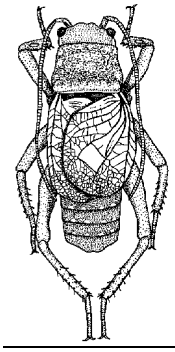

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# TAXONOMY OF THE KATYDIDS (ORTHOPTERA: TETTIGONIIDAE) FROM EAST ASIA AND ADJACENT ISLANDS. COMMUNICATION 11

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New data on bush crickets of the tribe Agraeciini (Tettigoniidae: Conocephalinae) from Indo-Malayan and Papuan regions are given. One new subgenus of the genus *Eumacroxiphus* Ingr. (*Hyperxiphus* **subgen. n.**) and four new subgenera of the genus *Scytocera* Redt. (*Vietnacera* **subgen. n.**; *Bornecera* **subgen. n.**; *Papucera* **subgen. n.**; *Morocera* **subgen. n.**) are described. One former genus is considered as a subgenus of the genus *Lesina* (subgenus *Ellatodon* Caud., **stat. n.**), and one former subspecies is considered as a separate species (*Eumacroxiphus distinctus* Ingr., **stat. n.**). Four new species and two new subspecies are described, namely *Lesina ensifera capito* **subsp. n.**, *L. maxima* **sp. n.**, *Eumacroxiphus rubroniger* **sp. n.**, *Scytocera sulawesi* **sp. n.**, *S. vietnami* **sp. n.**, and *S. borneensis sandakani* **subsp. n.**

KEY WORDS: Orthoptera, Tettigoniidae, Conocephalinae, Agraeciini, new taxa, Malaysia, Indonesia, China.

**А. В. Горохов. Таксономия кузнечиков (Orthoptera: Tettigoniidae) из Восточной Азии и соседних островов. Сообщение 11 // Дальневосточный энтомолог. 2016. N 320. С. 1-26.**

Приводятся новые данные по конусоголовым кузнечикам трибы Agraeciini (Tettigoniidae: Conocephalinae) из Индо-Малайского и Папуасского регионов.

Описаны пять новых подродов родов *Eumacroxiphus* Ingr. (*Hyperxiphus* **subgen. n.)** и *Scytocera* Redt. (*Vietnacera* **subgen. n.**; *Bornecera* **subgen. n.**; *Papucera* **subgen. n.**; *Morocera* **subgen. n.**). Один бывший род и один бывший подвид рассматриваются как подрод рода *Lesina* (подрод *Ellatodon* Caud., **stat. n.**) и как отдельный вид (*Eumacroxiphus distinctus* Ingr., **stat. n.**), сответственно. Описаны 4 новых вида и 2 новых подвида: *Lesina ensifera capito* **subsp. n.**, *L. maxima* **sp. n.**, *Eumacroxiphus rubroniger* **sp. n.**, *Scytocera sulawesi* **sp. n.**, *S. vietnami* **sp. n.** и *S. borneensis sandakani* **subsp. n.**

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## INTRODUCTION

This paper is the eleventh communication in this series of papers on Indo-Malayan and Papuan Tettigoniidae. The previous communications contain descriptions of 76 new taxa from the subfamilies Phaneropterinae, Conocephalinae and Meconematinae (Gorochov, 2011a-c, 2012a, b, 2013 a, b, 2014 a, b, 2016). In the present communication, some genera of Conocephalinae from the tribe Agraeciini are considered; all these genera are distributed in tropical forests of the above-mentioned regions. The study is based on material from collection of the Zoological Institute, Russian Academy of Sciences, St. Petersburg (all types of new species and subspecies are deposited at this institute).

## NEW DATA ON TAXONOMY AND DISTRIBUTION

### Subfamily Conocephalinae
Tribe Agraeciini

### Genus *Lesina* Walker, 1869

Type species: *Lesina lutescens* Walker, 1869 (Ambon I.)

NOTES. The genus was firstly described as *Megalodon* by Brullé (1835) from a single species, *M. ensifer* Brullé, 1835 (Java). Later, this genus was independently described by Walker (1869) as *Lesina* from a nymph of another species (De Jong, 1942). Brongniart (1890) described an additional species from Borneo and included it in *Megalodon* (*M. blanchardi*). Then he proposed the name *Eumegalodon* as a replacement name for *Megalodon* in connection with its homonymy (Brongniart, 1892a); however, *Eumegalodon* is also a homonym (Eades *et al*., 2016). In the same year, Brongniart (1892b) established the family-group taxon "Eumegalodonidae" for this genus; but Kirby (1906) changed it into "Eumegalodontinae". Karny (1923) described two new species from Malacca and included them in *Eumegalodon*: *E. intermedius* and *E. vaginatus*. Caudell (1927) synonymized all these generic names and put *M. blanchardi* in the new monotypic genus *Ellatodon*. De Jong (1942) in his

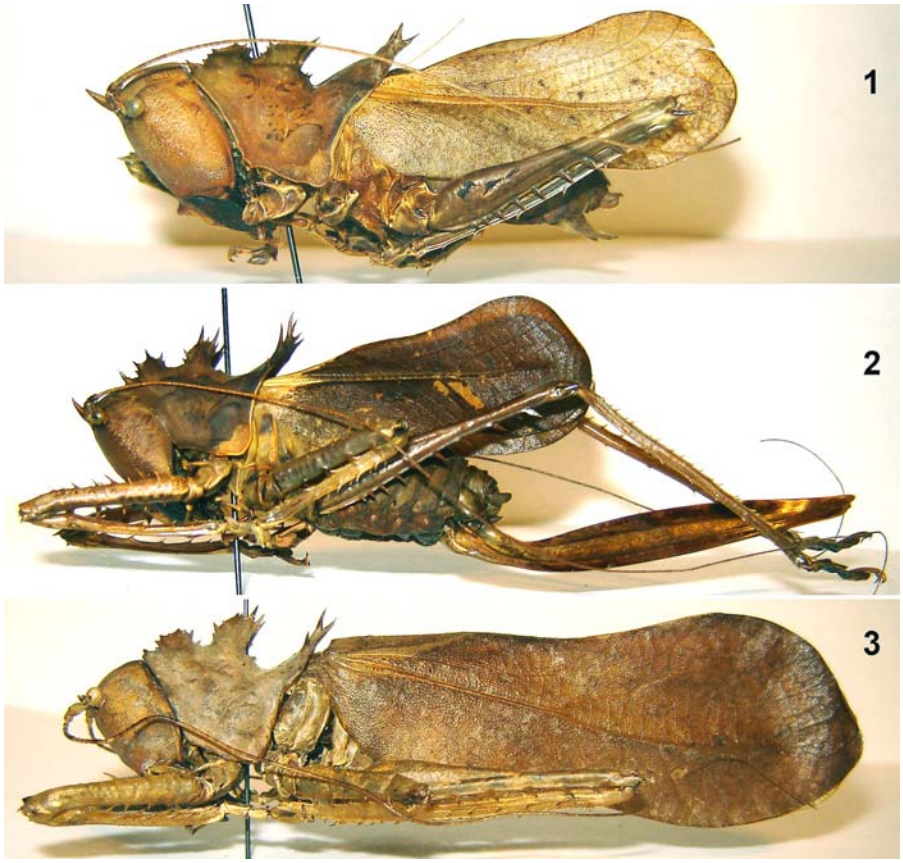
partial revision of this family-group taxon renamed it into the "tribe Lesini" of the "subfamily Copiphorinae" (now the tribe Copiphorini) and described the new species *L. karnyi* from Borneo. Ingrisch (1998) altered this "tribe" into the subtribe Eumegalodontina of the tribe Agraeciini.

I agree with the latter opinion, but it is necessary to note that *Lesina* and *Ellatodon* are very similar to each other in the habitus (Figs 1–16) and copulatory apparatus (Figs 17–28), and their main difference (presence or absence of dorsal spines on the fore and middle femora) is not very remarkable because some intermediate variants are possible: in the type species of *Ellatodon*, these femora are with weak dorsal tubercles only (Fig. 5, 6); in *L. intermedia*, fore femur is with a few dorsal spines, but middle femur, with dorsal tubercles only (Fig. 3); in the type species of *Lesina* as well as in *L. ensifera* and *L. vaginata*, each of these femora is with a few dorsal spines (Fig. 2); and *L. karnyi* has these femora as in the latter congeners, but its fore tibiae are with a few additional spines (these tibial spines are absent in all the other congeners). Thus, it is more reasonable to consider *Lesina* and *Ellatodon* as two subgenera of the same genus *Lesina* s. l.: (1) the subgenus *Lesina* s. str. having the spinose lateral lobes of pronotal disc directed aside (almost in horizontal plane) and including *L. lutescens*, *L. ensifera* (Brullé, 1835), *L. intermedia* (Karny, 1923), *L. vaginata* (Karny, 1923) and *L. karnyi* De Jong, 1942; (2) the subgenus *Ellatodon* Caudell, 1927, stat. n. having the spinose lateral lobes of pronotal disc directed upwards (almost in vertical plane) and including *L. blanchardi* (Brongniart, 1890), comb. n. (type species) and *L. maxima* sp. n.

***Lesina (Lesina) ensifera capito* Gorochov, subsp. n.**
Figs 1, 7, 8, 17–20

MATERIAL. Holotype – ♂, **Malaysia**: Malacca, Perak State, "Kwala Kangsar", "Rolle 1904".

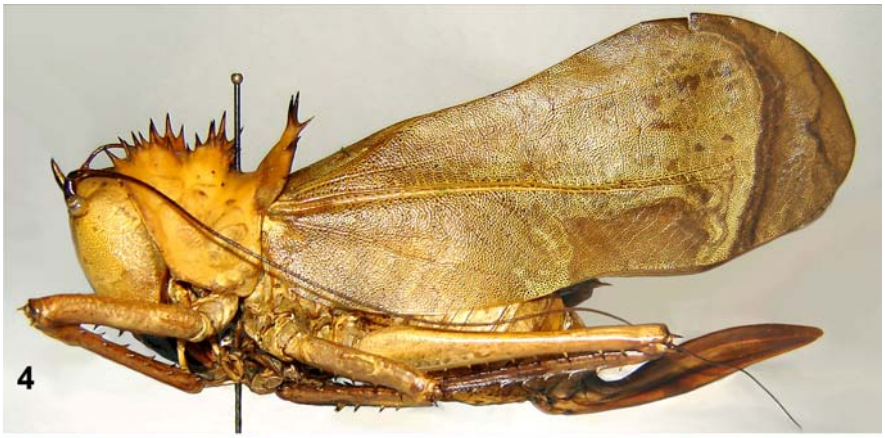
DESCRIPTION. Male. Body large. Colouration light brown with whitish pale large triangular area on fore part of epicranium (under rostral spine), a pair of dark brown dots at middle of this area, reddish brown upper half of clypeus, dark brown mandibles, moderately darkened stripe on pronotum along its posteroventral edges (but ventral and posteroventral margins of pronotum yellowish, looking as curved yellowish lines), greenish tinge in most part of tegmina (but dorsal tegminal field brown with semitransparent and almost transparent mirror in upper and lower tegmina, respectively), yellowish both venation and tinge of transparent membranes in hind wings (however, venation of proximal part of these wings from light brown to brown), brown longitudinal band on outer side of fore femur, slightly darkened most part of middle and hind coxae and femora as well as of all tibiae and tarsi, somewhat darkened distal part of abdomen, and almost brown rest part of abdominal venter (Figs 1, 7, 8). Head large, almost inflated and strongly widened (more strongly than in nominotypical subspecies), with a pair of vertical rows from distinct tubercles situated laterally under eyes (Fig. 7); rostral spine rather long and weakly curved upwards (directed mainly forwards); clypeus with distinct median tubercle clearly

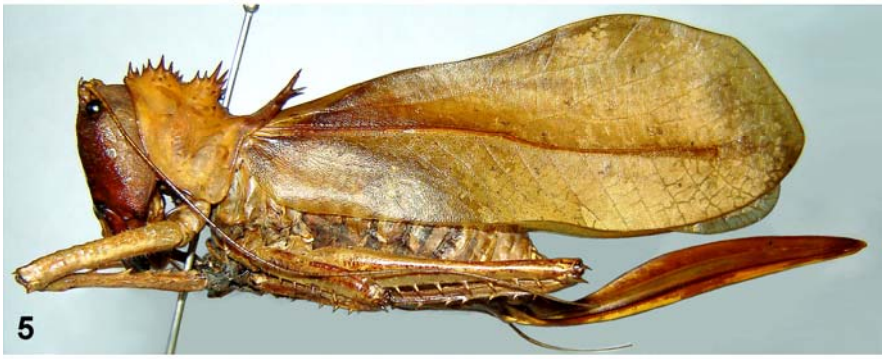



Figs 1–3. *Lesina* (*Lesina*), body from side: 1 – *L. ensifera capito* subsp. n., male; 2 – *L. e. ensifera* (Brullé), female; 3 – *L. intermedia* (Karny), female.

visible in profile (Figs 7, 8). Shape of pronotum typical of subgenus *Lesina*: two paired spinose lobes of disc directed aside (dorsally flattened); dorsal edge of hind spinose lobe rather gently sloping in profile (Figs 7, 8); pro- and mesothoracic sternites with long and more or less thin spines, but spines of metathoracic sternite with widened and flattened basal and middle parts. Tegmina distinctly protruding behind apices of hind femora (approximately 1.5 times as long as hind femur; in *L. e. ensifera*, this ratio 1.3–1.35); their shape and venation as in Fig. 1; hind wings shorter than tegmina, slightly not reaching their apices. Legs practically indistinguishable from those of *L. e. ensifera*, with 8–9 dorsal spines on fore femur and 4 ones on middle femur, and without dorsal spines on fore tibia. Abdomen with last tergite having a pair of rather small angular projections and wide and shallowly rounded notch between them, with epiproct rather small and triangular, with paraproct plate-like and having small hook (directed laterally) near apex, with cercus short and

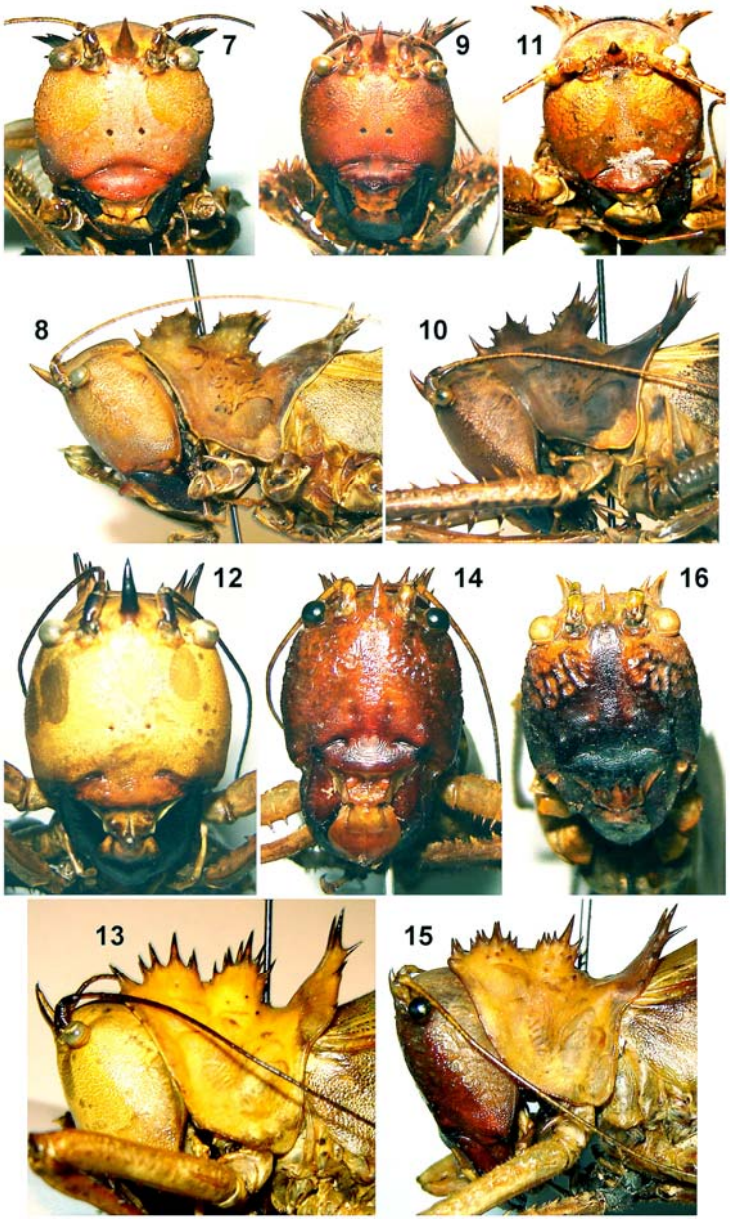
having two spine-like processes of characteristic shape (Figs 17–19) directed more or less medially, and with genital plate elongate and rather deeply and angularly notched as well as having rather small but elongate styles (Fig. 20); genitalia completely membranous.





Figs 4–6. *Lesina* (*Ellatodon*), female body from side: 4 – *L. maxima* sp. n.; 5, 6 – *L. blanchardi* (Brongn.). [6 – after Brongniart (1890: picture from original description of *L. blanchardi*)].




Figs 7–16. *Lesina*: 7, 8 – *L.* (*Lesina*) *ensifera capito* subsp. n., male; 9, 10 – *L.* (*L.*) *e. ensifera* (Brullé), female; 11 – *L.* (*L.*) *intermedia* (Karny), female; 12, 13 – *L.* (*Ellatodon*) *maxima* sp. n., female; 14–16 – *L.* (*E.*) *blanchardi* (Brongn.), female (14, 15) and male (16). Head and spines of pronotal disc in front (7, 9, 11, 12, 14, 16); head and pronotum from side (8, 10, 13, 15).

Female unknown.

Length (in mm). Body 62; body with wings 74; pronotum (median part) 24; tegmina 45; hind femora 29.

COMPARISON. The new subspecies (Malacca) is distinguished from *L. e. ensifera* (Java) by a larger (wider) head with the rostral spine less curved upwards (for comparison see Figs 8 and 10) and with a pair of vertical rows from distinct tubercles on the lateral edges of epicranium under the eyes (*vs*. these tubercles are almost indistinct; see Figs 7 and 9), as well as by longer tegmina (see Figs 1 and 2). From *L. intermedia*, the new subspecies differs in distinctly shorter tegmina (see Figs 1 and 3) and the presence of dorsal spines on the middle femur; from *L. vaginata*, in a wider head lacking any dark area on the anterior surface of epicranium, somewhat shorter rostral spine, and clearly longer tegmina; and from *L. karnyi*, in the presence of a clypeal tubercle and absence of dorsal spines on the fore tibia. Differences of *L. e. capito* from *L. lutescens* are unclear, because the latter species is known from a nymph only; however, this nymph is from Ambon Island and with narrower (shorter) two anterior pairs of the pronotal dorsal lobes (judging by its photograph; Eades *et al*., 2016).

ETYMOLOGY. This species name is the Latin word “capito” (large-headed).

***Lesina* (*Lesina*) *ensifera ensifera* (Brullé, 1835)**
Figs 2, 9, 10, 21

MATERIAL. **Indonesia**: ♀, “Java”, “205”, “Staudinger”; ♀, Java, 20–25 km SE of Bogor City, environs of Cemande Vill. in Pangrango Mts, 1000 m, on branch of tree in forest, at night, 27.XI–7.XII 1999, A. Gorochov.

NOTES. These females are in accordance to the descriptions of this species and very similar to the photographs of its holotype (Eades et al., 2016). However, their colouration is not identical: the first specimen is more or less similar to *L. e. capito* in the colouration; but the second specimen (from Pangrango Mountains) is darker (brown) and with the dorsal tegminal area, proximal part of lateral tegminal area, and subapical spots on all the femora yellowish to light brown (Figs 2, 9, 10). Shape of their genital plates is as in Fig. 21.

***Lesina* (*Lesina*) *intermedia* (Karny, 1923)**
Figs 3, 11, 22

MATERIAL. **Malaysia**: ♀, Malacca, Pahang State, Taman Negara National Park (near Kuala Tahan Vill. on Tembeling River), primary forest, IV 2011, M. Berezin. This female collected as nymph, imaginal moult VI 2011.

NOTES. This female has the following important differences from *L. ensifera*: its pronotum is with a somewhat shorter hind lobe; wings are much longer (see Figs 1–3); only fore femora have spines on the dorsal part (middle femora are without dorsal spines); and female genital plate is as in Fig. 22.

***Lesina* (*Ellatodon*) *maxima* Gorochov et Berezin, sp. n.**
Figs 4, 12, 13, 28, 84

MATERIAL. Holotype – ♀, **Malaysia**: Malacca, Pahang State, Taman Negara National Park (near Kuala Tahan Vill. on Tembeling River), primary forest, on branch of bush near brook at night, 28.XI – 5.XII 2014, A. Gorochov, M. Berezin, E. Tkatsheva.

DESCRIPTION. Female. Body very large. Colouration yellowish with following pattern: anterior (ventral) surface of rostral spine as well as most part of scape and of pedicel dark brown; antennal flagellum brown; mandibles and lower half of labrum blackish; upper half of labrum, clypeus, subgenae, legs, abdominal apex and ovipositor light brown (but with brown and yellowish marks on lower part of clypeus, with all femora almost intermediate between light brown and yellowish in colour, and hind tibiae and ventral surface of all tarsi mostly brown); pronotal spines with very dark distal parts; and tegmina with greenish tinge (Figs 4, 12, 13). Head large, almost inflated, widened approximately as in *L. e. capito* but without distinct lateral tubercles under eyes and with moderately smooth (barely shagreen) surface of anterior part of epicranium (Fig. 12); rostral spine rather long, barely curved, and directed mainly upwards (Figs 12, 13); clypeal tubercle almost undeveloped. Shape of pronotum typical of *Ellatodon*: two paired spinose lobes of disc directed mainly upwards (not aside, i. e. disc not dorsoventrally flattened); hind pronotal lobe hight and almost vertically situated (Figs 12, 13). Paired spines on sternites of pro- and mesothorax as in *L. ensifera*, but metathoracic sternite with a pair of widened and flattened (but not long) angular lobes lacking spine-like distal parts. Tegmina much protruding behind apices of hind femora, more or less as in *L. intermedia* but almost twice as long as hind femora and with almost rounded (but not obliquely truncated) apical part; other details of tegminal structure as in Fig. 4; hind wings almost reaching tegminal apices but completely covered with tegmina in rest position (Fig. 4). Legs also typical of *Ellatodon*, i. e. without spines on dorsal parts of all femora and with fore tibiae lacking dorsal spines. Abdomen with last tergite and epiproct more or less similar to those of male of *L. ensifera* but with paraprocts smaller and roundly angular (lacking small hook near apex); cerci cylindrical, elongate but not long, and with apical part conical (shortly spine-like) and somewhat medially curved; genital plate with posterolateral lobules narrower and longer than in previous congeners considered above (Fig. 28); ovipositor rather short, approximately equal to hind femur in length (Fig. 4).

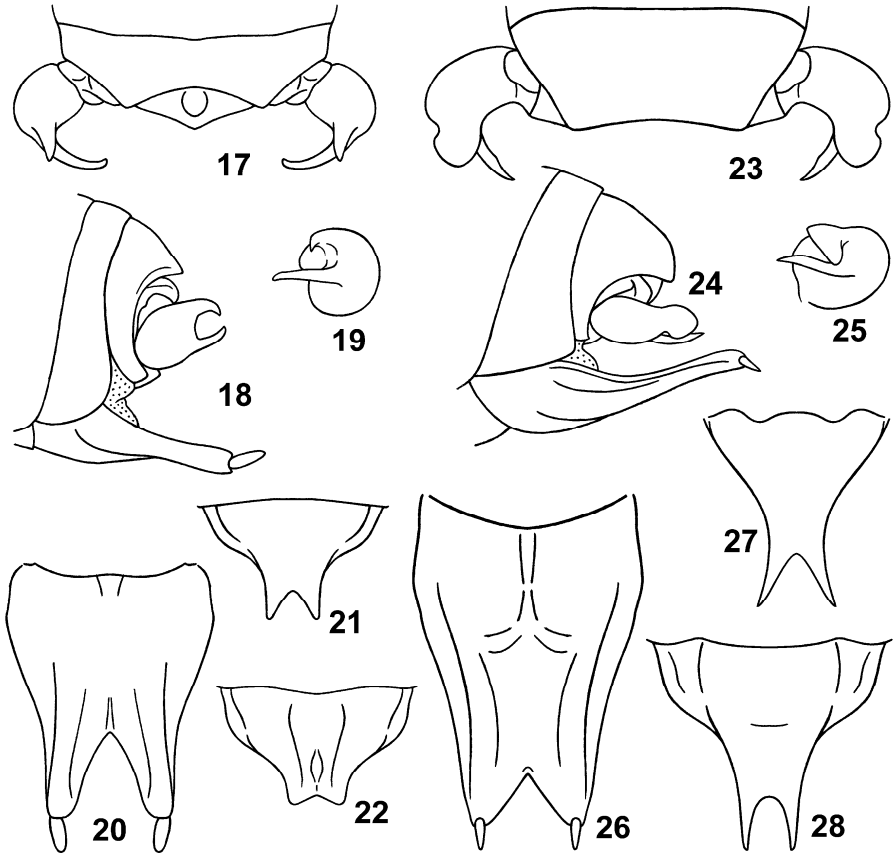
Male unknown.

Length (in mm). Body 71; body with wings 99; pronotum (median part) 21; tegmina 74; hind femora 38; ovipositor 38.

COMPARISON. The new species is distinguished from *L. blanchardi*, another species of this subgenus distributed in Borneo, by a clearly longer rostral spine (for comparison see Figs 12, 13 and 14–16), more smooth anterior part of epicranium and genae under eyes (see Figs 12 and 14, 16), widely rounded (not roundly angular) tegminal apices (see Figs 4 and 5, 6), distinctly shorter ovipositor (in *L. blanchardi*,

it is almost 1.3 times as long as hind femur; see Figs 4 and 5, 6), and the female genital plate with more parallel posterolateral lobules (see Figs 27 and 28).

ETYMOLOGY. This name is the Latin word "maxima" (maximal) which is given in connection with a very large body in this species.




Figs 17–28. *Lesina*: 17–20 – *L.* (*Lesina*) *ensifera capito* subsp. n.; 21 – *L.* (*L.*) *e. ensifera* (Brullé); 22 – *L.* (*L.*) *intermedia* (Karny); 23–27 – *L.* (*Ellatodon*) *blanchardi* (Brongn.); 28 – *L.* (*E.*) *maxima* sp. n. Male abdominal apex without genital plate (17) as well as without both this plate and epiproct (23) from above; male abdominal apex without epiproct from side (18, 24); male right cercus from behind (19, 25); male genital plate from below (20, 26); female genital plate from below (21, 22, 27, 28).

***Lesina* (*Ellatodon*) *blanchardi* (Brongniart, 1890)**
Figs 5, 6, 14–16, 23–27

MATERIAL. **Malaysia**: ♂, "N. Borneo [Sabah State ?]"; ♀, Borneo, Sarawak State, Kubah National Park (on Matang Mt) near Kuching City, 200–500 m, primary

forest, on branch of bush near small road at night, 10–17.III 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov.

NOTES. This species is almost as large as *L. maxima* and distinguished from it by a distinctly shorter rostral tubercle, roundly angular shape of tegminal apices, the female genital plate with the posterolateral lobules not parallel to each other but directed partly aside, and a distinctly longer ovipositor (Figs 5, 6, 14, 15, 27; see also the comparison for *L. maxima* above). Male abdominal apex is similar to that of *L. ensifera* including the structure of last tergite and general shape of cerci (epiproct, paraprocts and genitalia in the male studied are missing), but dorsal cercal process is plate-like and without apical hook, and genital plate is with less deep posteromedian notch and thinner styles (Figs 23–26).

### Genus *Eumacroxiphus* Ingrisch, 1998

Type species: *Macroxiphus diabolicus* Karny, 1926 (Borneo).

NOTES. This exclusively Bornean genus is very similar and related to the genus *Macroxiphus* Pictet, 1888 (Sumatra, Malacca and nearest small islands) but distinguished from it by the male genital plate having a distinct median invagination on the ventral surface (this invagination is visible as a convexity or projection on the dorsal surface of this plate; Fig. 33). However, a more or less similar specialization of this plate is developed also in the genus *Amacroxiphus* Ingrisch, 1998 (Sumatra) which differs from the both above-mentioned genera in the absence of sclerites in the male genitalia (Ingrisch, 1998). In *Eumacroxiphus*, such specialization of the male genital plate is represented by two variants, and its male cerci are also of two types distinguished from each other not less than from those in *Macroxiphus* and *Amacroxiphus*. Thus, it is a reasonable to divide *Eumacroxiphus* into two subgenera (*Amacroxiphus* may be a third subgenus of this genus lost sclerotized structures in the male genitalia) described below, in the key to *Eumacroxiphus* subgenera.

### Key to subgenera of *Eumacroxiphus* s. l.

1. Pronotum from light brown with very dark disc (or most part of disc) to completely dark. Male cercus rather short, with strong distal (posterodorsal) branch having obtuse or somewhat bilobate apex, and with characteristic ventral branch (this branch usually narrower, often longer than previous branch, and always directed more or less vertically downwards and with apical part curved somewhat forwards; Figs 34, 36, 38, 39, 42, 43); male genital plate with not deep ventromedian invagination and rather small dorsomedian convexity or projection (Fig. 33) ..... ..... subgenus ***Eumacroxiphus* s. str.**
   [= "*vaginatus*-group" (Ingrisch, 1998). Included species: type species; *Macroxiphus vaginatus* Pictet, 1888; *M. atomarius* Dohrn, 1905; *E. willemsei*, *E. caudatus*, *E. diffundatus*, *E. brevicauda* and *E. imitatus* described by Ingrisch in 1998; and *E. rubroniger* sp. n.]

– Most part of disc and of lateral lobes in pronotum from light brown to brown (not dark). Male cercus somewhat longer, with small or very small dorsal branch having acute (angular) or rounded apex, and with ventral (posteroventral) branch much longer than dorsal branch and directed partly backwards as well as having a pair of acute spinules or small angular projections at apex; male genital plate usually with deeper ventromedian invagination and with complicated dorsomedian convexity having characteristic hook in posterior half and more or less bilobate projection in anterior part ..... subgenus ***Hyperxiphus* subgen. n.**
[= "*megapterus*-group" (Ingrisch, 1998). Included species: *Macroxiphus megapterus* Brongniart, 1897 – type species; *M. brachyurus* Karny, 1926; *E. m. distinctus* Ingrisch, 1988 (see below); and possibly *M. varipes* Karny, 1925. Etymology: *Hyperxiphus* is formed from the Latinized Greek words "hyper" (super) and "xiphus" (sword) because of its long ovipositor.]

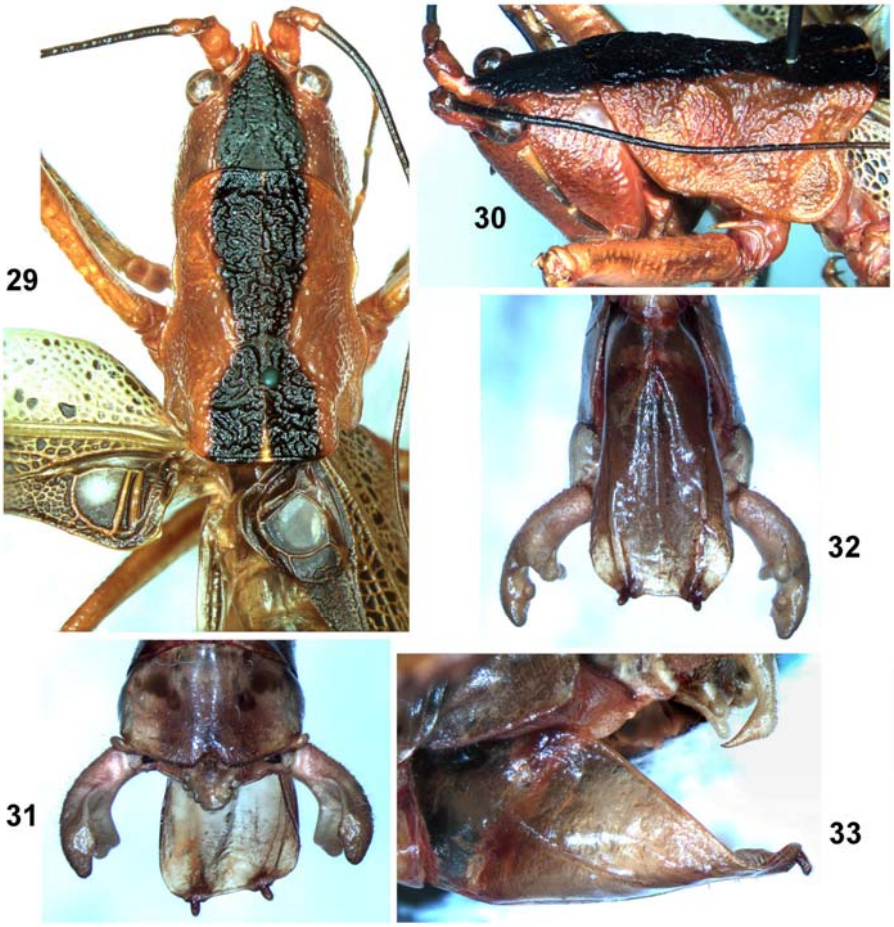
***Eumacroxiphus* (*Hyperxiphus*) *distinctus* Ingrisch, 1998, stat. n.**

MATERIAL. **Malaysia**: 2 ♂, 3 ♀, Borneo, Sarawak State, Mulu National Park not far from borders with Brunei and Indonesia, 100–300 m, primary forest, on branches of bushes at night, 24–27.III 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov.

NOTES. This species was described as a subspecies of *E. megapterus* from a central part of the Indonesian Kalimantan (Ingrisch, 1998). Here the taxon discussed is recorded from Sarawak at the first time. The new material indicates its wide distribution in Borneo and its species status. *Eumacroxiphus distinctus* is distinguished from *E. macropterus* by the following characters: male cercus is with a very short and rounded dorsal branch as well as with slightly wider (higher) apical part of the posteroventral branch; male genital plate has a shallow but distinct posteromedian notch between the styles (*vs*. without such notch); ovipositor is clearly shorter (it is 1.4–1.5 times as long as hind femur, but this ratio is 1.8–2 in *E. megapterus*). From *E. brachyurus*, *E. distinctus* differs in the same characters of cerci, in the male genital plate with a notched but not projected posteromedian part and a shorter posterior part of the dorsomedian convexity (between the hook and apex of this convexity), and from *E. varipes*, in a distinctly narrower distal part of the female genital plate having a less deep posteromedian notch.

***Eumacroxiphus* (*Eumacroxiphus*) *rubroniger* Gorochov, sp. n.**
Figs 29–33, 38–41, 45, 46

MATERIAL. Holotype – ♂, **Malaysia**: Borneo, Sabah State, Sandakan Division, environs of Sukau Vill. on Kinabatangan River (~35 km from sea), ~sea level, primary/secondary forest, on branch of small tree at night, 8–13.V 2013, A. Gorochov, M. Berezin, E. Tkatsheva. Paratype – ♀, same state, Trus Madi Mt, ~1000 m, primary/secondary forest, on branch of bush at night, 13–25.V 2007, A. Gorochov (collected as nymph, imago VI 2007).




Figs 29–33. *Eumacroxiphus* (*Eumacroxiphus*) *rubroniger* sp. n., male: 29 – head, pronotum and tegminal bases from above; 30 – head and pronotum from side and slightly from above; 31, 32 – abdominal apex from above (31) and from below (32); genital plate from side (33).

DESCRIPTION. Male. Body medium-sized for this genus. Colouration reddish brown (rather light) with following marks: head with wide black dorsal area between eyes from dorsal denticle of rostral tubercle to pronotum, with brown eyes, with yellow most part of mandibles, with blackish proximal part of antennal flagellum (scape and pedicel reddish brown), and with dark brown to brown rest part of this flagellum; pronotum with black disc and very narrow median yellowish stripe on posterior half of hind pronotal lobe; tegmina with yellowish lateral half having sparse small brown spots, with light brown most part of medial half having similar brown spots mainly between veins R and MA, and with greyish brown dorsal field

having brown to light brown venation and partly greyish membrane of mirror (this greyish part of membrane semitransparent in left tegmen and almost transparent in right one); hind wings with veins light greyish brown and with membranes barely

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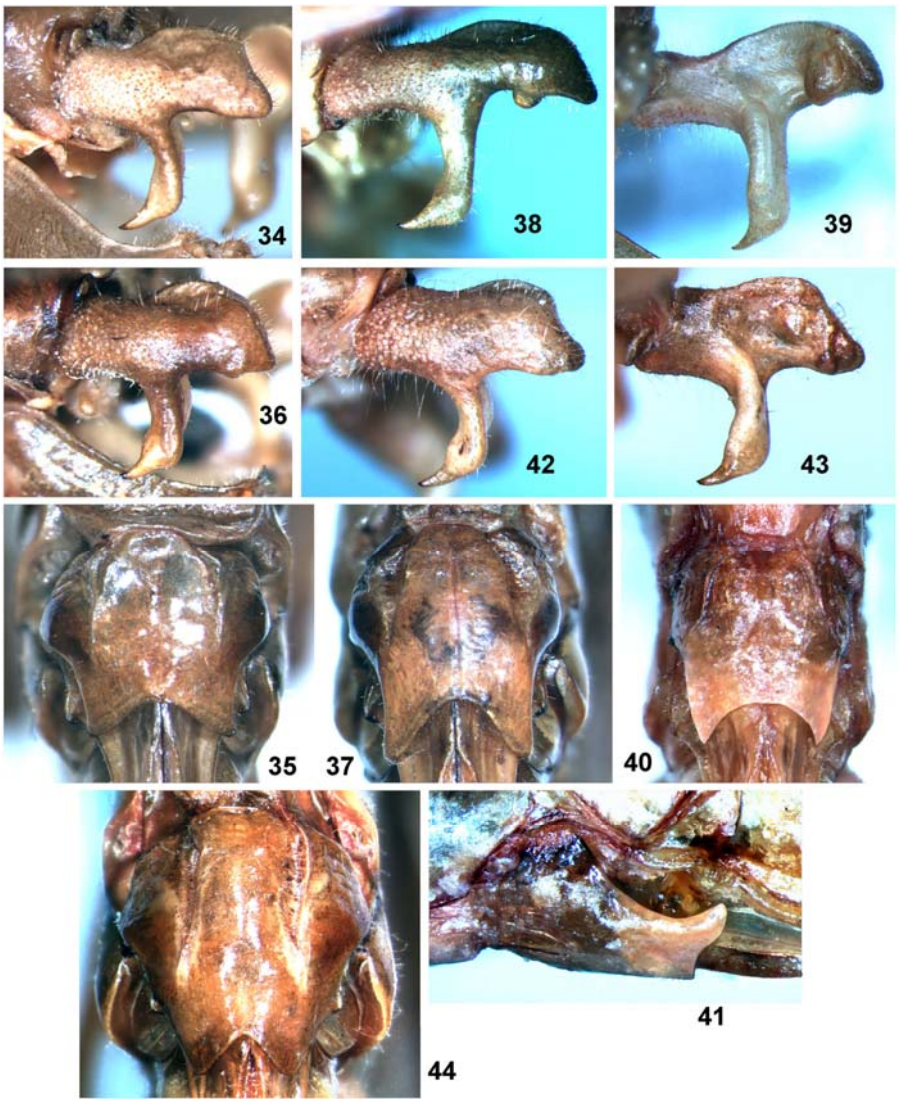



Figs 34–44. *Eumacroxiphus* (*Eumacroxiphus*): 34, 35 – *E.* ?*imitatus* Ingr. from Trus Madi Mt; 36, 37 – *E.* ?*imitatus* from Crocker Range; 38–41 – *E. rubroniger* sp. n.; 42, 43 – *E.* ?*imitatus* from "Nord-Borneo"; 44 – *E. caudatus* Ingr. Outer side of left male cercus (34, 36, 38, 42); inner side of right male cercus (39, 43); female genital plate from below (35, 37, 40, 44) and from side (41).

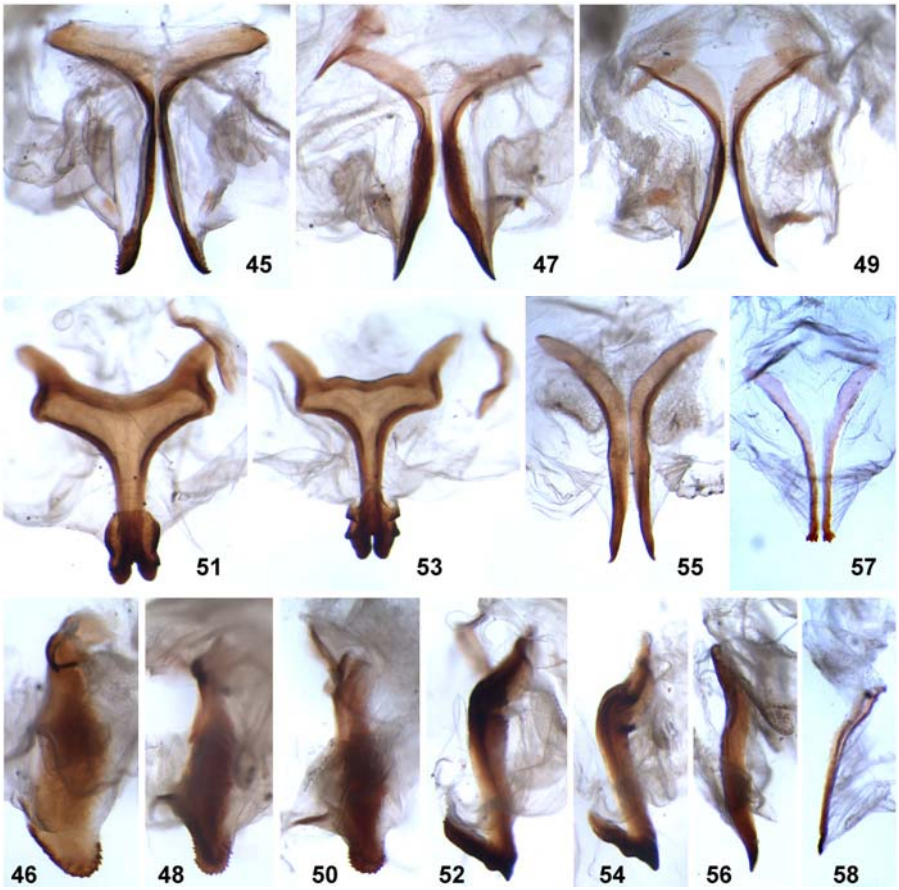
slightly lighter (from semitransparent to transparent); legs with blackish dorsal surface of fore tibia (excepting small proximal and distal parts), with small dark brown spot on dorsal surface of middle tibia near its base, with mostly brown dorsal half of rest part of this tibia, with weakly darkened distal part of hind tibia, and with light brown tarsi having a few darkish marks; rest of body also light brown but with almost brown dorsum of tergites and reddish brown styles of genital plate. Structure of body typical of this subgenus, but with following differences: rostral tubercle of head directed upwards more than forwards; median denticle on dorsal (posterior) edge of this tubercle clearly developed but rather small; pronotum comparatively low (long) and with moderately short hind lobe (Figs 29, 30); tegmina insignificantly protruding behind abdominal apex and apices of hind femora; tegminal stridulatory apparatus as in Fig. 29; last abdominal tergite with small but distinct posteromedian notch; epiproct triangular, and its dorsum with rather high keel-like lateral sides having three rounded denticles on each side (Fig. 31); paraproct with short finger-like posteroventral process; cercus very similar to that of *E. imitatus* but somewhat more slender, with rounded tubercle on inner surface of posterodorsal branch larger (distinctly projected under ventral edge of this branch in profile) and situated almost near ventral cercal branch (Figs 38, 39); genital plate and genitalia as in Figs 32, 33 and 45, 46.

Female. Size, colouration and general structure of body very similar to those of male, but eyes darker (blackish), darkened places on legs slightly lighter, dorsal tegminal field similar to nearest parts of lateral field in colouration and without stridulatory apparatus, last abdominal tergite somewhat shorter, and epiproct and paraprocts unspecialized. Genital plate with wide (but not deep) and rounded posteromedian notch and with angular posterolateral lobules curved somewhat upwards (Figs 40, 41); ovipositor also typical of this genus but not very long, approximately 1.6 times as long as hind femur.

Length (in mm). Body: ♂ 43, ♀ 44; body with wings: ♂ 48, ♀ 46; pronotum: ♂ 11, ♀ 9.5; tegmina: ♂ 33, ♀ 33; hind femora: ♂ 22, ♀ 23; ovipositor 37.

COMPARISON. The new species is most similar to *E. imitatus* in the body colouration and shape of male cercus in the profile but distinguished from the latter species by a reddish (not light brown) most part of the head, pronotum and legs, a blackish (not brown) proximal part of the antennal flagellum, somewhat more slender (longer) male cerci, a larger inner tubercle on their posterodorsal branch situated more near their ventral branch (not in the subapical position; for comparison see Figs 34, 36, 38, 39, 42, 43), wider distal parts of the male genital sclerites in the profile (see Figs 45, 46 and 47, 48), and probably more rounded posteromedian notch of the female genital plate (see Figs 35, 37, 40). From the other more or less similar congeners, the new species differs in the following characters: from *E. brevicauda*, in the same characters of body colouration and of cercal structure, as well as in a longer female genital plate, less deep its posteromedian notch and longer ovipositor (it is almost 1.6 times as long as hind femur in the new species, but this ratio is almost 1.2 in *E. brevicauda*); from *E. caudatus*, in the same features of colouration and of male genital structure (see Figs 45, 46 and 49, 50), a clearly less

wide (less high) proximal half of the male cercus having a concave dorsal edge in the profile (in *E. caudatus*, this edge is without any concavity), clearly wider and not angular notch of the female genital plate (see Figs 40 and 44), and much shorter ovipositor (in *E. caudatus*, it is almost twice as long as hind femur); from *E. vaginatus*, in the lateral lobes of pronotum uniformly light (without any darkened area in lower half), ventral branch of male cercus situated in more vertical (less oblique) position, a clearly different shape of the posterodorsal branch of this cercus, wider and deeper posteromedian notch of the female genital plate, and shorter ovipositor (in *E. vaginatus*, it is almost 1.9 times as long as hind femur); from




Figs 45–58. *Eumacroxiphus* (*Eumacroxiphus*) and *Scytocera*, male: 45, 46 – *E. rubroniger* sp. n.; 47, 48 – *E.* ?*imitatus* Ingr.; 49, 50 – *E. caudatus* Ingr.; 51–54 – *S.* (*Scytocera*) *sulawesi* sp. n. (51, 52 – holotype; 53, 54 – paratype); 55, 56 – *S.* (*Vietnacera*) *vietnami* sp. n.; 57, 58 – *S.* (*Bornecera*) *borneensis sandakani* subsp. n. Sclerites of genitalia from above (45, 47, 49, 51, 53, 55, 57) and from side (46, 48, 50, 52, 54, 56, 58).

*E. atomarius*, in the absence of a rather long ventral process on the posterodorsal branch of male cercus, a much narrower (lower) proximal half of this cercus, and shorter and less oblique ventral branch of this cercus; from *E. willemsei*, in the same length of ventral branch of male cercus, a narrower and almost angular (not roundly truncate) posterodorsal branch of this cercus, and the male genital plate without any posteromedian notch; and from *E. diffundatus*, in the same character of male genital plate as well as a distinctly shorter posterodorsal branch of the male cercus.

It is necessary to note that my specimens of possible *E. imitatus* from Sabah are divided into two groups (first group from Crocker Range with ovipositor very long, approximately as in *E. caudatus*, and with female genital plate as in Fig. 35; second group from Trus Madi Mt with ovipositor much shorter, almost as in *E. rubroniger*, and with female genital plate as in Fig. 37); males from these localities are practically identical to each other and to the original description of *E. imitatus* (including head colouration and all other characters; Figs 34, 36). Thus, I cannot decide which of these two groups really belongs to *E. imitatus*, because this species is described from a single male from another locality. Moreover, these males are also identical to a male with label "Nord-Borneo" in the body structure (Figs 42, 43), but it lacks any dark area on the head dorsum (as in *E. caudatus*, but not as in other representatives of *E. imitatus*).

ETYMOLOGY. Name of this species originates from the Latin words "rubrus" (red) and "niger" (black), because its body colouration includes reddish and black areas.

## Genus *Scytocera* Redtenbacher, 1891

Type species: *Scytocera longicornis* Redtenbacher, 1891 (Philippines: Mindanao I.)

NOTE. This genus, according Eades et al. (2016), includes 7 species distributed from Sumatra to New Guinea. However, these species are rather diverse in the structure of copulatory apparatus and shape of ovipositor; it is a reason that they must be divided into a few subgenera (diagnosis for this genus and hypothesis about possibility of its division into different genera were given in a special monograph on Agraeciini; Ingrisch, 1998). These taxa are described below, in the key to subgenera of *Scytocera* s. l.

### Key to subgenera of *Scytocera* s. l.

1. Female with genital plate having or lacking distinct lateroproximal lobules at base (Figs 78, 80), and with ovipositor low (narrow) and weakly curved upwards (Figs 79, 81) …….……. 2
– Female with genital plate lacking distinct lateroproximal lobules at base, and with ovipositor rather high (wide) and weakly or strongly curved upwards (Figs 82, 83) ..... 4

2. Male cercus with rather large and hook-like ventroproximal process curved medially (Figs 66–69); male genitalia with unpaired sclerite having long posteromedian part and additional plate-like structure fused with apex of this part (Figs 51–54). Female genital plate with a pair of rather small (but distinct) lateroproximal lobules (Fig. 78). Philippines, Sulawesi ……. ..... subgenus ***Scytocera* stat. n.** (= *Dicranocercus* Redtenbacher, 1891) [Included species: type species of *Scytocera*; *D. niger* Redtenbacher, 1891 (Sulu Archipelago near Mindanao I.) – type species of *Dicranocercus*; *S.* (*S.*) *sulawesi* sp. n.; possibly *S. zamboangae* Hebard, 1922 (Mindanao I.).]

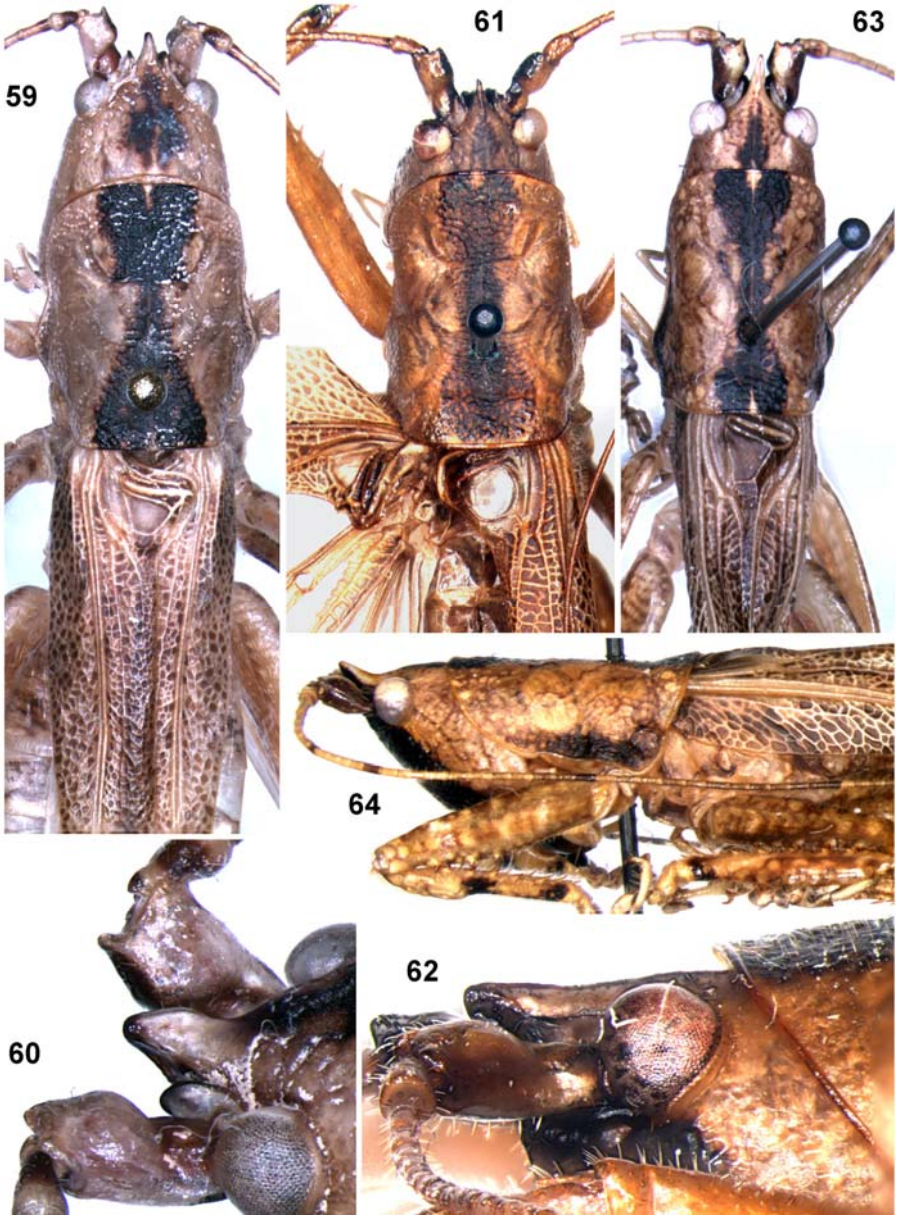
– Male cercus diverse but without hook-like ventroproximal process (Figs 71–73, 75, 76); male genitalia with a pair of sclerites lacking any additional plate-like structure near apices of these sclerites (Figs 55–58). Female genital plate without distinct lateroproximal lobules (Fig. 80) ..... 3

3. Male cercus with almost spine-like distal part and rounded medial lobe in middle part (Figs 71–73); each sclerites of male genitalia with barely hooked apical spine (Figs 55, 56). Female genital plate with rather long spine-like processes at apices of posterior lobes (i. e. these lobes rather wide and distinctly separated from clearly narrower distal spine-like processes; Fig. 80). Vietnam ..... ..... subgenus ***Vietnacera* Gorochov, subgen. n.** [Included species: *S.* (*V.*) *vietnami* sp. n. (Southern Vietnam) – type species of *Vietnacera.* Etymology: *Vietnacera* consists of parts of the words Vietnam (name of country) and *Scytocera* (generic name).]

– Male cercus with two or three spine-like or finger-like distal processes (Figs 75, 76); each sclerites of male genitalia with slightly widened apex having group of denticles (Fig. 57). Female genital plate without spine-like processes at apices of posterior lobes, or these lobes with proximal parts gradually narrowing to almost spine-like distal parts. Sunda Islands ..... ..... subgenus ***Bornecera* Gorochov, subgen. n.** [Included species: *S. borneensis* Karny, 1926 (Borneo) – type species of *Bornecera*; possibly *S. kemneri* Karny, 1926 (Java). Etymology: *Bornecera* consists of parts of the words Borneo (name of island) and *Scytocera* (generic name).]

4. Pronotum long, distinctly longer than in all other subgenera of this genus. Male cercus simple, with distal part spine-like and curved medially. Ovipositor weakly curved upwards (Fig. 82). New Guinea ..... …..... subgenus ***Papucera* Gorochov, subgen. n.** [Included species: *S. smaragdifrons* Naskrecki et Rentz, 2010 (Papua New Guinea) – type species of *Papucera*. Etymology: *Papucera* consists of parts of the words Papua New Guinea (name of country) and *Scytocera* (generic name). Possibly it is a separate genus.]

– Pronotum clearly shorter, approximately as in majority of *Scytocera* subgenera (Figs 59, 61, 63, 64). Ovipositor strongly curved upwards (Fig. 83). New Guinea. ..... subgenus ***Morocera* Gorochov, subgen. n.** [Included species: *S. loriae* Griffini, 1908 (Papua New Guinea) – type species of *Morocera*. Etymology: *Morocera* consists of parts of the words Moroka (name of type locality) and *Scytocera* (generic name). Possibly it is a separate genus also.]

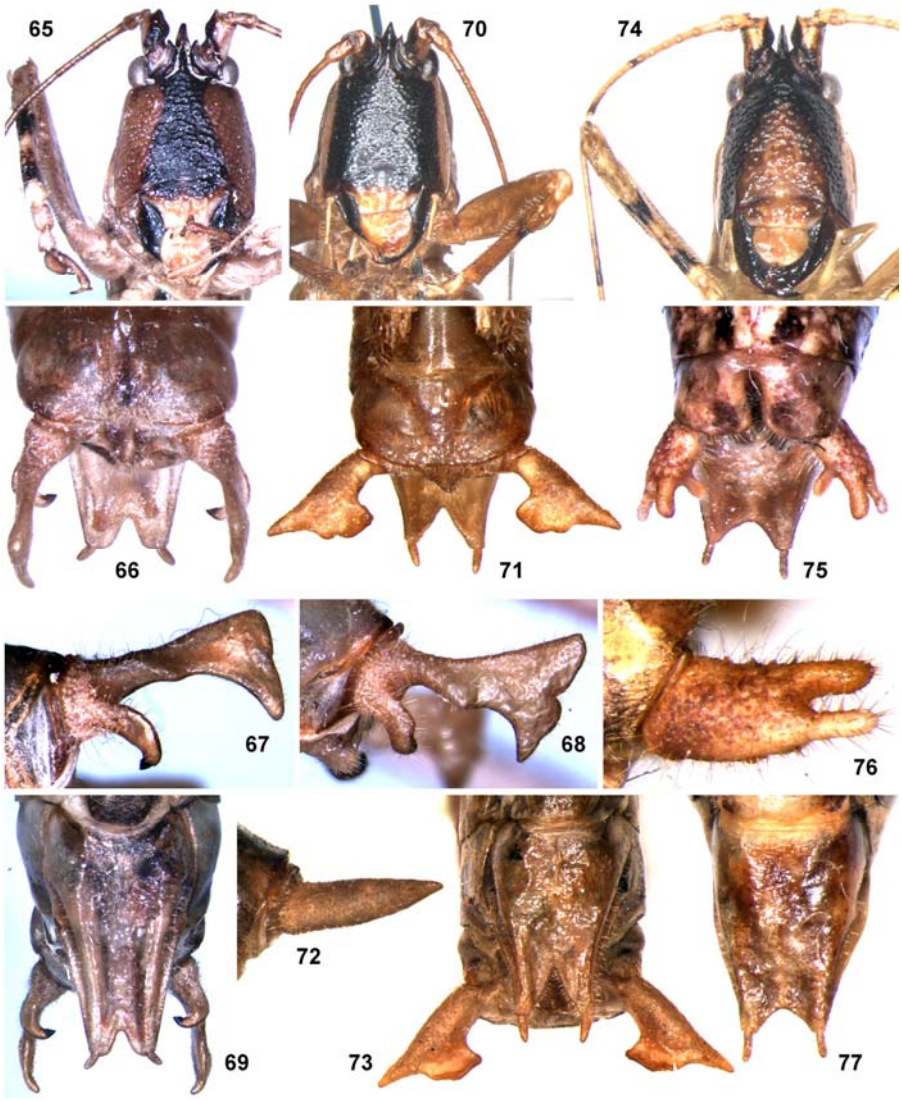



Figs 59–64. *Scytocera*, male: 59, 60 – *S.* (*Scytocera*) *sulawesi* sp. n.; 61, 62 – *S.* (*Vietnacera*) *vietnami* sp. n.; 63, 64 – *S.* (*Bornecera*) *borneensis sandakani* subsp. n. Head, pronotum and proximal part of tegmina from above (59, 61, 63) and from side (64); rostral tubercle of head and scapes, dorsolateral view (60); upper part of head from side (62).

***Scytocera* (*Scytocera*) *sulawesi* Gorochov, sp. n.**
Figs 51–54, 59, 60, 65–69, 78, 79

MATERIAL. Holotype – ♂, **Indonesia**: Sulawesi Utara Prov., Bunaken I. near Manado City on Sulawesi (Minahassa Peninsula), Bunaken National Marine Park, secondary forest, on branch of bush at night, 18–25.II 2011, A. Gorochov. Paratypes: 2 ♀, same data as for holotype; 1 ♂, same province, ~40 km NE of Manado City on Sulawesi, Tangkoko National Park on eastern coast of Minahassa Peninsula, environs of Tangkoko Lodge, secondary forest, on branch of bush at night, 3–6.II 2011, A. Gorochov.

DESCRIPTION. Male (holotype). Body rather large for this genus. Colouration yellowish with greyish tinge and with following marks: anterior surface of epicranium with large and elongate blackish triangle widening to clypeus and including anterior part of rostral tubercle and most part of antennal cavities; head dorsum with smaller and elongate dark brown median spot behind rostral tubercle; rest part of this tubercle almost whitish; mandibles black with small lateroproximal area light brown; antennae with very light scape having large dark brown ventromedial area, with brown spots on pedicel and first segment of flagellum, and with light brown rest of flagellum having sparse and small brown (but poorly visible) spots; pronotum with dark brown to blackish median band on disc (this band widened in anterior and posterior parts as well as narrowed and less dark in middle part; Figs 59, 60, 65); tegmina with numerous brown and dark brown small spots (almost dots) on membranes of dorsal and lateral fields (but membrane of mirror greyish, semitransparent; Fig. 59); legs with light brown to brown spots on outer side of femora and on middle and hind tibiae, with two dark brown transverse bands on fore tibia, with almost dark brown such band on distal part of middle and hind tibiae, and with partly darkened third tarsal segment and distal part of fourth tarsal segment; hooks of cerci with darkened apical part (Figs 66–69). Head distinctly conical (opistognathous), with angular (in profile) and almost lamellar rostral tubercle having characteristic dorsal convexity (Figs 59, 60, 65), with scape almost 3 times as wide as minimal space between antennal cavities (this space with low median keel from apex of rostral tubercle to ventral edges of antennal cavities); scape longer than this tubercle and with small medial angular lobule. Pronotum as in Fig. 59 (with sinuate ventral edges of lateral lobes and almost vertical posterior edges of these lobes, i. e. hind pronotal lobe undeveloped); anterior edge of pronotal disc roundly convex but posterior one almost truncate; surfaces of epicranium and pronotum clearly shagreen. Tegmina reaching apex of 5th abdominal tergite, moderately narrow and with narrowly rounded (almost angular) apex; dorsal tergminal field rather short but with somewhat widened proximal half having small stridulatory apparatus (Fig. 59) and with narrow more distal part; lateral tegminal field gradually narrowing to apex and with cellular venation (Fig. 59); hind wings slightly not reaching tegminal apices. Legs with 5 outer and 4 inner ventral spines on fore femur, 5–6 outer ventral spines on middle femur, 8–9 outer ventral spines on hind femur, 6 inner and 7 outer ventral spines on fore tibia, 8 outer and 2 inner ventral spines on middle tibia, and rather numerous spines on both dorsal carinas and on ventral outer one of hind tibia. Abdomen with




Figs 65–77. *Scytocera*, male: 65–69 – *S.* (*Scytocera*) *sulawesi* sp. n. (68 – paratype); 70–73 – *S.* (*Vietnacera*) *vietnami* sp. n.; 74–77 – *S.* (*Bornecera*) *borneensis sandakani* subsp. n. Head (anteroventral view) and fore leg (65, 70, 74); abdominal apex from above (66, 71, 75) and from below (69, 73); left cercus from side (67, 68, 72, 76); genital plate from below (77).

last tergite having shallow posteromedian concavity, with rather small and elongately triangular epiproct, with rather small and lobe-like paraprocts, with cercus similar to that of *S. niger* but having higher distal part (this part with distinct posteroventral lobe)

as well as more curved and strong ventroproximal hook (Figs 66, 67), and with genital plate as in Fig. 69; genitalia also similar to those of this species but with narrowed posteromedian part of unpaired sclerite longer and narrower (Figs 51, 52).

Variation. Second male somewhat smaller, with anterior surface of epicranium having dark area only in upper part, with pronotum having dark median band almost interrupted in middle part, with tegmina reaching anterior part of 6th abdominal tergite, with cercus having somewhat more projected posterodorsal corner (Fig. 68), and with genital sclerite insignificantly different in shape (Figs 53, 54).

Female. General appearance as in males, but tegmina with dorsal field more gradually narrowing to apex and lacking stridulatory apparatus, distal part of hind femur sometimes darkened (almost blackish), epiproct slightly shorter, and cerci rather short and more or less fusiform. Genital plate with a pair of almost spine-like lateroproximal lobules and with distinct angular notch at apex (Fig. 78); ovipositor brown to light brown, weakly arcuate, not high, and with acute apex (Fig. 79).

Length (in mm). Body: ♂ 31–37, ♀ 25–29; pronotum: ♂ 6.7–7.3, ♀ 6.7–7; tegmina: ♂ 12.5–14, ♀ 12.5–14; hind femora: ♂ 13.5–15.5, ♀ 13.5–14.5; ovipositor 13.5–15.

COMPARISON. The new species differs from *S. niger* in a distinctly less dark colouration, the presence of a characteristic posteroventral lobe on the male cercus, and a longer and narrower median part of the male genital sclerite. From *S. zamboanga*, the new species is distinguished by a somewhat lighter colouration, clearly spotted legs, and the male cercus with the ventromedial hook distinctly visible in the profile and with a less spine-like ventral projection in the middle part of cercus; and from *S. longicornis*, by the anterior surface of epicranium with a distinct dark area under the antennal cavities, legs distinctly spotted, tegmina somewhat shorter, female genital plate with thinner (almost spine-like) lateroproximal lobules, and a slightly higher and shorter ovipositor (hind femur is almost equal to ovipositor in the length in *S. sulawesi*, and slightly shorter than ovipositor in *S. longicornis*).

ETYMOLOGY. This species is named after the Sulawesi Island.

***Scytocera* (*Vietnacera*) *vietnami* Gorochov, sp. n.**
Figs 55, 56, 61, 62, 70–73, 80, 81

MATERIAL. Holotype – ♂, **Vietnam**: Dong Nai Prov., Vinh Cuu Distr., Vinh Cuu Nature Reserve (= Ma Da Forest), TW Cuc Forest Station, 11°22′51″ N, 107°03′44″ E, 75 m, 18–27.VI 2011, L. Anisyutkin, A. Anichkin. Paratypes: 1 ♂, 1 ♀, same data as for holotype; 1 ♂, 1 ♀, same province, Cat Tien National Park, 5–17.VI 2011, L. Anisyutkin, A. Anichkin.

DESCRIPTION. Male (holotype). Body size and colouration similar to those of *S. sulawesi* but with following differences: general colouration light greyish brown; darkened area on anterior surface of epicranium black and larger, occupying anterior half of head including anterior half of rostral tubercle and most part of antennal cavities; mandibles and upper half of clypeus also black; subgenae dark brown; labrum

brown with light brown upper part; antennae light brown with large ventromedial area on scape blackish, with spot on pedicel brown, and with flagellum almost uniformly coloured but gradually darkening to brown colour in middle and distal parts; dorsum of head and pronotum with dark brown to brown not large elongate area on head and median (longitudinal) band on pronotal disc (this band rather wide but somewhat narrowed in middle part; Figs 61, 62, 70); tegmina almost uniformly light greyish brown but with slightly darkened membranes in basal part of stridulatory apparatus (its mirror greyish, semitransparent); legs also uniformly coloured but with dark spot on fore tibia near distal edges of tympana and with brown mark on subapical part of this tibia. Shape of head, pronotum and tegmina more or less similar to those of *S. sulawesi*, but surfaces of head and pronotum somewhat less shagreen, rostral tubercle with straight dorsal edge in profile (Fig. 62), pronotum with somewhat more oblique posterior edges of lateral lobes, and tegmina longer (approximately reaching abdominal apex) and with stridulatory apparatus as in Fig. 61. Last abdominal tergite with very short posteromedian lobe widely truncated (barely and roundly notched) at apex; epiproct and paraprosts similar to those of *S. sulawesi*; cercus rather short, with apical spine-like process directed backwards and somewhat laterally, and with rather large (but not long) rounded medial lobe (this lobe with sinuate posterior edge; Fig. 71–73); genital plate as in Fig. 73; genitalia with a pair of long, rather narrow and curved sclerites having acute and almost hooked apices (Figs 55, 56).

Variations. Sometimes body size somewhat smaller, general colouration slightly lighter (yellowish with greyish tinge), and genital sclerites insignificantly thinner.

Female. General appearance as in males, but structure of tegminal dorsal field and of abdominal apex almost as in female of *S. sulawesi*; however, genital plate without lateroproximal lobules and with long spine-like processes on apices of rather long posterior lobes (Fig. 80), and ovipositor narrower (lower) than in above-mentioned species and slightly shorter than hind femur (Fig. 81).

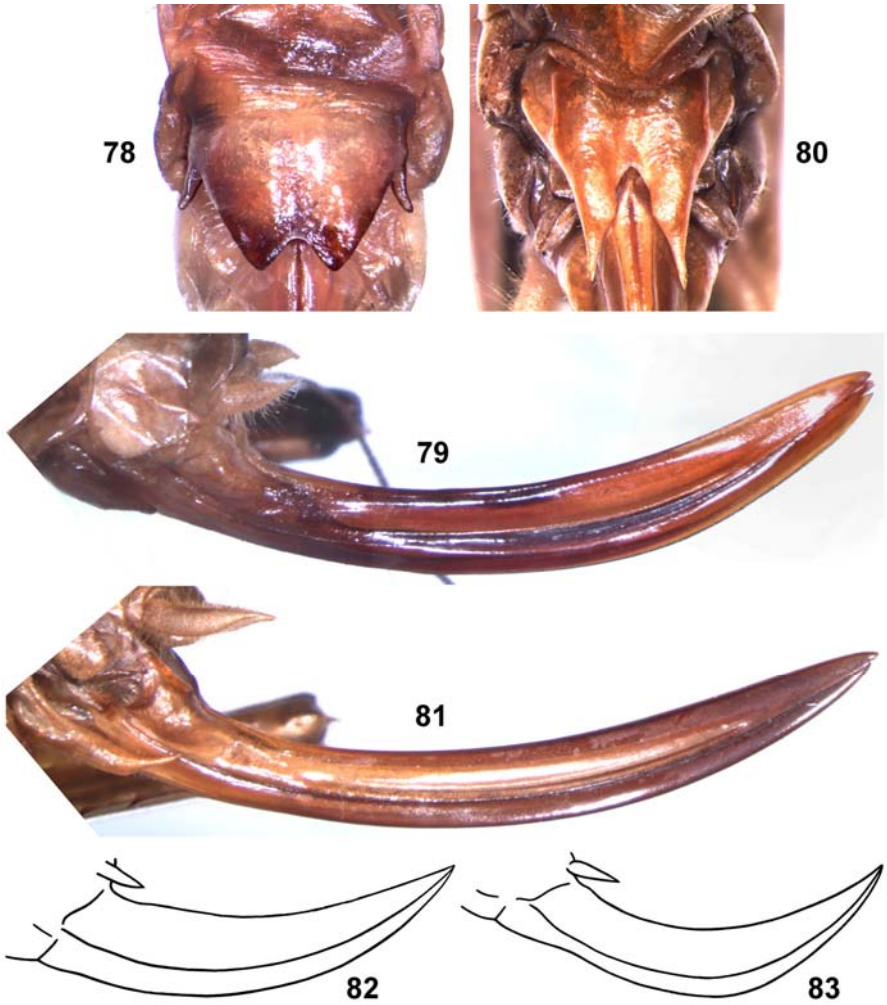
Length (in mm). Body: ♂ 28–34, ♀ 29–31; pronotum: ♂ 6.7–7.5, ♀ 7.5–7.7; tegmina: ♂ 22–24, ♀ 23–25; hind femora: ♂ 14–16, ♀ 17–18; ovipositor 15.5–16.

COMPARISON. The new species is a single representative of this subgenus, and its differences from all the other congeners are given above, in the key to *Scytocera* subgenera.

ETYMOLOGY. This species is named after the Vietnam Country where it was collected.

***Scytocera* (*Bornecera*) *borneensis sandakani* Gorochov, subsp. n.**
Figs 57, 58, 63, 64, 74–77

MATERIAL. Holotype – ♂, **Malaysia**: Borneo, Sabah State, Sandakan Division, environs of Sukau Vill. on Kinabatangan River (~35 km from sea), ~sea level, secondary / primary forest, on leaf of bush at night, 8–13.V 2013, A. Gorochov, M. Berezin, E. Tkatsheva.




Figs 78–83. *Scytocera*, female: 78, 79 – *S.* (*Scytocera*) *sulawesi* sp. n.; 80, 81 – *S.* (*Vietnacera*) *vietnami* sp. n.; 82 – *S.* (*Papucera*) *smaragdifrons* Naskrecki et Rentz; 83 – *S.* (*Morocera*) *loriae* Griff. Genital plate from below (78, 80); ovipositor from side (79, 81–83) [82 – after Naskrecki & Rentz (2010); 83 – after photograph from Eades *et al*. (2016)].

DESCRIPTION. Male. Body rather small for this genus. Colouration yellowish with greyish tinge, brownish marble pattern on light areas and following darker marks: epicranium with dark brown areas as in *S. vietnami* but also with brown to light brown median triangular space on anterior surface (this space starting near ventral edges of eyes and widening to clypeus); clypeus light brown with brown lateral parts; labrum yellowish orange; mandibles black; subgenae brown to dark brown; scape with large blackish ventromedial area and with greyish brown lateral


Fig. 84. Holotype of *Lesina (Ellatodon) maxima* sp. n. in living condition in nature. Photo by M.V. Berezin.

half; rest of antennae with yellowish proximal part having brown spot on pedicel and sparse small brown spots on flagellum, and with greyish middle and distal parts having very sparse small greyish brown spots; pronotum with median (longitudinal) blackish band on disc (this band widened in anterior and posterior parts, narrowed in middle part, and with a few small light marks inside this band; Figs 63, 74) and dark brown longitudinal stripe along ventral edge of each lateral lobe (Fig. 64); colouration of tegmina and legs very similar to that of *S. sulawesi* but without dark area in distal part of hind femur; abdominal tergites brown with numerous yellowish dots, but last tergite and other structures of abdominal apex light brown. Shape of head and pronotum (including rostral tubercle) more or less similar to that of *S. vietnami* (Figs 63, 64, 74), but their surface somewhat more shagreen (almost as in *S. sulawesi*). Tegmina (Fig. 63) also as in these species but reaching 8th abdominal tergite; hind wings slightly not reaching tegminal apices. Abdominal apex also similar to that of these species, but with last tergite having longitudinal (median) fold and barely sinuate posterior edge, with epiproct slightly narrower, with cercus very similar to that of nominotypical subspecies (having 3 finger-like processes in distal half) but having ventrolateral process barely longer than dorsolateral process (Figs 75, 76), and with genital plate as in Fig. 77; genitalia with a pair of sclerites very similar to those of *S. b. borneensis* but distinctly thinner and with less numerous apical denticles (Fig. 57, 58).

Female unknown.

Length (in mm). Body 22; pronotum 5.6; tegmina 10.5; hind femora 12.

COMPARISON. The new subspecies differs from *S. b. borneensis* in the male cercus with the ventrolateral process clearly longer (in nominotypical subspecies, this process is distinctly shorter than dorsolateral one), as well as in the male genital characters listed in the description.

ETYMOLOGY. This subspecies is named after the Sandakan Division of Sabah (Malaysia).

## ACKNOWLEDGEMENTS

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