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**New and little known taxa of the genera
Ancylecha Serville, 1838 and *Leptoderes* Serville, 1838
(Orthoptera: Tettigoniidae: Phaneropterinae)
from the Indo-Malayan Region**

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Abstract. A new material on the Indo-Malayan genera *Ancylecha* Serville, 1838 and *Leptoderes* Serville, 1838 from the tribe Holochlorini is reviewed. The following new species and subspecies are described: *Ancylecha exotica* sp. n. and *A. fenestrata longicarinata* subsp. n. from northern part of Borneo, *Leptoderes shuzhenae laosi* subsp. n. from northern half of Laos, *L. vietnami* sp. n. from southern half of Vietnam. Also *Ancylecha fenestrata fenestrata* (Fabricius, 1793) and *Leptoderes ornatipennis* Serville, 1838 are briefly redescribed, but determination of the nominotypical subspecies of *A. fenestrata* is somewhat problematic and requests additional data.

Key words: Orthoptera, Tettigoniidae, Phaneropterinae, *Ancylecha*, *Leptoderes*, new taxa, Indo-Malayan Region.

**Новые и малоизвестные таксоны родов *Ancylecha* Serville, 1838 и *Leptoderes* Serville, 1838
(Orthoptera: Tettigoniidae: Phaneropterinae) из Индо-Малайской области**

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Резюме. Рассмотрен новый материал по индо-малайским родам *Ancylecha* Serville, 1838 и *Leptoderes* Serville, 1838 из трибы Holochlorini. Описаны следующие новые виды и подвиды: *Ancylecha exotica* sp. n. и *A. fenestrata longicarinata* subsp. n. из северной части Борнео, *Leptoderes shuzhenae laosi* subsp. n. из северной части Лаоса, *L. vietnami* sp. n. из южной части Вьетнама. Кратко переописаны *Ancylecha fenestrata fenestrata* (Fabricius, 1793) и *Leptoderes ornatipennis* Serville, 1838, но определение номинативного подвида *A. fenestrata* проблематично и требует дополнительных данных.

Ключевые слова: Orthoptera, Tettigoniidae, Phaneropterinae, *Ancylecha*, *Leptoderes*, новые таксоны, Индо-Малайская область.

Introduction

The genera *Ancylecha* Serville, 1838 and *Leptoderes* Serville, 1838 are very famous since 19th century, because they contain large and nice exotic insects with a bizarre appearance. Moreover, previous authors have considered these genera to contain very few species for a long time: *Ancylecha* included one species up to now, but very recently one enigmatic species, described after a nymph from Myanmar (*Sanabria fuscescens* Walker, 1869), was questionably included in this genus [Cigliano et al., 2024]; *Leptoderes* contained one species from the Malay Archipelago and two species from Sri Lanka until descriptions of two Chinese species of the latter genus in 2018 [Wu, Liu, 2018]. The latter finds and the descriptions of new species and subspecies of the both genera given here suggest that even such long-known and famous genera require additional study of old and new materials from different localities.

At present, *Ancylecha* is included in the tribe Holochlorini without attribution to any subtribe, and *Leptoderes* is placed in the generic group Leptoderae Brunner von Wattenwyl, 1878 without inclusion in any tribe or subtribe [Cigliano et al., 2024]. Here I tentatively assigned the both genera in Holochlorini, but their

subtribal position is unclear and requires additional study of the suprageneric taxonomy of Phaneropterinae.

Material and methods

The study is based on the material (including types of new taxa) deposited at the Zoological Institute of the Russian Academy of Sciences (ZIN, Saint Petersburg, Russia). This material is dry and pinned; it was mainly collected by the Russian researchers in some countries of the Indo-Malayan Region.

Tribe Holochlorini Brunner von Wattenwyl, 1878

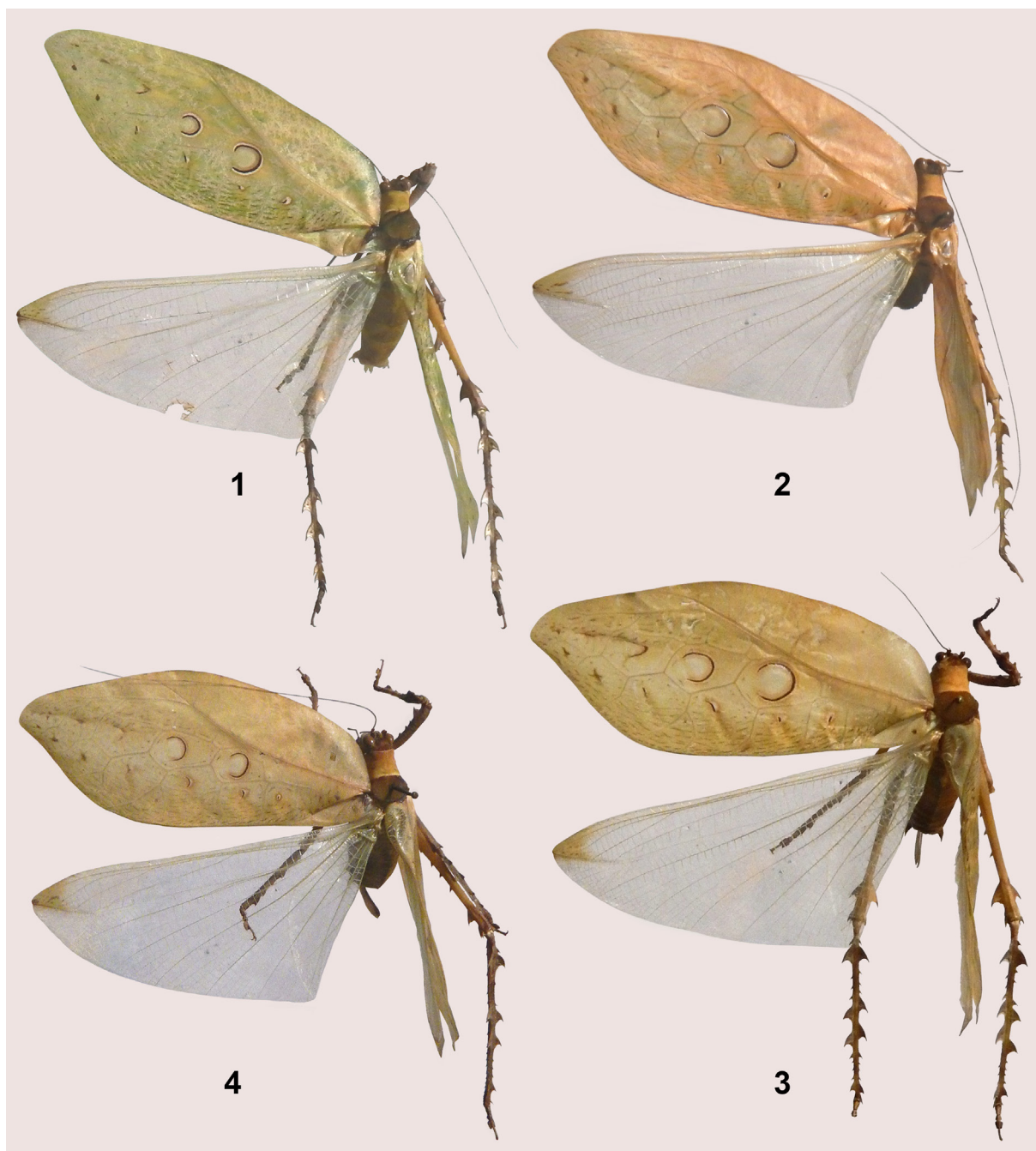
Genus *Ancylecha* Serville, 1838

Ancylecha exotica Gorochov, sp. n.

(Figs 1, 5–13, 27–29, 33–35, 39–40, 44–46)

Material. Holotype, ♂ (ZIN): Malaysia, Borneo Island, Sabah State, Trus Madi Mt, ~1000 m, primary/secondary forest, at light, 13–25.05.2007 (A.V. Gorochov). Paratypes: 2♂ (ZIN), same data as for holotype.

Description. Male (holotype). General appearance very similar to that of *A. fenestrata* (Fabricius, 1793) but with some characteristic features (Fig. 1). Colouration following: head brown with yellowish posterior parts of genae (these yellowish areas reaching eyes and epicranial dorsum), ocelli and small areas around them, antennal cavities, bases of scapes, spots on clypeus



Figs 1–4. *Ancylecha*, general view of body with spread left wings.

1 – *A. exotica* **sp. n.**, male, holotype; 2–3 – *A. fenestrata longicarinata* **subsp. n.**: 2 – male, holotype, 3 – female, paratype; 4 – *A. f. ? fenestrata*, female (Java).

Рис. 1–4. *Ancylecha*, общий вид тела с расправленными левыми крыльями.

1 – *A. exotica* **sp. n.**, самец, голотип; 2–3 – *A. fenestrata longicarinata* **subsp. n.**: 2 – самец, голотип, 3 – самка, паратип; 4 – *A. f. ? fenestrata*, самка (Ява).

and labrum, most part of maxillae and of labium, and with light brown labrum as well as rest of antennae (but scape, pedicel and proximal portion of flagellum with brown to almost dark brown spots, and rest of flagellum with small and sparse brown marks) and clypeus; pronotum greenish yellow with dark greyish brown hind lobe of disc and with poorly distinct whitish stripe on disc between this dark area and rest of pronotum; tegmina green with characteristic pattern from dark and light incomplete rings, imitating drops of water, and with numerous small additional marks in lateral field along anal edge and greyish brown basal area

in dorsal field (stridulatory apparatus of latter field yellowish green with brown stridulatory teeth on left tegmen and transparent mirror in right tegmen) (Figs 1, 5–7); hind wings transparent with yellowish green venation and rather small area in apical part of each costal lobe (Fig. 1); fore and middle legs greyish brown with slightly lighter dorsal parts of femora (but distal part of each femur almost light greyish brown) as well as with greenish coxae and partly trochanters; hind legs with greenish to almost yellowish coxae, trochanters and most part of femora, and with greyish brown tibiae and tarsi as well as distal femoral parts (but inner and

ventral surfaces of these greyish brown structures very light brown to yellowish with small dark spots on ventral tibial surfaces, and widened spines on femur and tibia with following marks: a pair of subapical femoral spines ventrally and partly dorsally more or less yellowish with almost blackish lateral edges; tibial widened spines ventrally blackish with whitish posterior edges but dorsally light greyish with more or less distinct small brown to light brown marks in their middle parts) (Fig. 1); pterothoracic and abdominal tergites greenish, but all sternites, pleurites and abdominal membranes yellowish to light greenish with short row of rose dots on each membrane between posterior tergites and sternites; cerci, epiproct, paraprocts and genital plate yellowish green with dark brown apices of cercal processes (Figs 27, 33, 39, 44). Structure of body distinguished from *A. fenestrata* by a few characters only: transparent mirror in stridulatory apparatus of right tegmen distinctly longer; mirror of this apparatus in left tegmen also longer but almost completely obliterated (practically not transparent); thickened veinlet very near stridulatory vein in left tegmen shorter (its medial part significantly not reaching anal tegminal edge) and clearly not contacting with latter vein, but in *A. fenestrata*, this veinlet insignificantly not reaching anal tegminal edge and practically contacting with stridulatory vein (compare Figs 5, 6 and 14, 15, 17, 18, 21, 22); such veinlet in right tegmen distinct, and cell between this veinlet and stridulatory vein moderately narrow (moderately short), but in *A. fenestrata*, this veinlet less distinct and located very near stridulatory vein (i.e. cell between them very narrow) (compare Figs 5, 6 and 14, 15, 17, 18, 21, 22); stridulatory vein of left tegmen slightly S-shaped in ventral view, but in *A. fenestrata*, this vein almost straight (barely arcuate) (compare Figs 7 and 16, 19, 20); each cercus with distal spine-like processes approximately twice as short as rest portion of cercus in its medial part (in *A. fenestrata*, these processes 1–1.5 or even less times as short as rest cercal portion; compare Figs 27, 33 and 30–32, 36–38), and with heavily sclerotized apical parts of these processes short (each of these processes with two dark and very small apical denticles only, but in *A. fenestrata*, ventral one of these processes with heavily sclerotized apical part much longer and keel-like as well as having more numerous denticles; compare Figs 33, 39 and 36–38, 41–43); genital plate with slightly shorter posterior lobes, widely rounded distal parts of these lobes and low lamellar keels along medial edges of these lobes (in *A. fenestrata*, these lobes apically narrower or obliquely truncate, and with more or less distinct longitudinal inflations along medial edges instead lamellar keels) (compare Figs 44 and 47–49, 52, 55).

Variability. Paratypes with light clypeus and labrum, almost light brown some spines on fore and middle femora and on middle tibiae, and very insignificantly variable structure of tegminal stridulatory apparatus as well as shape of cerci and of genital plate (Figs 8–13, 28, 29, 34, 35, 40, 45, 46).

Length (in mm). Body 29–35; body with wings 73–75; pronotum 9.2–9.5; tegmina 62–65; hind femora 32–34.

Female unknown.

Comparison. The differences between the new species and *A. fenestrata* in some characters of the tegminal stridulatory apparatus and of the male abdominal apex are given in the description above. But differences of the new species from the enigmatic *S. fuscescens* Walker, 1869 (described after a nymph from Myanmar) are unclear.

Etymology. This name is the Latin word “exotica” (exotic) due to the bizarre appearance of the new species (as well as of other representatives of the same tropical genus).

Ancylecha fenestrata longicarinata Gorochoy, **subsp. n.**
(Figs 2, 3, 20–22, 26, 32, 38, 43, 49, 50, 52, 53, 55)

Material. Holotype, ♂ (ZIN): Borneo Island, Brunei, “Brunei, Nord Borneo (Rolle 1900)”. Paratype: 1♀ (ZIN), Borneo Island, “Nord-Borneo Waterstradt”.

Description. Male (holotype). Colouration as well as structure of body very similar to those of both nominotypical subspecies of this species and *A. exotica* **sp. n.** but with following characteristic features: tegmina with drop-like spots slightly larger than in latter species (Fig. 2); tegminal stridulatory apparatus as in the nominotypical subspecies, i.e. it distinguished from that of *A. exotica* **sp. n.** by clearly shorter mirror in both tegmina, partly membranous (not completely obliterated) mirror in left tegmen, distinctly narrower cell between stridulatory vein and thickened veinlet very near this vein in right tegmen, presence of contact between these vein and veinlet in left tegmen, this thickened veinlet longer, as well as barely arcuate (almost straight) but not S-shaped stridulatory vein in same tegmen (Figs 20–22); legs light brown with greyish brown ventral part of fore femur, inner part of tympanal area on fore tibia, marks on distal part of this tibia, and practically all tarsi (but ventral parts of widened spines on hind tibia coloured as in *A. exotica* **sp. n.**); distal processes of cerci much longer than in *A. exotica* **sp. n.** and moderately longer than in the nominotypical subspecies (these processes longer than length of rest cercal portion in its medial part; compare Figs 32, 38 and 27–31, 33–37), and each ventral cercal process somewhat thickened and having long as well as rather high and heavily sclerotized (dark) distal keel (this keel almost twice longer than rest portion of this process, i.e. clearly longer than in nominotypical subspecies, and with more numerous and distinct denticles on dorsal edge; compare Figs 38, 43 and 36, 37, 41, 42); genital plate with more or less oblique (but not widely rounded and not strongly narrowed) apical parts of posterior lobes, and each medial part of these lobes near posteromedian notch with slight (almost indistinct) longitudinal inflation but without any lamellar keel (Figs 49, 52, 55).

Female. General appearance as in the holotype of this subspecies, but tegmina somewhat wider (Fig. 3), dorsal field of left tegmen with densely reticular venation and a few slightly thickened longitudinal veins as in majority of Tettiginiidae females, this field in right tegmen with characteristic stridulatory apparatus having very different structure than in male (including presence of very small stridulatory teeth on specialized crossveins) (Fig. 26), cerci fusiform but short and rather thick (Fig. 53), genital plate almost triangular and somewhat laterally compressed (deformed?) as well as with truncately convex apex (Fig. 50), gonangulum near ovipositor base with thin and rather long (almost spine-like) process posteriorly (Figs 50, 53).

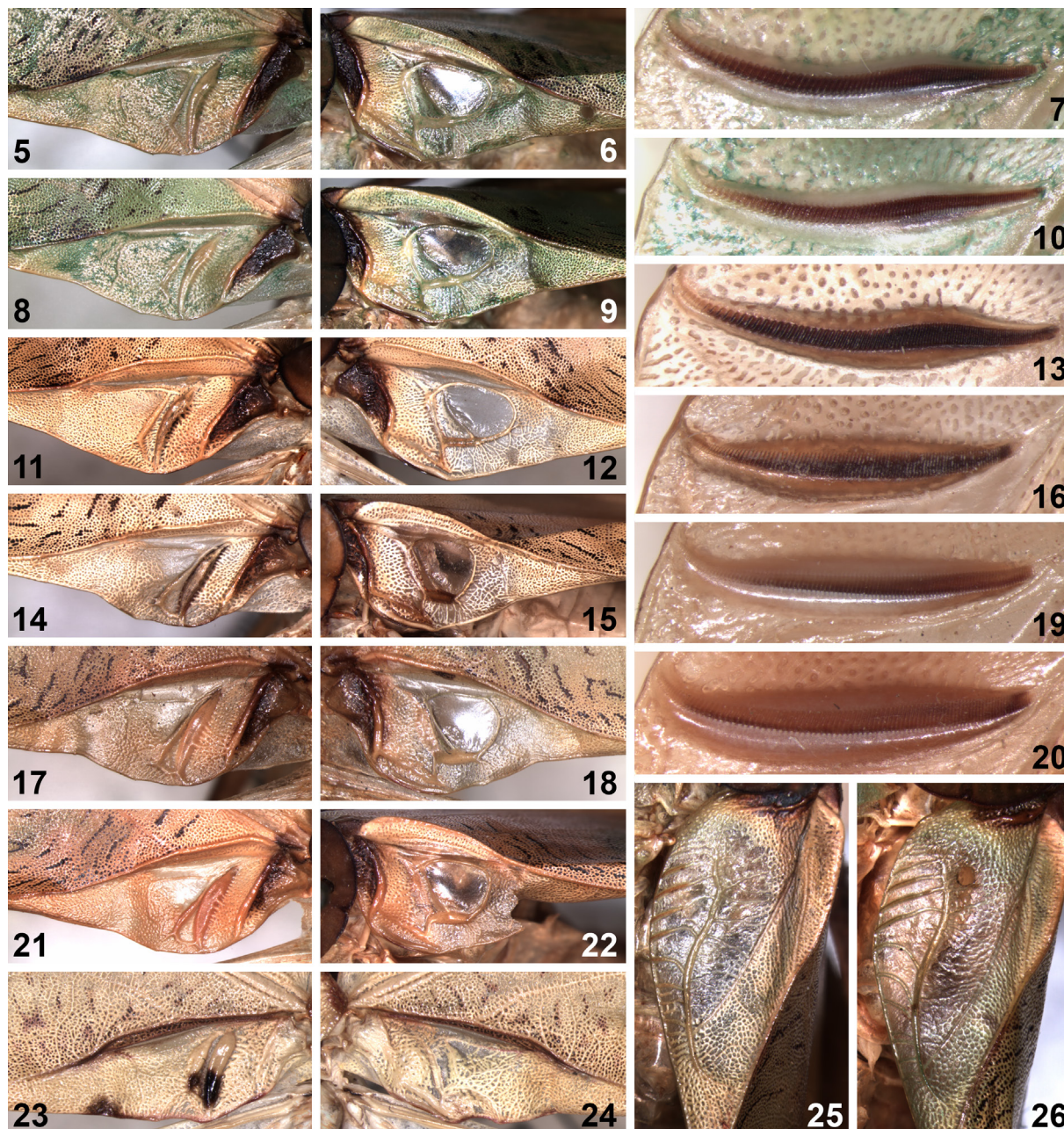
Length (in mm). Body: 30 in male, 33 in female; body with wings: 77 in male, 79 in female; pronotum: 9.4 in male, 9.8 in female; tegmina: 66 in male, 67 in female; hind femora: 35 in male, 37 in female; ovipositor 11.

Comparison. The new subspecies is probably distinguished from *A. f. fenestrata* by the structure of cerci and of genital plate in male: the cercus of the latter subspecies differs in clearly longer distal processes and slightly shorter rest of cercus (in the new subspecies, these processes longer than rest portion of cercus in its medial part, but these processes are clearly shorter in the nominotypical subspecies; compare Figs 32, 38 and 30, 31, 36, 37); the ventral (lateral) cercal process is somewhat more thickened, and its distal keel is distinctly longer and with more numerous and distinct dorsal denticles (this keel is almost twice longer than the rest portion of this process, but in *A. f. fenestrata*, it is almost as long as this portion; compare Figs 38, 43 and 36, 37, 41, 42); the distal lobes of the genital plate are with oblique but not strongly narrowed apical parts, and the medial part of each lobe near the posteromedian notch is slightly (almost indistinctly) inflated (but in the nominotypical subspecies, this part is with a distinct longitudinal

inflation) (compare Figs 47, 48 and 49, 52, 55). Female of the new subspecies differs from that of the possible nominotypical subspecies in a narrower distal part of the densely reticular area located between the lateral edge of the dorsal tegminal field and the more or less transparent median area in the widened part of this field (compare Figs 25 and 26), truncately convex (not almost concave)

apex of the genital plate (compare Figs 50 and 51) and a spine-like (longer and thinner) posterior process of the gonangulum near the ovipositor base (compare Figs 51, 54 and 50, 53).

Etymology. This species name consists of the Latin prefix “longi-” and word “carinata” (with long keel) due to a long keel on the male ventral cercal process.



Figs 5–26. *Ancylecha* and *Leptoderes*, tegminal structures.

5–13 – *A. exotica* sp. n., male: 5–7 – holotype, 8–13 – paratypes; 14–19, 25 – *A. fenestrata* ? *fenestrata*: 14–16 – male (Sumatra), 17–19 – male (Perak), 25 – female (Java); 20–22, 26 – *A. f. longicarinata* subsp. n.: 20–22 – male, holotype, 26 – female, paratype; 23–24 – *L. vietnami* sp. n., male, holotype. 5–6, 8–9, 11–12, 14–15, 17–18, 21–24 – stridulatory apparatus from above; 7, 10, 13, 16, 19–20 – stridulatory vein of left tegmen from below; 25–26 – widened part of dorsal field of right tegmen from above.

Рис. 5–26. *Ancylecha* и *Leptoderes*, структуры надкрылий.

5–13 – *A. exotica* sp. n., самец: 5–7 – голотип, 8–13 – паратипы; 14–19, 25 – *A. fenestrata* ? *fenestrata*: 14–16 – самец (Суматра), 17–19 – самец (Перак), 25 – самка (Ява); 20–22, 26 – *A. f. longicarinata* subsp. n.: 20–22 – самец, голотип, 26 – самка, паратип; 23–24 – *L. vietnami* sp. n., самец, голотип. 5–6, 8–9, 11–12, 14–15, 17–18, 21–24 – стридуляционный аппарат сверху; 7, 10, 13, 16, 19–20 – стридуляционная жилка левого надкрылья снизу; 25–26 – расширенная часть спинного поля правого надкрылья сверху.



Figs 27–43. *Ancylecha*, abdominal structures of male.

27–29, 33–35, 39–40 – *A. exotica* sp. n.: 27, 33, 39 – holotype, 28–29, 34–35, 40 – paratypes; 30–31, 36–37, 41–42 – *A. fenestrata* ? *fenestrata*: 30, 36, 41 – from Sumatra, 31, 37, 42 – from Perak; 32, 38, 43 – *A. f. longicarinata* subsp. n., holotype. 27–32 – abdominal apex from above; 33–43 – left cercus: 33–38 – from above, 39–43 – from side/behind.

Рис. 27–43. *Ancylecha*, структуры брюшка самца.

27–29, 33–35, 39–40 – *A. exotica* sp. n.: 27, 33, 39 – голотип, 28–29, 34–35, 40 – паратипы; 30–31, 36–37, 41–42 – *A. fenestrata* ? *fenestrata*: 30, 36, 41 – с Суматры, 31, 37, 42 – из Перака; 32, 38, 43 – *A. f. longicarinata* subsp. n., голотип. 27–32 – вершина брюшка сверху; 33–43 – левый церк: 33–38 – сверху, 39–43 – сбоку/сзади.

Ancylecha fenestrata ? *fenestrata* (Fabricius, 1793)
(Figs 4, 14–19, 25, 30, 31, 36, 37, 41, 42, 47, 48, 51, 54)

Material. Indonesia. 1 ♀ (ZIN), Java Island, “Buitenzorg [Bogor] Java occident. Pedaschenko 1901”; 1 ♂ (ZIN), Sumatra Island, Aceh Prov. not far from North Sumatra Prov., environs of Ketambe vill. on Alas River near Gunung Leuser National Park, 3°41–42'N / 97°39'E,

300–500 m, 15–24.04.2018 (A.V. Gorochov, M.V. Berezin, I.B. Kamskov, E.Yu. Tkatcheva).

Malaysia. 1 ♂ (ZIN), Malay Peninsula, Perak State, “Kuala Kangsar, Perak”, “Rolle 1904”, “*Ancylecha fenestrata* Fab. N. Adelung det.”

Notes. This taxon was described from Java as a species by Fabricius [1793: “*Locusta fenestrata*”] and by Serville [1839: “*Ancylecha lunuligera*”]. Later these species names

were synonymized to each other by Brunner von Wattenwyl [1878], and numerous specimens from different regions of Southeast Asia were attributed to this species [Cigliano et al., 2024]. For a long time this species was considered as a single species in this genus. But after the discovery of a new species, the belonging of these specimens (except for Javanese ones) to this species needs to be verified. However, the both original descriptions of *A. fenestrata* are insufficient for species determination, and the both type series are not restudied on the base of recent taxonomic views. Thus, the Javanese female studied by me is in accordance to these descriptions and to the both type localities, and it may be the basis for understanding this species and subspecies. This female is distinguished from the female paratype of *A. f. longicarinata* **subsp. n.** by smaller drop-like spots on the tegmina (compare Figs 3 and 4) as well as by some other characters given above (in the description and comparison for the latter subspecies) (compare Figs 25, 51, 54 and 26, 50, 53). The above males from Sumatra and Perak are attributed here to this subspecies more tentatively. They have very similar appearance (including colouration) to this female, but their drop-like spots on the tegmina somewhat larger than in it (almost intermediate between those of *A. f. longicarinata* **subsp. n.** and *A. exotica* **sp. n.** in size). Thus, these males may also belong to a new subspecies of *A. fenestrata*, but for such decision, we must have more representative material. Differences of these males from those of *A. f. longicarinata* **subsp. n.** and *A. exotica* **sp. n.** are also given in their descriptions and comparisons.

Genus *Leptoderes* Serville, 1838

Leptoderes shuzhenae laosi Gorochov, **subsp. n.**
(Figs 56, 57, 64, 68, 72, 75)

Material. Holotype, ♂ (ZIN): 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, primary/secondary forest, at light, 10–30.06.2017 (A.V. Gorochov, M.M. Omelko).

Description. Male (holotype). General appearance similar to that of *L. sh. shuzhenae* Wu et Liu, 2018 (China: Tibet) as well as of *L. ornatipennis* Serville, 1838 (Malay Archipelago) and of *L. dianensis* Wu et Liu, 2018 (China: Yunnan) but with some characteristic features. Body colouration yellowish with greenish tinge and distinct pattern: head light brown to very light brown, except for yellowish median band on epicranial dorsum from rostral apex to occiput and transparent lateral ocelli; pronotum with a pair of slight light greyish brown stripes along dorsal edges of lateral lobes (Fig. 64); tegmina with several distinct brown to dark brown marks on both lateral fields and dark brown spots on anal parts of stridulatory vein and of nearest thickened veinlet in left dorsal field (Fig. 56); hind wings transparent with yellowish tinge, yellowish to very light brown most part of venation, as well as yellow and greyish brown spots on distal parts (each greyish brown spot with rather thin darkened stripe along most part of hind wing anal edge) (Fig. 57); legs very light brown with brown marks on tympanic membranes and near them as well as spines on femora and on hind tibia (but middle part of fore tibia, proximal part of middle leg, and proximal half of hind leg from base to distal portion of femur yellowish); other body parts yellowish but having almost rose sternites, abdominal membranes and epiproct as well as light brown apical parts of cerci (Figs 72, 75). Structure of body with following features: upper rostral tubercle narrowly rounded at apex and with thin and not deep median groove dorsally; pronotum rather long and moderately low (Fig. 64); shape of tegmina practically as in nominotypical subspecies (Fig. 56); tegminal stridulatory apparatus very similar to that from Fig. 23, 24, but its

stridulatory teeth (Fig. 68) almost as in *L. sh. shuzhenae* (in the new subspecies, number of latter teeth ~83, length of row from such teeth ~3.3 mm, and most part of these teeth darkened; in *L. sh. shuzhenae*, this number 79–82, this length ~3.1 mm, and costal half of row from these teeth light); abdominal apex as in nominotypical subspecies (including cercal length) and with genital plate gradually narrowing to apical part having small styli and distinct angular notch between them (Figs 72, 75).

Length (in mm). Body 34; body with wings 65; pronotum 11.5; tegmina 49; hind femora 24.

Female unknown.

Comparison. The new subspecies is distinguished from the nominotypical one mainly by clearly less low lateral lobes of the pronotum (ratio of length and height of each such lobe (measured as in Fig. 63) is ~1.7, but this ratio in *L. sh. shuzhenae* is ~1.9; compare Figs 63 and 64), as well as by a less wide darkened stripe along the anal edge of the hind wing, smaller apical and anal darkened spots on the male tegminal lateral field, and the above-mentioned small differences in colouration of the male tegminal stridulatory teeth.

Etymology. This subspecies is named after Laos, the country where it was collected.

Leptoderes vietnami Gorochov, **sp. n.**
(Figs 58, 59, 66, 71, 73, 76)

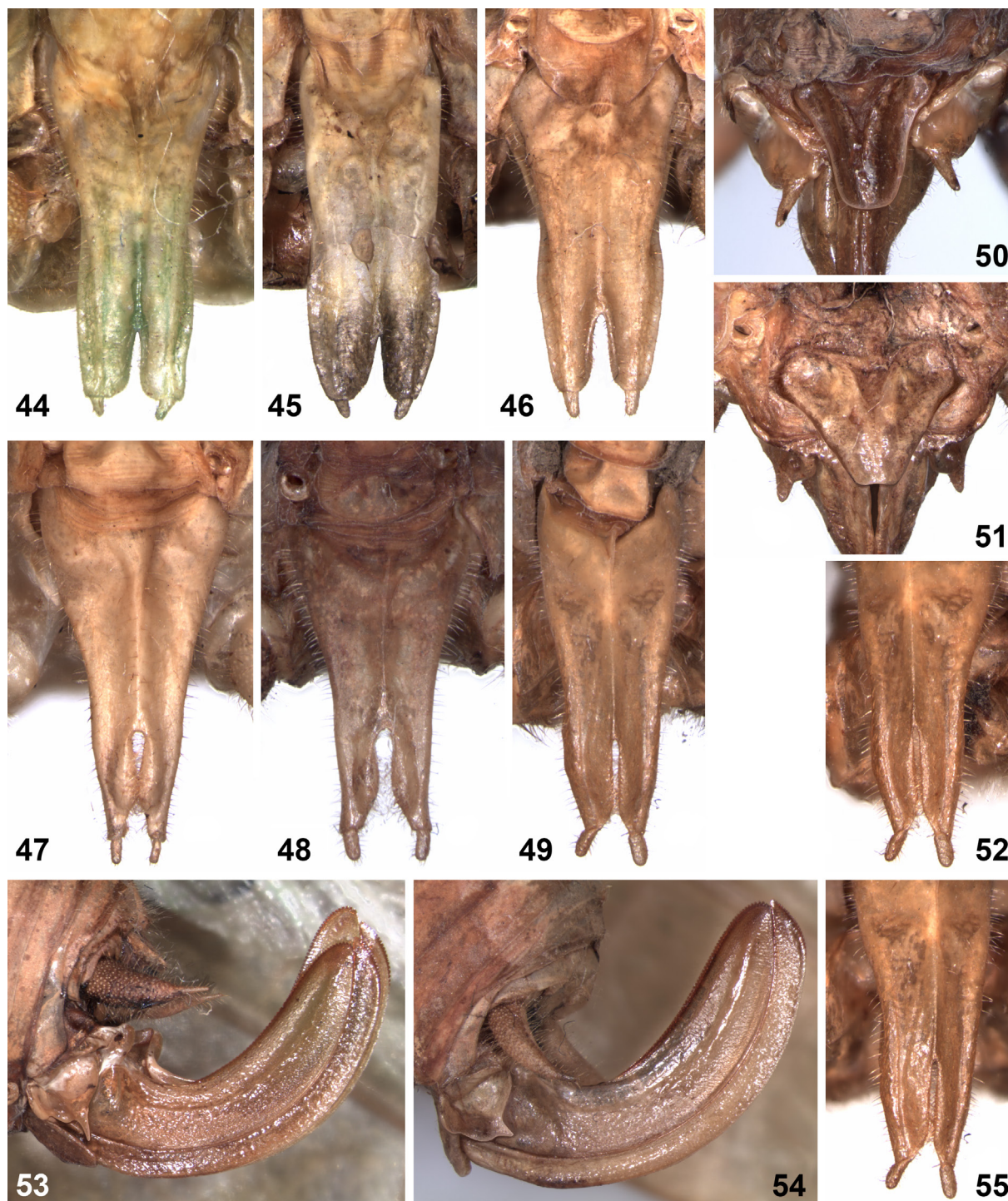
Material. Holotype, ♂ (ZIN): Vietnam, Kon Tum Prov., Kon Plong Distr., environs of Manh Canh vill., 1200 m, forest, 03–04.2005 (N.L. Orlov, S.A. Ryabov).

Description. Male (holotype). Colouration and structure of body similar to those of *L. shuzhenae laosi* **subsp. n.** but with following characters: darkened stripes on pronotum along dorsal edges of its lateral lobes with rose tinge; pattern on tegmina and on hind wings as in Figs 23, 24, 58, 59 and 71, but darkened stripe along anal edge of each hind wing indistinct (Fig. 59); sternites of pterothorax and of abdomen yellowish with rose marks on two last abdominal sternites; epiproct also yellowish with light brown apical part; cerci very light brown with slightly darker apical parts (Fig. 73); upper rostral tubercle of head practically as in *L. sh. laosi* **subsp. n.**; shape of lateral lobes of pronotum also very similar to that of this subspecies and of *L. dianensis* (ratio of length to height of these lobes (measured as in Fig. 63) ~1.7; compare Figs 64, 65 and 66); tegmina clearly wider than in *L. shuzhenae* and *L. dianensis* as well as with somewhat more obtuse apex, more convex distal half of costal edge, wider distal part of subcostal area and more strongly curved distal branch of M (compare Figs 56 and 58); stridulatory apparatus as in Figs 23, 24; ventral part of stridulatory vein (in left tegmen) similar to that of *L. dianensis* (majority of stridulatory teeth almost equal to each other in width, but in *L. shuzhenae* and *L. ornatipennis* these teeth narrowing to costal edge of tegmen; compare Figs 68–70 and 71) but shorter (~2.6 mm in length) and with ~78 stridulatory teeth as well as without distinct narrowing near its anal (medial) part (Fig. 71); abdominal apex distinguished from that of *L. shuzhenae* by only slightly shorter cerci (compare Figs 72 and 73) as well as from this species and *L. dianensis* by absence of posteromedian notch in genital plate (in new species and in *L. ornatipennis*, this plate practically truncate between styli and with very small posteromedian tubercle) (Figs 76, 77).

Length (in mm). Body 33; body with wings 63; pronotum 10.8; tegmina 46; hind femora 21.

Female unknown.

Comparison. The new species is most similar to *L. dianensis* and *L. ornatipennis*. From the first species, it differs in some features of the shape and structure of the male tegmina named above (including the ventral part of



Figs 44–55. *Ancylecha*, abdominal structures.

44–46 – *A. exotica* sp. n.: 44 – holotype, 45–46 – paratypes; 47–48, 51, 54 – *A. fenestrata* ? *fenestrata*: 47 – from Sumatra, 48 – from Perak, 51, 54 – from Java; 49–50, 52–53, 55 – *A. f. longicarinata* subsp. n.: 49, 52, 55 – holotype, 50, 53 – paratype. 44–49, 52, 55 – male genital plate: 44–49 – from below, 52, 55 – from more or less below but without base; 50–51 – female genital plate and ovipositor base from below; 53–54 – ovipositor from side.

Рис. 44–55. *Ancylecha*, структуры брюшка.

44–46 – *A. exotica* sp. n.: 44 – голотип, 45–46 – паратипы; 47–48, 51, 54 – *A. fenestrata* ? *fenestrata*: 47 – с Суматры, 48 – из Перака, 51, 54 – с Явы; 49–50, 52–53, 55 – *A. f. longicarinata* subsp. n.: 49, 52, 55 – голотип, 50, 53 – паратип. 44–49, 52, 55 – генитальная пластинка самца: 44–49 – снизу, 52, 55 – более или менее снизу, но без основания; 50–51 – генитальная пластинка самки и основание яйцеклада снизу; 53–54 – яйцеклад сбоку.



Figs 56–62. *Leptoderes*, wings.

56–57 – *L. shuzhenae laosi* subsp. n., holotype; 58–59 – *L. vietnami* sp. n., holotype; 60–62 – *L. ornatipennis*: 60–61 – from Sumatra, 62 – from Java. 56, 58, 60, 62 – left tegmen: 56, 58, 60 – of male, 62 – of female; 57, 59, 61 – left hind wing of male.

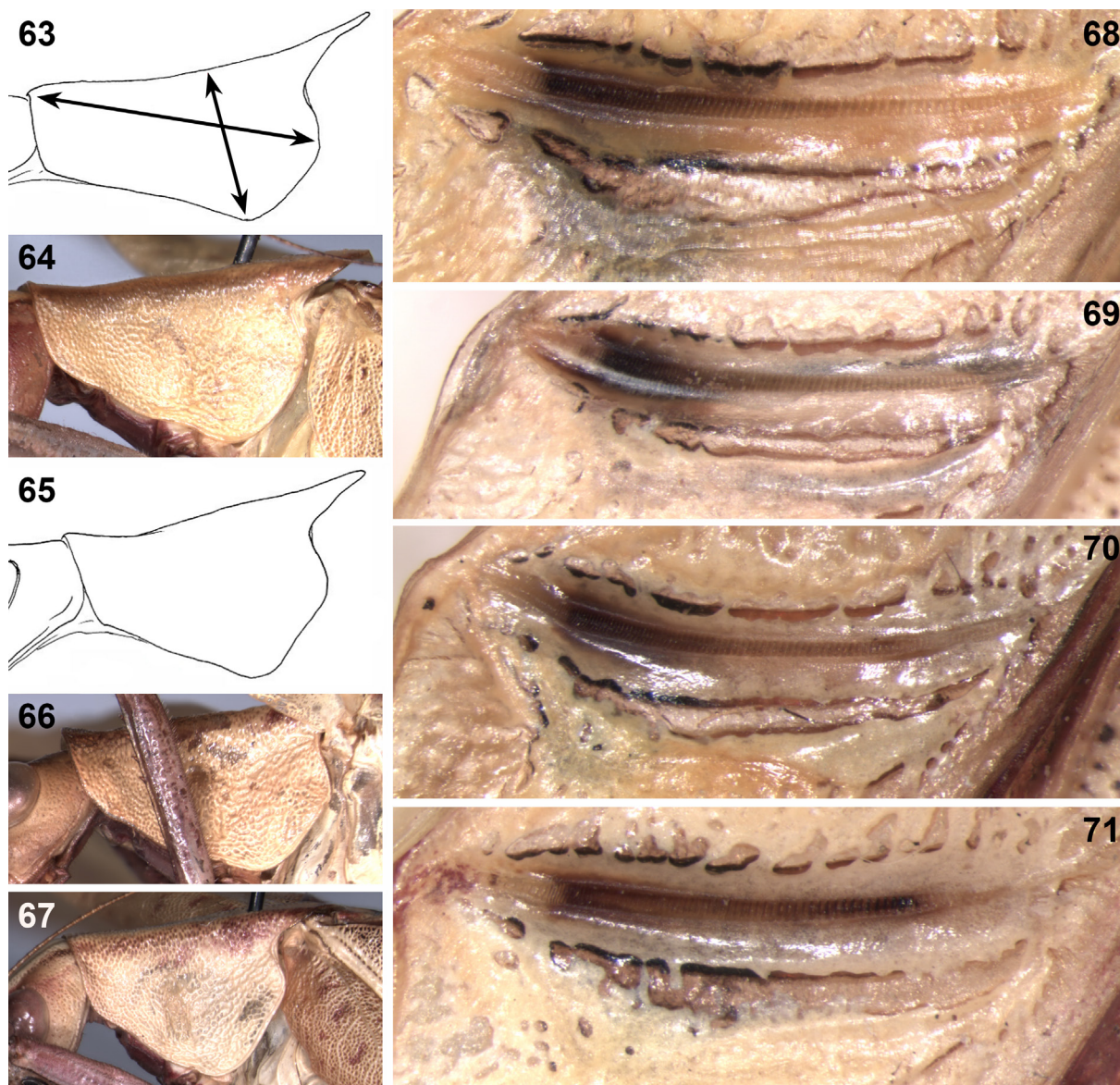
Рис. 56–62. *Leptoderes*, крылья.

56–57 – *L. shuzhenae laosi* subsp. n., голотип; 58–59 – *L. vietnami* sp. n., голотип; 60–62 – *L. ornatipennis*: 60–61 – с Суматры, 62 – с Явы. 56, 58, 60, 62 – левое надкрылье: 56, 58, 60 – самца, 62 – самки; 57, 59, 61 – левое заднее крыло самца.

the stridulatory vein which is about 2.6 mm in length, with approximately 78 stridulatory teeth and dark colouration of majority of them, and practically without any narrowing near its anal part; in *L. dianensis* this vein is almost 3 mm in length, with 65–72 stridulatory teeth and light colouration of majority of them, and with a distinct narrowing near its anal part consisting of a small group of shortened teeth), as well as in a distinctly darker pattern on these tegmina, a clearly shorter darkened stripe along the anal edge of the hind wing (this stripe reaches the middle part of this edge in *L. dianensis* and clearly does not reach it in the new species) and the absence of a posteromedian notch of the male genital plate. From *L. ornatipennis* the new species is distinguished by somewhat larger size, lower (less high) lateral pronotal lobes (ratio of length to height of these lobes, measured as in Fig. 63, is about 1.7 in the new species

and 1.4–1.5 in *L. ornatipennis*; compare Figs 66 and 67), more convex distal half of the costal edge and wider distal part of costal area in the male tegmina, as well as by some characters of the stridulatory vein in the male left tegmen: this vein in the new species is ventrally with majority of the stridulatory teeth almost equal to each other in width, but these teeth in *L. ornatipennis* are narrowing in the middle and costal parts of this vein (compare Figs 69, 70 and 71). From *L. shuzhenae*, also more or less similar to all these species, the new one distinctly differs in the shape and structure of the male tegmina (including the stridulatory vein of the left tegmen; compare Figs 56, 68 and 58, 71), the hind wing colouration (compare Figs 57 and 59) and the absence of a posteromedian notch of the male genital plate.

Etymology. The new species is named after Vietnam, the country where it was collected.



Figs 63–71. *Leptoderes*, males, details of structure.

63 – *L. shuzhenae shuzhenae* (the arrows show how the length and height are measured); 64, 68 – *L. sh. laosi* **subsp. n.**, holotype; 65 – *L. dianensis*; 66, 71 – *L. vietnami* **sp. n.**, holotype; 67, 69, 70 – *L. ornatipennis*: 67, 70 – from Sumatra, 69 – from Borneo. 63–67 – pronotum from side; 68–71 – stridulatory vein of left tegmen from below. 63, 65 – after Wu, Liu [2018] (modified).

Рис. 63–71. *Leptoderes*, самцы, детали строения.

63 – *L. shuzhenae shuzhenae* (стрелками показано, как измерена длина и высота); 64, 68 – *L. sh. laosi* **subsp. n.**, голотип; 65 – *L. dianensis*; 66, 71 – *L. vietnami* **sp. n.**, голотип; 67, 69, 70 – *L. ornatipennis*: 67, 70 – с Суматры, 69 – с Борнео. 63–67 – переднеспинка сбоку; 68–71 – стридуляционная жилка левого надкрылья снизу. 63, 65 – по [Wu, Liu, 2018] (с изменениями).

Leptoderes ornatipennis Serville, 1838
(Figs 60–62, 67, 69, 70, 74, 77–79)

Material. Indonesia. 1♂ (ZIN), Sumatra Island, Aceh Prov. not far from North Sumatra Prov., environs of Ketambe vill. on Alas River near Gunung Leuser National Park, 3°41'–42'N / 97°39'E, 300–500 m, primary forest, at light, 15–24.04.2018 (A.V. Gorochov, M.V. Berezin, I.B. Kamskov, E.Yu. Tkatcheva); 1♂ (ZIN), same data, but 29.01–8.02.2023 (A.V. Gorochov, M.M. Omelko, A.A. Fomichev); 1♀ (ZIN), Java Island, “Java occident. Mons Gede 4000, 1896 H. Fruhstorfer”.

Malaysia. 1♀ (ZIN), “Nord-Borneo Waterstradt”; 1♂, 1♀ (ZIN), Borneo Island, Malaysia, Sabah State, Trus Madi Mt, ~1000 m, primary/secondary forest, at light, 13–24.01.2007 (A.V. Sochivko); 3♂, 7♀ (ZIN), same data, but 13–25.05.2007 (A.V. Gorochov).

Notes. This species has been described four times by previous authors: as *Leptoderes ornatipennis* by Serville [1838] from Java, as *Condylodera tricondyloides* by Westwood [1841] after a nymph from Java, as *Trochalodera violascens* by Brunner von Wattenwyl [1878] from Java, and as *Euparthenus gratiosa* by Saussure [1898] from Borneo. These species names were synonymized to each other by Kirby [1906] and Karny [1926]. This species is probably distributed in Malay Archipelago only [Cigliano et al., 2024]. It is similar to *L. dianensis*, *L. shuzhenae* and *L. vietnami* **sp. n.** in its general appearance, but its body is usually somewhat smaller, its male colouration is more



Figs 72–79. *Leptoderes*, abdominal structures.

72, 75 – *L. shuzhenae laosi* **subsp. n.**, holotype; 73, 76 – *L. vietnami* **sp. n.**, holotype; 74, 77–79 – *L. ornatipennis* (Sumatra). 72–74 – male abdominal apex from above; 75–77 – male genital plate from below; 78 – female abdominal apex from side; 79 – female genital plate (slightly laterally compressed) from below.

Рис. 72–79. *Leptoderes*, структуры брюшка.

72, 75 – *L. shuzhenae laosi* **subsp. n.**, голотип; 73, 76 – *L. vietnami* **sp. n.**, голотип; 74, 77–79 – *L. ornatipennis* (Суматра). 72–74 – вершина брюшка самца сверху; 75–77 – генитальная пластинка самца снизу; 78 – вершина брюшка самки сбоку; 79 – генитальная пластинка самки (слегка сжатая с боков) снизу.

similar to that of the two latter species (but tegminal spots vary from almost light brown to dark brown) (Fig. 60), and the hind wing colouration is practically as in *L. vietnami* **sp. n.** (Fig. 61). The above-listed females of this species have less contrast colouration: greenish grey to very light brown with brown to light brown spots varying in size (Fig. 62). The upper rostral tubercle of *L. ornatipennis* is usually with the apex slightly or barely bilobate, but sometimes this apex is narrowly rounded.

The pronotum is rather short (ratio of length to height of the pronotal lateral lobes is 1.4–1.5) (Fig. 67). The tegmina are wide (almost as in *L. vietnami* **sp. n.**) and with their venation more or less similar to that of *L. vietnami* **sp. n.** but with less convex costal edge in the distal half, and in male with narrower distal part of the costal area (Fig. 60); but the tegmina of female of *L. ornatipennis* (Fig. 62) differ from those of male of this species in straight or barely convex (not concave) anal edge and wider costal area

(almost as in male of *L. vietnami* **sp. n.**). The stridulatory vein of the male left tegmen has 2.7–2.9 mm in length and is distinguished from that of *L. vietnami* **sp. n.** by more numerous stridulatory teeth (86–92 instead ~78); the majority of these teeth (contra *L. vietnami* **sp. n.**) are narrowing in the middle and costal parts of this vein (Figs 69, 70). The male abdominal apex is also more or less similar to that of *L. vietnami* **sp. n.** (Figs 74, 77); in female, this apex is with smaller (than in male) and fusiform cerci, with ovipositor as in Fig. 78, and with small and triangular genital plate having narrowly rounded or almost truncate apex (Fig. 79).

Length (in mm). Body: 25–29 in males, 28–34 in females; body with wings: 50–54 in males, 58–63 in females; pronotum: 8.2–9 in males, 9–10 in females; tegmina: 40–43 in males, 44–47 in females; hind femora: 17–18.5 in males, 19–21 in females; ovipositor 9–9.5.

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