, near the entrance to the Underground River National Park, at night, 23.i.2011 (photograph by A. Anker). 14, *S. hermione* in Luzon, Quezon National Park, 15.iv.2011 (photograph by J. Bresseel). 15, *S. jakli.* A: habitus, dorsal view; B: habitus, ventral view. C: vertex, pro and mesonotum, dorsal view; D: frons, normal view; E: habitus, lateral view.

FIGURE 16. Distribution map. *Scamandra hermione*: ◆; *S. huangi*: ◘; *S. vanvyvei*: ◲; *S. vanvyvei pelengana*: ⭘; *S. lumawigi*: ■; *S. mucorea*: ☒; *S. jakli*: ✪; *S. stanjakli*: ♦.

Acknowledgements

I thank here all the curators listed above for the loan of the material, Dr Arthur Anker (University of Florida, U.S.A.) and Mr Joachim Bresseel (Meise, Belgium) for allowing the use of their photos, Dr Peter Michalik (ZIMG) for sending photographs of the *Scamandra mucorea* of Gerstaecker's collection, Dr Patrick Grootaert and Mr Pol Limbourg for their comments and permanent support, Mr Stanislav Jakl (Czech Republic), Alain Van Vyve (France), Ismael Lumawig (Philippines), Fang-Ying Huang (Taiwan), and Joachim Bresseel and Mrs Nathalie Bellemans (Belgium) for providing specimens, and Mr Cédric Audibert, Harold Labrique and Joël Clary for their help during my visit at MHNL. This study has also benefited from funds of the European Union in the frame of the SYNTHESYS project for a visit to the collections of the BMNH and NHRS.

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