New data on Asiatic and Papuan crickets of the subfamily Landrevinae (Orthoptera: Gryllidae)

Новые данные по азиатским и папуасским сверчкам подсемейства Landrevinae (Orthoptera: Gryllidae)

A.V. GOROCHOV

А.В. Горохов

A.V. Gorochov, Zoological Institute, Russian Academy of Sciences, 1 Universitetskaya Emb., St Petersburg 199034, Russia. E-mail: orthopt@zin.ru

Eight new taxa belonging to the tribe Landrevini are described from Laos, Malaysia and Indonesia: Duolandrevus (Eulandrevus) namlik sp. nov.; D. (Duolandrevus) matang sp. nov.; D. (D.) spinicauda gading subsp. nov.; D. (Bejorama) lambir sp. nov.; Endodrelanva aliena sp. nov.; E. similajau sp. n.; Endolandrevus? buton sp. nov.; E.? papua sp. nov. These taxa are distinguished from each other and from the all previously described congeners by body colouration, tegminal structure, peculiarities of male metanotal gland, and/or shape of some genital parts. Additional data on distribution of some old species are also provided.

Из Лаоса, Малайзии и Индонезии описаны восемь новых таксонов трибы Landrevini: Duolandrevus (Eulandrevus) namlik sp. nov.; D. (Duolandrevus) matang sp. nov.; D. (D.) spinicauda gading subsp. nov.; D. (Bejorama) lambir sp. nov.; Endodrelanva aliena sp. nov.; E. similajau sp. n.; Endolandrevus? buton sp. nov.; E.? papua sp. nov. Эти таксоны отличаются один от другого и от всех ранее описанных представителей тех же родов окраской тела, строением надкрылий, особенностями метанотальной железы самца и/или формой некоторых генитальных частей. Приведены также новые данные по распространению некоторых уже описанных видов.

Key words: crickets, taxonomy, Laos, Malaysia, Indonesia, Orthoptera, Gryllidae, Landrevinae, Landrevini, new taxa

Ключевые слова: сверчковые, таксономия, Лаос, Малайзия, Индонезия, Orthoptera, Gryllidae, Landrevinae, Landrevini, новые таксоны

INTRODUCTION

This paper is the next step in the taxonomic study of Asiatic and Papuan landrevines on the base of a detailed analysis of their genital morphology which was started by Gorochov (1982). Later, such study (or at least its elements) was continued by the same author and his colleagues (Gorochov, 1988, 1990, 1996, 2000, 2001, 2003a, b, 2004, 2005, 2016; Otte, 1988; Oshiro, 1988, 1989; Ichikawa, 2001; Gorochov & Warchalowska-Sliwa, 2004; Liu & Bi, 2010; Ma, Gorochov & Zhang, 2015; Liu, He & Ma, 2015; Tan & Kamaruddin,

2016; Zhang, Liu & Shi, 2017a, b). These publications show that the Landrevini is a rather diverse group of the forest crickets distributed mainly in tropics and including numerous species with very small areas. The differences between its genera are mainly in the structure of male genitalia and wings, but often these difference are not very distinct, and some good genera are connected with each other by species with intermediate characters; such difficulty in distinguishing genera may be a result of the intensively continuing adaptive radiation of Landrevini yet not accompanied by numerous extinctions.

The material examined (including the all type specimens) is deposited in the Zoological Institute, Russian Academy of Sciences, St Petersburg. This material was collected in tropical forests mainly on the trunks of living and dead trees but sometimes on leaves and thin branches of bushes. Some specimens were collected as nymphs and grown to imago in artificial conditions.

TAXONOMIC PART

Subfamily **LANDREVINAE** Saussure, 1878

Tribe **LANDREVINI** Saussure, 1878

Note. Judging by the electronic catalogue (Cigliano et al., 2017), this tribe contains 27 genera distributed in South America, Seychelles and from East Asia to Australia. However, such composition of this tribe is evidently erroneous, because all the genera from America (Xulavuna de Mello et Campos, 2014 and Yarrubura de Mello et Campos, 2014) and Seychelles (Gryllapterus Bolivar, 1912) most probably belong to the tribes Odontogryllini de Mello, 1992 and Prolandrevini Gorochov, 2005, respectively. Moreover, some other genera from this list (Paralandrevus Saussure, 1877, Drelanvus Chopard, 1930, Lasiogrullus Chopard, 1930) are not very understandable and may be synonyms or subgenera of any other genera from the same list. But it is most surprising that in this catalogus, the clearly described Indo-Malayan genera Vasilia Gorochov, 1988, Otteana Gorochov, 1990, Endodrelanva Gorochov, 2000 and Ectodrelanva Gorochov, 2000 were placed outside any tribe of Landrevinae, although they clearly belong to Landrevini on the base of all their morphological characters (including the general appearance as well as the structure of wings and male genitalia) and mode of life; such systematic position of these genera was grounded and used in all the recent publications directly or indirectly concerning their tribal belonging (Gorochov, 2013, 2016).

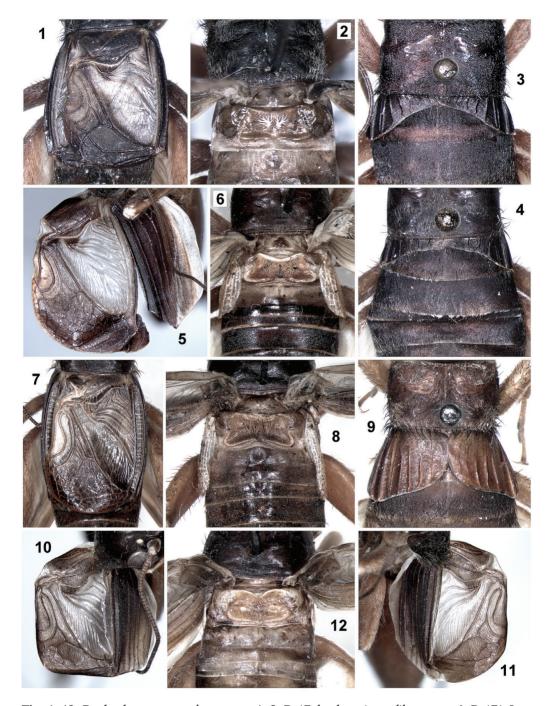
Duolandrevus (Eulandrevus) namlik sp. nov.

(Figs 1-3, 13-18, 67)

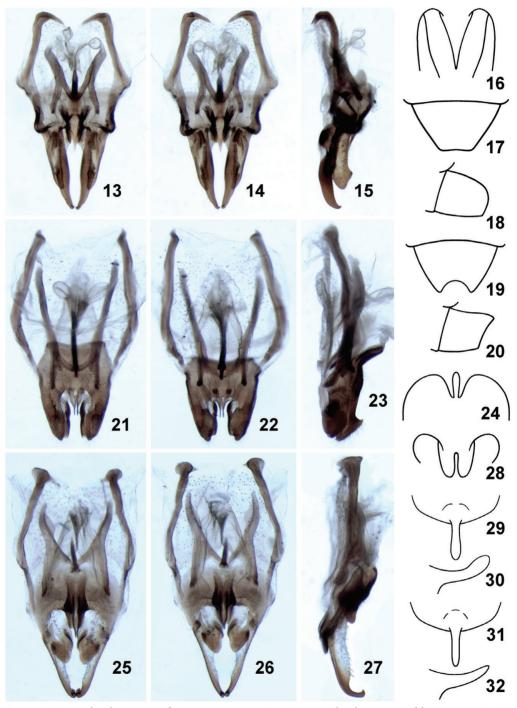
Holotype. Male, Laos, Vientiane Prov., ~70 km NNW of Vientiane City, Nam Lik Eco Vill. on Nam Lik River, 18.61469°N, 102.40847°E, ~200 m, secondary forest, on dead wood at night, 10–30.VI.2017, A. Gorochov, M. Omelko.

Paratypes. Four males and 1 female, same data as for holotype.

Description. Male (holotype). Body medium-sized for this genus. Colouration of head and pronotum very dark brown (almost blackish) but with grevish brown small median spot on apex of rostrum, triangular median spot between previous spot and clypeus, and most part of antenna (except for light brown scape having brown medial part), with vellowish ocelli and large median area on lower half of clypeus, with reddish brown labrum having almost light brown median part, and with light brown maxilla and labium (but their palpi from light brown to greyish brown); tegmina with rather light brownish grey and semitransparent middle part of dorsal field having slightly darker venation, with almost dark brown basal area and grevish brown distal part of this field, and with almost blackish lateral field having whitish stripe along its ventral (costal) edge (Fig. 1); legs reddish brown with hind femur having barely lighter subdistal transverse spot on dorsal surface, light brown proximal half of inner surface, and intensively brown distal part; other tergites as well as pleurites light brown with brown to dark brown fifth-ninth abdominal tergites: pterothoracic sternites grevish brown; abdominal sternites almost dark brown; anal plate, paraprocts and genital plate also dark brown; cerci grevish brown with light brown bases. External structure of body typical of this subgenus but with following characteristic features: head comparatively high, with rostrum between antennal cavities 1.1 times as wide as scape and roundly angular in profile, with median ocellus very small and transverse, with lateral ocelli much larger than previous



Figs 1–12. Duolandrevus, external structure: 1–3, D. (Eulandrevus) namlik sp. nov.; 4, D. (E.) ?unguiculatus Ma, Gor. et Zhang; 5, 6, D. (Duolandrevus) matang sp. nov.; 7, 8, D. (D.) spinicauda gading subsp. nov.; 9, D. (D.) kubah Gor.; 10–12, D. (Bejorama) lambir sp. nov. Dorsal field of right male tegmen (1, 7); right (5, 10) and left (11) male tegmina; region of male metanotal gland from above (2, 6, 8, 12); region of female tegmina from above (3, 4, 9).



Figs 13–32. Duolandrevus, copulatory structures: 13–18, D. (Eulandrevus) namlik sp. nov.; 19, 20, D. (E.) ?unguiculatus Ma, Gor. et Zhang; 21–24, D. (Duolandrevus) matang sp. nov.; 25–30, D. (D.) spinicauda gading subsp. nov.; 31, 32, D. (D.) s. spinicauda Gor. Male genitalia from above (13, 21, 25), from below (14, 22, 26) and from side (15, 23, 27); unpaired posteromedian lobule (16) or a pair of posteromedial lobules (24, 28) of epiphallus from above; female genital plate from below (17, 19) and from side (18, 20); spine of male anal plate from above (29, 31) and from side (30, 32).

ocellus (but not very large) and obliquely oval, and apical segment of maxillary palpus clearly widened at apex as well as slightly longer than its third segment and distinctly longer than fourth (subapical) one; pronotum clearly transverse, with almost parallel lateral sides, with barely concave anterior and practically straight posterior edges, and with moderately low lateral lobes having almost straight and more or less horizontal ventral edges; tegmina reaching base of fifth abdominal tergite, with well developed stridulatory apparatus having small but strongly transverse mirror and very short apical area (Fig. 1), and with lateral field lacking crossveins but having seven single longitudinal veins almost parallel to its ventral edge; hind wings practically absent; metanotal gland as in Fig. 2; legs with medium-sized oval tympana on outer and inner surfaces of fore tibia, with four pairs of dorsal articulated spines in distal half of hind tibia (except for six apical spurs), with 5–7 outer and 5–6 inner dorsal denticles in proximal half of this tibia, and with 5 outer and 4 inner dorsal denticles on hind basitarsus (except for a pair of apical spurs); anal plate simple, rather short and with widely rounded apex; genital plate almost twice as long as previous plate, with rounded apex having small and narrow posteromedian notch. Genitalia: epiphallus fused with rami, provided with strongly convex lateral parts of transverse fold (these parts lobelike and distinctly projected backwards and laterally), with rather long and narrowly angular (almost spine-like) posteromedian lobule, and with long and vertically situated (more or less lamellar in distal half) posterolateral lobes having subapical dorsal projection on each lobe (this projection rather small and almost angular); each ectoparamere very long, in shape of very elongate plate slightly widened in middle part and with curved upwards (almost hooked) apical part which distinctly protruding behind apices of epiphallus (Figs 13–16).

Variations. One male distinguished from holotype by somewhat shorter apical part

of epiphallic posterolateral lobes located behind their subapical dorsal projections, endoparameres slightly narrower, and their apodemes shorter (possibly this male very young, and its genitalia insufficiently sclerotized).

Female. General appearance as in holotype, but spot on rostral apex and triangular median spot on epicranium near clypeus fused with each other, pronotal disc with barely lighter (almost brown) blurred marks, tegmina almost completely blackish and reaching base of first abdominal tergite as well as with obliquely concave posteromedial edges (medial parts of tegmina very short) and with several single longitudinal veins only (with 6-7 such veins in dorsal field, with six ones in lateral field, and without crossveins in both fields), metanotal gland absent, colouration of all pterothoracic and abdominal tergites similar to that of pronotum (almost completely dark brown), dorsal surface of hind tibia barely darker than its other parts, armament of hind leg with six pairs of dorsal denticles on tibia and with five pairs of dorsal denticles on basitarsus, and anal plate with brown to light brown proximal two thirds and dark brown distal third. Genital plate moderately short, distinctly narrowing to truncated or barely notched apex, as well as with obtusely rounded posterolateral and posterodorsal parts (Figs 17, 18); ovipositor clearly shorter than hind femur, with distal part as in Fig. 67.

Length in mm. Body: male 15.5–17, female 16.5; pronotum: male 2.6–2.9, female 3; tegmen: male 6.3–6.8, female 2.3; hind femur: male 10–11.5, female 12; hind tibia: male 7–8, female 8.2; ovipositor 9.8.

Comparison. The new species is clearly distinguished from similar *D*. (*E*.) unguiculatus Ma, Gorochov et Zhang, 2015 (also present in Vientiane Province) by the unpaired (non-bifurcated) and much shorter posteromedian epiphallic lobule. From all the other representatives of this subgenus, *D. namlik* sp. nov. differs in the unpaired posteromedian epiphallic lobule as well as

in the different shape of distal epiphallic parts in the profile or distinctly longer ectoparameres.

Etymology. This species is named after the Nam Lik Eco Village, because its type locality is in the immediate environs of this place.

Duolandrevus (Eulandrevus) ?unguiculatus Ma, Gorochov et Zhang, 2015 (Figs 4, 19, 20)

New material. Laos: 3 females, Vientiane Prov., ~70 km NNW of Vientiane City, Nam Lik Eco Vill. on Nam Lik River, 18.61469°N, 102.40847°E, ~200 m, secondary forest, on dead wood at night, 10–30.VI.2017, A. Gorochov, M. Omelko; 1 female, Champasak Prov., Bolaven Plateau, 14 km SE of Muang Paxong, Ban Houayteuay, 1200 m, 15°4.655′N, 106°16.848′E, disturb forest, carrion trap, 6.V–14.VI.2006, S. Tarasov.

Note. This species was described after a single male from China (Ma, Gorochov & Zhang, 2015), but later it was redescribed after males and females from the Vientiane Province of Laos: Phu Khao Khouay National Park (Gorochov, 2016). The latter females as well as the females listed above are very similar to each other in the general appearance (including colouration) and characteristic structure of genital plate (with angular and more or less acute posterodorsal lobules; Figs 19, 20). However, there are some small differences: in the females from Nam Lik Eco Village, medial parts of tegmina are almost as in *D. namlik* **sp. nov.** (i.e. slightly shorter than in the females from other known localities of Laos; for comparison see Fig. 4 and Gorochov, 2016: fig. 135); in the female from Bolaven Plateau, tegmina are more similar to those of females from the Phu Khao Khouay National Park.

Duolandrevus (Duolandrevus) matang sp. nov.

(Figs 5, 6, 21-24)

Holotype. Male, Malaysia, Sarawak State (Borneo I.), environs of Kuching City, Kubah National Park on Matang Mt, 200–500 m, primary forest, in fissure of dead wood at night, 27.XI-1.XII.2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov.

Description. Male (holotype). Body rather large for this genus. Colouration of head and pronotum dark brown with one small brown triangular median spot near clypeus, a pair of small brown spots in ventroposterior corners of epicranium, whitish ocelli, light grevish brown antennae, a pair of narrow stripes along ventral edge of upper clypeal half, brown lower clypeal half having five whitish longitudinal stripes (two pairs of lateral almost vertical stripes and one median stripe between them partly fused with each other along ventral edge), reddish labrum and middle part of mandibles, brown rest of mandibles, and light brown maxillae and labium (including their palpi); each tegmen with brown basal area and distal part of dorsal field, with almost transparent both small triangle near plectrum and large triangle between lateral field, traces of mirror and stridulatory and diagonal veins, with grevish brown area between brown diagonal vein and brown chords, with vellowish areas between these chords and along medial edge of dorsal field, and with dark brown lateral field having rather wide whitish band along costal edge (Fig. 5); legs reddish brown with hind femur having light brown proximal half of inner surface and small subdistal area on dorsal surface as well as brown (slightly darker than most part of this femur) subapical band, and with almost light brown dorsal surfaces of hind tibia and hind basitarsus; hind wings and rest of thorax light brown to yellowish; abdomen with brown tergites having light brown transverse band on proximal part of anterior tergite and narrow line along posterior edge of each tergite, with light greyish brown sternites and genital plate, with brown epiproct and paraprocts, and with greyish brown cerci having light brown bases. Structure of body more or less similar to that of *D*. namlik sp. nov. and with following characteristic features: rostrum between antennal

cavities approximately 1.1 times as wide as scape; head barely wider than pronotum; tegmina reaching base of sixth abdominal tergite and with slightly less developed stridulatory apparatus having only indistinct traces of mirror (Fig. 5); tegminal lateral field with eight longitudinal veins similar to those of *D. namlik* sp. nov. and with numerous dense but barely visible crossveins; hind wings reaching apex of first abdominal tergite; metanotal gland as in Fig. 6; hind tibia with 4–5 inner and 7–8 outer dorsal denticles; hind basitarsus with 5-6 inner and six outer dorsal denticles: anal plate with rather widely truncated apex; genitalia most similar to those of D. kubah Gor. (Gorochov, 2016: figs 86–89) but with epiphallus having slightly narrower anterior part (which distinctly curved upwards), less thin and acute apical parts of posterolateral lobes, and more distal position of subapical angular projections on these lobes (these projections directed upwards), as well as with clearly longer rachis and rami (Figs 21-24).

Female unknown.

Length in mm. Body 27; pronotum 4.3; tegmen 10.5; hind femur 16.5; hind tibia 11.

Comparison. The new species belongs to the group of *Duolandrevus* s. str. having a dorsal spinule or small angular projection in the distal part of each posterolateral epiphallic lobe, but it differs from the other representatives of this group in the following characters: from *D. brachypterus* (Haan, 1844), D. bengkulu Gorochov, 2016, D. curup Gorochov, 2016, D. selatan Gorochov, 2016, D. lampung Gorochov, 2016 and D. rufus Chopard, 1931, in the distinctly more distal position of these projections; from D. sympatricus Gorochov, 2016 and D. pendleburyi Otte, 1988, in the slightly more distal position of these projections as well as less distinct mirror in the male tegmina; and from D. kubah, in the characters of male genitalia listed above (in the description).

Etymology. The new species is named after the Matang Mount where this species was collected.

Duolandrevus (Duolandrevus) spinicauda gading subsp. nov. (Figs 7, 8, 25–30)

Holotype. Male, Malaysia, Sarawak State (Borneo I.), 80–90 km WWN of Kuching City, Gunung Gading National Park, 100–300 m, primary forest, on dead wood at night, 22–26. XI.2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov.

Paratype. Male, same data as for holotype.

Description. Male (holotype). Body slightly larger than in D. namlik sp. nov. and smaller than in D. matang sp. nov. Colouration similar to that of D. matang, but brown (slightly lighter than most part of epicranium) spots near clypeus and on genae somewhat larger (median spot reaching apex of rostrum), antennae barely darker (grevish brown with almost light brown areas on scapes), most part of lower clypeal half light brown, tegminal areas between chords whitish and between diagonal vein and chords almost transparent, basal area of tegminal dorsal field with light brown marks, veins in this field from light brown to reddish brown (Fig. 7), and abdominal tergites without distinct light lines along their posterior edges. External structure of body also similar to that of D. matang; however, tegmina reaching middle part of sixth abdominal tergite (Fig. 7), hind wings and metanotal gland as in Fig. 8, hind tibia with 4-5 inner and six outer dorsal denticles, hind basitarsus with four inner and 4-5 outer dorsal denticles, and anal plate with posteromedian spine-like process very similar to that of nominotypical subspecies but more thickened in distal part (see Figs 29-32). Genitalia very similar to those of D. s. spinicauda Gorochov, 2016, but with distal part of each posterolateral epiphallic lobe thinner and curved upwards in subapical part (but not curved upwards and medially in apical part) (Figs 25–28).

Variations. Second male with areas between tegminal chords almost transparent, anterior abdominal tergite more or less uniformly brown, and two posterior sternites as well as genital plate darker (greyish brown); number of denticles on hind tibia and hind basitarsus insignificantly varied.

Female unknown.

Length in mm. Body 19.5–20; pronotum 2.9–3; tegmen 8.3–8.5; hind femur 12.5–13; hind tibia 8–8.2.

Comparison. The new subspecies differs from *D. s. spinicauda* (found in another locality of Sarawak State: Kubah National Park) in the male metanotal gland having the lateral parts of posterior keel-like fold slightly more drawn backwards and laterally as well as in the characters of male genitalia listed in the description.

Etymology. This subspecies is named after its type locality (Gunung Gading National Park).

Duolandrevus (Duolandrevus) kubah Gorochov, 2016 (Figs 9, 47, 48, 68)

New material. Malaysia, Sarawak State (Borneo I.): 1 male and 1 female, 80–90 km WWN of Kuching City, Gunung Gading National Park, 100–300 m, primary forest, on dead wood at night, 22–26.XI.2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov; 3 males, environs of Kuching City, Kubah National Park on Matang Mt, 200–500 m, primary forest, on dead wood at night, 27.XI–1.XII.2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov.

Description. Female (nov.). Body rather small for this subgenus. Colouration brown with following marks: epicranium almost dark brown with grevish eves, whitish ocelli, light grevish brown vertical stripe from median ocellus to almost clypeal suture and vertical spot on each gena under eye; antenna light grevish brown with brown pedicel and light brown to yellowish scape; clypeus with seven whitish narrow stripes (a pair of stripes along ventral edge of upper clypeal half, two pairs of more or less oblique stripes on lateral parts of lower clypeal half, and one median stripe between latter ones); visible parts of mandibles light brown with somewhat darkened basal areas; labrum yellow; maxillae and labium from light brown to vellowish, but all palpi whitish and with vellowish marks on majority of segments and light brown apical segment of each maxillary palpus; pronotum with rather large light brown spot on anteroventral parts of lateral lobes; tegmina almost uniformly brown but with barely lighter dorsal field; other tergites with small light brown marks mainly on lateral parts; legs light brown but with hind femur having vellowish proximal half of inner surface and subdistal spot on dorsal surface as well as almost brown distal part; pleurites partly vellowish; sternites light brown to brown; anal plate and cerci grevish brown with yellowish cercal bases; genital plate also vellowish. Structure of body as in males of this species (Gorochov, 2016), but following characteristic features present: tegmina reaching posterior third of first abdominal tergite, with six single longitudinal veins in dorsal field and 5-6 such veins in lateral field, with traces of a few crossveins in dorsal field only, and with posteromedial edge of this field rounded in medial third and transversally oblique in lateral two thirds (Fig. 9); metanotal gland absent; legs with 6-7 outer and five inner dorsal denticles on hind tibia as well as with 5-6 outer and 5-6 inner dorsal denticles on hind basitarsus; anal plate approximately as in males in shape; genital plate and ovipositor as in Figs 47, 48, 68.

Length in mm. Body 17; pronotum 2.4; tegmen 3; hind femur 11; hind tibia 7; ovipositor 8.6.

Remark. The above-listed males are very similar to each other in the male genitalia and other characters but somewhat different in size: specimens from Kubah National Park (type locality of this species) are larger than the male from Gunung Gading National Part (in size, this male is almost like the female described). The latter park is a new locality for this species.

Duolandrevus (Bejorama) lambir sp. nov. (Figs 10–12, 41–46)

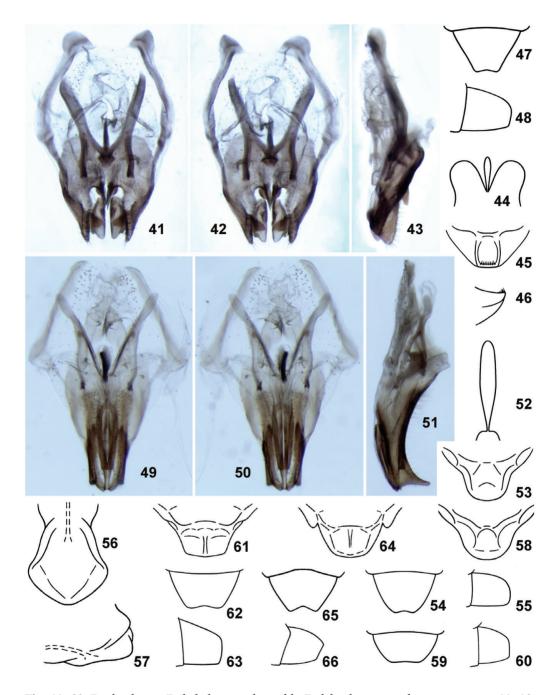
Holotype. Male, **Malaysia**, Sarawak State (Borneo I.), environs of Miri Town, Lambir Hills



Figs 33–40. *Endodrelanva* and possibly *Endolandrevus*, external structure: **33–35**, *Endodrelanva aliena* **sp. nov.**; **36**, *E. similajau* **sp. nov.**; **37**, **38**, *Endolandrevus? buton* **sp. nov.**; **39**, **40**, *E.? papua* **sp. nov.** Right male tegmen (33); region of male metanotal gland from above (34); female body without distal part or distal half, and without all or some legs (35, 36, 38, 40); head in front (37, 39).

National Park, 100–300 m, primary forest, in fissure of dead wood at night, 19–20.XI.2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov, N. Grigoreva.

Description. Male (holotype). Body rather small for this genus. Colouration of head and pronotum very dark brown with brown triangular median spot on epicrani-



Figs 41–66. Duolandrevus, Endodrelanva and possibly Endolandrevus, copulatory structures: 41–46, D. (Bejorama) lambir sp. nov.; 47, 48, D. (Duolandrevus) kubah Gor.; 49–55, Endodrelanva aliena sp. nov.; 56–60, E. similajau sp. nov.; 61–63, Endolandrevus? buton sp. nov.; 64–66, E.? papua sp. nov. Male genitalia from above (41, 49), from below (42, 50) and from side (43, 51); posteromedial lobules of epiphallus from above (44, 52); distal half of male anal plate from above (45) and from side (46); genital (47, 48, 54, 55, 59, 60, 62, 63, 65, 66) and anal (53, 58, 61, 64) plates of female from below (47, 54, 59, 62, 65), from side (48, 55, 60, 63, 66) and from above (53, 58, 61, 64); female copulatory papilla from above (56) and from side (57).

um extending from rostral apex to clypeal suture, large light brown area on lower part of each gena, whitish ocelli, brownish grev antennae having slightly lighter (almost light brownish grey) proximal part, a pair of whitish lines along ventral edge of upper clypeal half, light brown lower clypeal half having two pairs of whitish lateral marks, reddish yellow labrum having dark brown lateral parts, dark brown visible (proximal) parts of mandibles, light greyish brown maxillae and labium (including their palpi), and blurry brown anteroventral area on each lateral pronotal lobe; dorsal tegminal field with brownish basal area and distal part as well as with two almost transparent triangles approximately as in D. matang sp. **nov.** and semitransparent area between diagonal vein and most anal chord (all veins of latter area brownish, but in large transparent triangle, veins from brownish to almost transparent); lateral tegminal field dark brown with whitish band along costal edge (Figs 10, 11); legs reddish with hind femur having reddish brown distal part, light brown to yellowish proximal half of inner surface, and almost vellowish subdistal area on dorsal surface; rest of thorax light brown with reddish brown pterothoracic sternites; abdomen with six posterior tergites brown to dark brown (more posterior tergites darker than more anterior ones), with all sternites and genital plate as well as anal plate and paraprocts brown, with greyish brown cerci having light brown bases, and with rest of abdomen light brown. External structure of body similar to that of D. matang, but with following differences: head somewhat dorsoventrally flattened, almost equal to pronotum in width, with rostrum between antennal cavities practically as wide as scape; tegmina reaching middle part of fifth abdominal tergite, with developed stridulatory apparatus having small but obliquely transverse mirror, and with 8–9 longitudinal veins of lateral field similar to those of D. matang (crossveins of this field not very dense, visible only between four dorsal veins and between proximal parts of other veins; Figs 10, 11); hind wings absent: metanotal gland as in Fig. 12: hind tibia with 5-6 inner and 6-8 outer dorsal denticles; hind basitarsus with 5-6 inner and 4-5 outer dorsal denticles; anal plate with roundly truncated apex and with low keels along posterior and lateral edges of median concavity located on dorsum of this plate near its apex (posterior keel situated along posterior edge of this plate and having one row of stout setae directed upwards; Figs 45, 46). Genitalia most similar to those of *D. praestans* Gor. (Gorochov, 2003b: figs 12-14) but distinguished by anterior epiphallic part somewhat bilobated and by sclerotized ventral parts of posterolateral lobes of epiphallus clearly shorter (Figs 41-44).

Female unknown.

Length in mm. Body 15.2; pronotum 2.5; tegmen 6.6; hind femur 10; hind tibia 6.5.

Comparison. The new species differs from D. praestans with the most similar male genitalia in the presence of mirror in the male tegmen and in the characters of male genitalia listed above. From D. balabacus Otte, 1988, D. gingoogus Otte, 1988 and D. luzonensis Otte, 1988, the new species is distinguished by the absence of distinct dorsal concavity in the middle part of posterolateral epiphallic lobe (see in the profile); from only D. luzonensis, by the posteromedial epiphallic lobules well visible in the profile; and from D. balabacus and D. gingoogus, by the mirror of male tegmina distinct (not divided into numerous irregular cells indistinguishable from similar cells of apical area). From *D. improvisus* Gorochov et Warchalowska-Sliwa, 2004, D. lambir sp. **nov.** differs in the absence of hind wings, narrower notch between the posteromedial epiphallic lobules, and shorter rachis; from D. soekarandae Gorochov, 1999, in the anterior epiphallic part somewhat bilobated, notch between the posteromedial epiphallic lobules wider, mirror in the male tegmina less properly oval, and male anal plate lacking median spine-like projection at the apex; and from all the other representatives of

this subgenus, in the very different shape of some parts of male genitalia in combination with the peculiarity of male tegminal venation and/or structure of male anal plate.

Etymology. This species is named after the Lambir Hills National Park where it was collected.

Endodrelanva aliena sp. nov.

(Figs 33–35, 49–55, 69)

Holotype. Male, Malaysia, Sarawak State (Borneo I.), 80–90 km WWN of Kuching City, Gunung Gading National Park, 100–300 m, primary forest, on track of wooden boards at night, 22–26.XI.2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov.

Paratype. One female, same state, environs of Kuching City, Kubah National Park on Matang Mt, 200–500 m, primary forest, on branch of bush at night, 27.XI–1.XII.2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov.

Description. Male (holotype). General appearance similar to that of other congeners but with following characteristic features: head brown with light grevish brown median triangle similar to that of *D. lambir* sp. nov., large light brown area on lower part of each gena, greyish brown distal and light brown proximal parts of antennae, brown mandibles and upper half of clypeus (but these structures having light brown marks on lateral surfaces of mandibles and stripe on clypeus along its dorsal edge), vellowish labrum and lower half of clypeus having large whitish area on lower two thirds of this clypeal part, and vellowish maxillae and labium having almost whitish palpi; pronotum dark brown with slightly lighter spot near anteroventral corner of each lateral lobe; tegmina with brown lateral field (having whitish stripe along its ventral and posterior edges) and basal area of dorsal field, with dark brown apical area of dorsal field, with large whitish area situated between previous darkened parts and crossed by greyish brown stripe including diagonal vein, and with small transparent area near plectrum (other veins in whitish area almost transparent, but some veins in

lateral field dark brown; Fig. 33); legs light brown with brown distal part of hind femur having barely lighter apical spots, with vellowish both proximal half of inner surface of this femur and small subdistal area on its dorsal surface, and with dark brown dorsal part of hind tibia (except for its small proximal part and spines; all they light brown); rest of thorax yellowish to whitish with light brown sternites; two anterior abdominal tergites also very light but with median brown areas; other tergites of abdomen brown to dark brown with a pair of light brown spots on each dorsum of third-fifth tergites; abdominal sternites and genital plate more or less brown; anal plate dark brown; cerci almost uniformly grevish brown. External structure of body also similar to that of other congeners: head rather high, with rostrum projected forwards somewhat more strongly than in all species previously described here, with ocelli similar to those of these species but with rounded median ocellus, with scape 1.2 times as wide as rostrum between antennal cavities, and with maxillary palpus having apical segment rather short (practically equal to third segment in length); pronotum also similar to that of these species but somewhat less transverse and barely wider than widest part of head; tegmina reaching base of seventh abdominal tergite, with dorsal field narrowing to apex, lacking mirror, and having chords almost straight as well as apical area almost angular and distinctly (but not strongly) projected behind all other parts of tegmen (this area with almost transverse veins only; Fig. 33), and with lateral field strongly oblique in distal half and having 6-7 longitudinal veins almost parallel to dorsal edge of this field (distinct branches on these veins and crossveins absent); hind wings absent; metanotal gland as in Fig. 34; legs more or less similar to those of all species previously discussed here, but fore tibia with only rather small inner oval tympanum (outer tympanum absent), hind tibia with 5-6 inner and 6-7 outer dorsal proximal denticles, and hind

basitarsus with 5 inner and 5–6 outer dorsal denticles; anal plate with moderately wide and roundly truncated apex (almost as in Fig. 53); genital plate with rather narrowly rounded apex having very small posteromedian notch. Genitalia clearly distinguished from those of other congeners by epiphallic shape: epiphallus longer and/or more strongly narrowing to apex, with anteromedian part not strongly curved upwards, with posteromedian notch clearly deeper, with posterolateral lobes having posterodorsal projections rather long (high), and with posteromedial lobules very short and invisible in profile (Figs 49–52).

Female. Colouration and structure of body more or less as in male, but: epicranium slightly darker (almost as dark as most part of pronotum); colouration of tegmina light reddish brown with narrow vellowish humeral stripe, whitish stripe along costal edge, and brown some veins in lateral field: tegmina reaching apex of second abdominal tergite, slightly overlapping each other by their proximedial parts, and having strongly convex lateral half of posteromedial edge in dorsal field as well as 5-6 longitudinal veins in this field and 5-6 such veins in lateral field (all these veins partly parallel to humeral stripe, distinctly convex and without additional branches; crossveins practically absent) (Fig. 35); metanotal gland undeveloped; genital plate small, gradually narrowing to apex and with not very widely truncated (barely notched) apical part (Figs 54, 55); ovipositor with distal part as in Fig. 69.

Length in mm. Body: male 13.8, female 14.5; pronotum: male 3, female 3; tegmen: male 6.2, female 3.7; hind femur: male 10.4, female 10; hind tibia: male 7.3, female 7; ovipositor 11.3.

Comparison. The new species is similar to *E. peculiaris* Gorochov, 2016 and *E. chopardi* Gorochov, 2016 by the absence of additional veins between the oblique veins and diagonal veins in the male tegmina, but it clearly differs from them in the characters of male genitalia listed above. From *E. tomentosa* (Chopard, 1931), *E. macrorachis* Gorochov,

2016 and *E. jimini* Tan et Kamaruddin, 2016, the new species is distinguished by the absence of the above-mentioned additional veins in the male tegmina and by the same characters of male genitalia (see above); from *E.? pubescens* (Chopard, 1930), in the apical area of male tegminal dorsal field clearly more projected behind the other tegminal parts; from somewhat similar *Drelanvus robustus* Chopard, 1930, in this apical area having the branches of main veins almost transversally (not longitudinally) situated, and in the much smaller body.

Etymology. Name of this new species is the Latin word "aliena" (alien, strange) due to its significant differences in the male genitalia.

Endodrelanva similajau sp. nov. (Figs 36, 56–60)

Holotype. Female, Malaysia, Sarawak State (Borneo I.), Similajau National Park near sea in ~30 km from Bintulu Town, 3°25′26′′N, 113°13′59′′E, primary forest, on leaf of bush at night, 12–16.XI.2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov, N. Grigoreva (collected as nymph of middle age, imago VIII.2017).

Description. Female (holotype). General appearance more or less similar to that of E. aliena sp. nov. but with some characteristic features. Body somewhat larger and lighter than in this species: epicranium light brown with barely darker dorsum of rostrum and four longitudinal lines on middle and posterior parts of vertex, with dark brown eyes, with ocelli barely lighter than most part of epicranium, and with anterior part under rostral apex and under antennal cavities almost brown; antenna light brown with grevish brown distal half; mouthparts also light brown but with whitish proximal part of labrum, most part of lower clypeal half and stripe on upper clypeal half along its ventral edge, and with yellowish palpi having apex of apical segment of maxillary palpus almost vellow; pronotum brown with large almost light brown area on anterior half of disc and light brown spot in anteroventral corner of each lateral lobe;

tegmina uniformly light brown (Fig. 36); legs also light brown but with vellowish coxae and proximal half of inner surface of hind femur, somewhat darker (almost brown) tibiae and some parts of tarsi as well as distal part of hind femur (latter femur also with vellowish subdistal spot on dorsal surface); other tergites from light brown in pterothorax to almost dark brown in posterior part of abdomen; ventral part of body and pleurites yellowish to light brown, with brown genital plate; anal plate and paraprocts brown to dark brown; cerci grevish brown but slightly lighter than latter structures. Head similar to that of E. aliena in shape and structure, but larger (head and pronotum practically equal to each other in width) and with scape almost 1.35 times as wide as rostrum between antennal cavities; pronotum also similar to that of this species but slightly more transverse: tegmina rather short (part of their dorsal field visible from above not longer than pronotum, but in E. aliena, this part clearly longer than pronotum; see Figs 35 and 36), with less oblique medial edges, with wider distal parts of dorsal fields, with 4-5 distinct longitudinal veins in lateral two thirds of each dorsal field, with 5-6 such veins in each lateral field, and without crossveins (Fig. 36); legs almost as in *E. aliena*, i.e. with distinct (but rather small) rounded tympanum on inner tibial surface only, with 4-5 inner and 5-7 outer proximal dorsal denticles on hind tibia, and with 3-4 inner and four outer dorsal denticles on hind basitarsus; anal plate with dorsal part somewhat less flat than in this species (i.e. having a pair of distinct arcuate lateral keels, rather deep concavity between them, and low and thin transverse keel near deepest part of this concavity) and with widely rounded apex (see Figs 53 and 58). Genital structures also somewhat similar to those of *E. aliena*, but genital plate distinctly wider and shorter (Figs 59, 60); copulatory papilla as in Figs 56, 57.

Male unknown.

Length in mm. Body 17.5; pronotum 3.6; tegmen 4.2; hind femur 11.3; hind tibia 7.5.

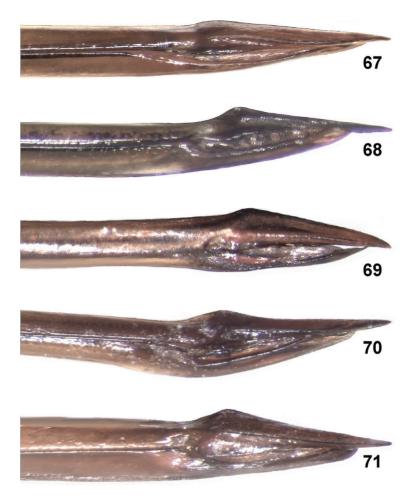
Comparison. The new species is distinguished from all the other true congeners with known female in the lighter colouration, wider head, shorter tegmina and more transverse genital plate in female, but this species additionally differs from E. tomentosa, E. macrorachis and E. aliena in the absence of distinct veins and their traces in the medial third of female dorsal tegminal field; from E. peculiaris, in the distal part of this field wider; from E. chopardi, in the distinctly larger body; and from E. iimini. in the female genital plate lacking distinct posteromedian notch. From E.? pubescens and D. robustus more or less similar to E. similaiau sp. nov. the latter species is distinguished by the less pubescent body with the more transverse (not almost square) pronotum or in the distinctly smaller and lighter body without traces of crossveins in the female tegmina, respectively.

Etymology. This species is named after the Similajau National Park where it was collected.

Endolandrevus? buton sp. nov. (Figs 37, 38, 61–63, 70)

Holotype. Female, Indonesia, Buton I. near southeast part of Sulawesi I., environs of Baubau Town, 5°28′55′′S, 132°38′18′′E, secondary forest on hill, on trunk of living tree under bark at night, 23–27.XI.2015, A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva (collected as nymph of middle age, imago V.2016).

Description. Female (holotype). Body medium-sized for this genus. Colouration rather spotted: head brown with light brown ocelli, a pair of short lateral longitudinal stripes on dorsal surface of rostrum, four longitudinal stripes on middle and posterior parts of vertex, a pair of shorter stripes near them but behind eyes, small mark along posteroventral edge of each eye, and proximal half of antenna, with blackish eyes, with greyish brown medial and lateral parts of scape as well as distal half of antenna, with dark brown spot between ocelli, anterior part of epicranium (including rostral apex and area under it and under anten-



Figs 67–71. Distal part of ovipositor from side: 67, Duolandrevus (Eulandrevus) namlik sp. nov.; 68, D. (Duolandrevus) kubah Gor.; 69, Endodrelanva aliena sp. nov.; 70, Endolandrevus? buton sp. nov.; 71, E.? papua sp. nov.

nal cavities), and most part of clypeus and labrum as well as visible parts of mandibles, and with light brown to brown maxillae and labium having dark greyish brown palpi (Figs 37, 38); pronotum with light brown (almost yellowish) disc having a few slightly darker areas, and with brown lateral lobes having dark brown borders along anterior, ventral and posterior edges; tegmina light brown with almost yellowish humeral band and with lateral field barely darker than rest of dorsal field; legs light brown with apical area of fore and middle femora greyish brown, with most part of outer surface of fore femur almost brown, with dorsal sur-

face of this femur having a few small darkened marks, with dark brown distal part of hind femur, with greyish brown to brown longitudinal stripe on dorsal surface and numerous oblique stripes on outer surface of this femur, with darkened basal and apical parts of fore and middle tibiae as well as middle part of all tarsi, with almost blackish basal part of hind tibia, and with dark brown distal part as well as most part of dorsal surface and spines in this tibia; rest of thorax and abdomen light brown to yellowish with brown areas in middle part of metanotum and in lateral parts of each abdominal tergite, with brown to light brown marks along posterior edges of second-ninth abdominal tegites (Fig. 38), with brown pleural membranes of abdomen, with darkened apex of anal plate, and with almost whitish cerci. Head large, barely wider than pronotum (Fig. 38), distinctly flattened dorsoventrally (part of head located under rostral apex clearly shorter than that between this apex and posterior edge of head), with scape 1.3 times as wide as rostrum between antennal cavities (Fig. 37), with apex of rostrum not strongly projected forwards and roundly angular in profile, and with maxillary palpi approximately as in *Duolandrevus* Kirby, 1906 representatives previously considered here; pronotum distinctly transverse, with slightly concave anterior and almost straight posterior edges of disc, and with moderately low lateral lobes having somewhat oblique ventral edges; tegmina almost reaching posterior edge of metanotum. barely overlapping each other, with oblique (not convex) posteromedial edge of dorsal field, with 7-8 not very regular longitudinal veins in this field, with 5-6 similar veins in lateral field, and with rather numerous and irregular but almost indistinct crossveins in both fields (Fig. 38); legs similar to those of all species described here, but fore tibia with one medium-sized and oval inner tympanum only, hind tibia with nine outer and four inner dorsal denticles (outer distal denticle largest and looking almost as articulated spine), and hind basitarsus with four pairs of dorsal denticles; pterothoracic and abdominal tergites simple and more or less similar to each other in dorsal view, but anal plate with widely truncated apex and very low thin median keel in posterior half of dorsal surface (Fig. 61), genital plate more or less intermediate between those of Endodrelanva aliena sp. nov. and E. similajau **sp. nov.** in length and width but with apical part almost as in latter species (Figs 62, 63), and ovipositor with distal part as in Fig. 70.

Male unknown.

Length in mm. Body 19; pronotum 3.4; tegmen 2.1; hind femur 14.5; hind tibia 10; ovipositor 15.5.

Comparison. The new species is clearly distinguished from the congeners distributed in Halmahera I. (E. halmahera Gorochov. 2016 and E. saussurei Gorochov, 2016) by the much shorter female tegmina and striated (not almost uniformly dark) dorsum of head, respectively. From the congeners known in Ambon I. (E. rostratus Saussure, 1877), Biak I. (E. biak Gorochov, 2016) and New Guinea I. (E. manokwari Otte, 1988 and E. bomberi Otte, 1988), E. buton sp. nov. differs in the lighter (not almost uniformly darkened) colouration of head, pronotum or abdominal dorsum. From E. brevipes Otte, 1988 (Solomon Islands), the new species differs in the distinctly larger body [it is necessary to note that the original description of this species (Otte, 1988) contains the words "distinguished from other species by the male genitalia" but lacks any description of these genitalia or their picture (!)].

Etymology. The new species is named after the Buton Island where it was collected.

Endolandrevus? papua sp. nov. (Figs 39, 40, 64–66, 71)

Holotype. Female, Indonesia, Papua Region (New Guinea I.), ~50 km NWW of Jayapura City, Imino, 2°37′N, 140°10′E, 650 m, forest, 17–24.I.2009, A. Zamesov, V. Sinyaev.

Description. Female (holotype). Body medium-sized for this genus. Colouration more uniform than in E.? buton sp. nov.: epicranium dark brown with grevish brown eves, vellowish ocelli and spots around lateral ocelli and along medial and posteromedial edges of eves, light brown to vellowish large area on each gena, light brown triangular spot extending from rostral apex to almost clypeal suture, and unclear brown marks on dorsum of vertex behind lateral ocelli; antenna light grevish brown with brown pedicel as well as medial and lateral parts of scape; subgena with dark brown narrow sclerotized part and yellowish membrane under it; clypeus with dark brown upper half having a pair of whitish lines along its ventral edge, and with vellowish lower half having brown dorsomedian spot; labium and visible parts of mandibles brown with dark brown basal areas on mandibles; maxillae and labium light grevish brown with slightly darkened areas on each segment of maxillary palpi (Fig. 39); pronotum brown with dark brown lateral lobes and lateral parts of disc (but these lobes with rather large light brown spot on each anteroventral part); tegmina uniformly brown but with almost dark brown small lateral fields (Fig. 40); legs light brown with barely darker distal part of hind femur, vellowish proximal half of inner surface of this femur, and brownish grev most part of dorsal surface of hind tibia; other tergites brown with very large (wide) barely lighter areas on third-ninth abdominal tergites; pleurites almost vellowish; sternites light brown; anal plate and paraprocts also light brown but darker than sternites; genital plate light brown with yellowish lateral parts; cerci uniformly greyish brown, barely darker than anal plate. Structure of body more or less similar to that of *E.? buton*, but head strongly flattened dorsoventrally and with rostrum between antennal cavities almost 1.2 times as wide as scape, lateral lobes of pronotum with slightly more oblique ventral edges, tegmina shorter (reaching posterior third of metanotum) and with 7-8 longitudinal veins in dorsal field and three ones in distinctly smaller lateral field, legs with relatively shorter hind tibia having six pairs of dorsal denticles and with hind basitarsus having 5–6 outer and five inner dorsal denticles, anal and genital plates as in Figs 64–66, and ovipositor with distal part as in Fig. 71.

Male unknown.

Length in mm. Body 20; pronotum 2.7; tegmen 1.4; hind femur 13.8; hind tibia 8; ovipositor 12.7.

Comparison. The new species is clearly distinguished from the true congeners (E. rostratus, E. bomberi, E. manokwari, E. biak, E. halmahera, E. saussurei) as well as from E.? buton in the rostrum of head distinctly wider than the scape, and in the hind tibia shorter in relation to the hind femur;

also it additionally differs from *E. halmahera* in the much shorter female tegmina, and from *E.? buton*, in the characters listed above (in the description). Differences of *E. papua* from the poorly described *E. brevipes* and *Ginidra wauensis* (see Otte, 1988) are less understandable, but *E. brevipes* is clearly smaller in size, and *G. wauensis* described from a much more eastern part of New Guinea is with a somewhat lighter (pale reddish brown) body.

Etymology. The new species is named after the Papua Region where it was collected.

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