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TAXONOMY OF THE KATYDIDS (ORTHOPTERA: TETTIGONIIDAE) FROM EAST ASIA AND ADJACENT ISLANDS. COMMUNICATION 12

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Summary. One new genus of the tribe Meconematini, two new subgenera of the genus *Neophisis* Jin (Phisidini) as well as 11 new species and subspecies from these genera and from the genera *Asiophlugis* Gor. (Phlugidini), *Xiphidiopsis* Redt. and *Xizicus* Gor. (Meconematini) are described from Malaysia, Indonesia, Vietnam and Laos. Additional new data on some of these taxa, including a key to five subgenera of the genus *Neophisis*, are also given.

Key words: Orthoptera, Tettigoniidae, Meconematinae, new taxa, Malaysia, Indonesia, Vietnam, Laos.

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Резюме. Из Малайзии, Индонезии, Вьетнама и Лаоса описаны новый род трибы Meconematini, два новых подрода рода *Neophisis* Jin (Phisidini), а также 11 новых видов и подвидов из этих родов и из родов *Asiophlugis* Gor. (Phlugidini), *Xiphidiopsis* Redt. и *Xizicus* Gor. (Meconematini). Приведены дополнительные сведения по некоторым из этих таксонов, включая определительную таблицу 5 подродов рода *Neophisis*.

INTRODUCTION

This paper is a new communication in the series of papers on Indo-Malayan and Papuan Tettigoniidae. The previous communications (11) were listed by Gorochov (2016b) and contain descriptions of 87 new taxa from the subfamilies Phaneropterae, Conocephalinae and Meconematinae. In the present communication, some genera of Meconematinae from the tribes Phisidini, Phlugidini and Meconematini are considered; all their representatives mentioned here are collected in tropical forests of Indonesia, Malaysia, Vietnam and Laos. 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 Meconematinae

Tribe Phisidini

Genus *Neophisis* Jin, 1990

Type species: *Teuthras arachnoides* Bolivar, 1905, by original designation.

NOTE. The genus was divided into 3 subgenera (Jin *et al.*, 1990; Jin & Kevan, 1992). However, the additional material on this genus (Gorochov, 2012) as well as new one show that this genus must be divided into 5 subgenera as a minimum. These subgenera are considered below, in the key to *Neophisis* subgenera.

Key to subgenera of the genus *Neophisis*

1. Male paraprocts compact: usually more or less rounded, but sometimes somewhat angulated and/or with posterior processes; male genitalia with median sclerite ... 2
– Male paraprocts vertical and partly lamellar as well as S-shaped from behind; male genitalia without any sclerite **subgenus *Anaphisis* Gorochov, subgen. n.**
<http://zoobank.org/urn:lsid:zoobank.org:act:173734C3-E336-46D0-8C71-B6C8CB01E443>
[Composition: *Neophisis (Neophisis) halmahera* Gorochov, 2012 – type species; *N. (N.) supiori* Gorochov, 2005. Etymology: after generic name *Phisis* with Greek prefix “ana-” (oppositely)]
2. Male genitalia with rather large sclerite consisting of 2 median branches (dorsal and ventral) fused with each other by their anterior parts (Figs 4, 5) 3
– Male genitalia with rather small V-shaped sclerite consisting of a pair of lateral branches fused with each other by their posterior parts (sometimes this sclerite almost triangular from above and/or with apical hook) 4
3. Male genital plate with elongate distal part and significantly reduced or lost styles; male genitalia with ventral branch of sclerite in shape of rather large horizontal plate (Figs 4, 5) **subgenus *Platyphisis* Gorochov, subgen. n.**
<http://zoobank.org/urn:lsid:zoobank.org:act:D763F6A6-BF16-4C2A-B3AA-6E538B849ABB>

[Composition: *Neophisis (Indophisis) sabah* Gorochov, 2012 – type species; *N. (I.) haani* Jin, 1992; *N. (I.) arcuata* Jin, 1992; *N. (I.) siamensis* Jin, 1992; *N. (Platyphisis) malaysiana* sp. n. Etymology: after generic name *Phisis* with Greek prefix “platy-” (flatly)]

- Male genital plate short, and with styles diverse in length; male genitalia with ventral branch of sclerite in shape of rather small spine-like or fusiform process

..... **subgenus *Indophisis* Jin, 1990**

[Composition: *Teuthras gracilipes* Stål, 1877 – type species (original designation); *Phisis brevipennis* Kästner, 1933; *Ph. philippinarum* Karny, 1920; *Ph. sarasini* Karny, 1931; *Neophisis (Indophisis) iriomotensis* Jin, Kevan et Yamasaki, 1990; *N. (I.) mentawaiensis* Jin, 1992; *N. (I.) longipennis* Jin, 1992; *N. (I.) gracilipennis* Jin, 1992; *N. (I.) curvata* Jin, 1992; *N. (I.) meiopennis* Jin, 1992; *N. (I.) tangkoko* Gorochov, 2012; possibly *N. (I.) philorites* Jin, 1992 and *Decolya kotoshoensis* Shiraki, 1930]

- 4. Thoracic venter with 3 pairs of long spines; body longer than 18 mm

..... **subgenus *Megaphisis* Kevan, 1992**

[Composition: *Teuthras echinatus* Redtenbacher, 1891 – type species (original designation); possibly *Neophisis (Megaphisis) salomonensis* Jin, 1992]

- Thoracic venter with a pair of long spines on prothorax only; body shorter

..... **subgenus *Neophisis* s. str.**

[Composition: 16 species listed in this subgenus by Jin & Kevan (1992) and *Neophisis (Neophisis) ecmurra* Rentz, 2001, but some of these species insufficiently studied or of problematic position.]

***Neophisis (Platyphisis) malaysiana* Gorochov, sp. n.**

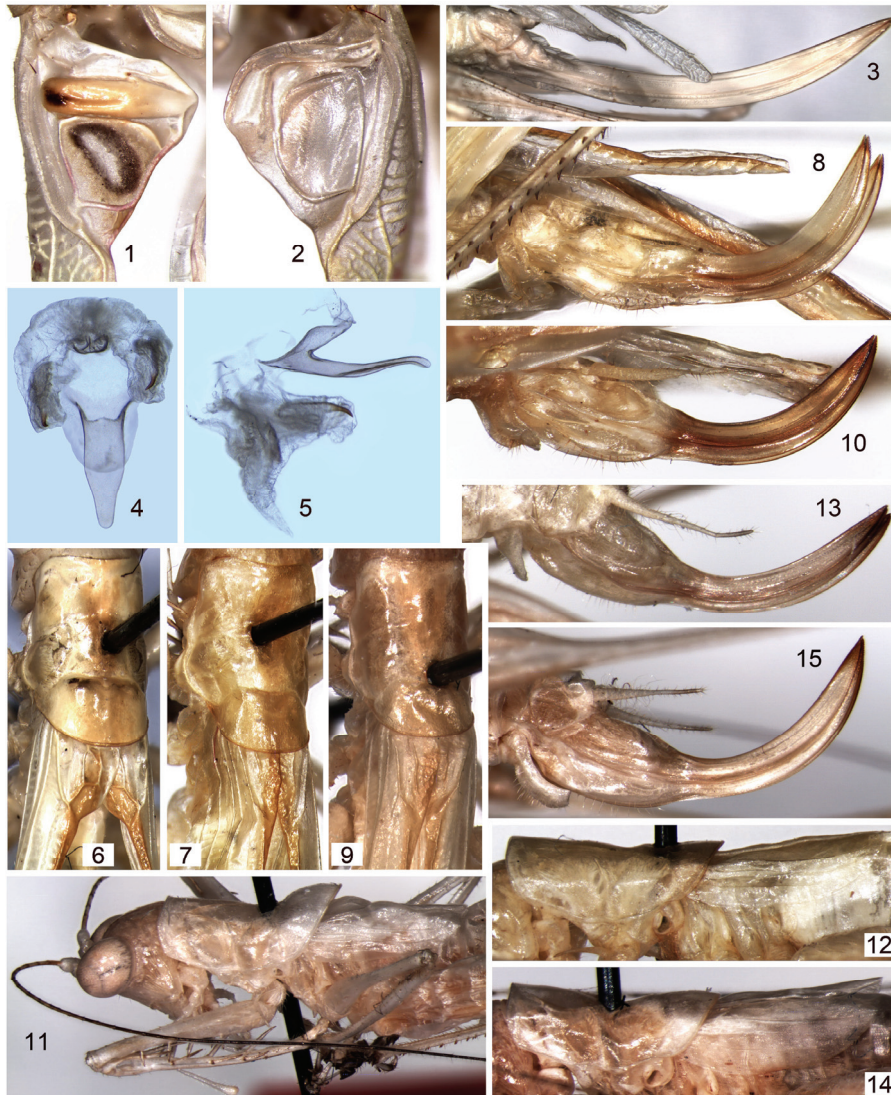
<http://zoobank.org/urn:lsid:zoobank.org:act:4DD7F8A2-EC9A-481B-8874-D4F74883E58B>

Figs 1–5, 16–19

MATERIAL. Holotype – ♂, **Malaysia:** Malay Peninsula, Pahang State, Taman Negara National Park near Kuala Tahan Vill. on Tembeling River, ~100 m, primary forest, on leaf of tree at night, 28.XI–5.XII 2014, A. Gorochov, M. Berezin, E. Tkatsheva. Paratype – ♀, same country, Penang I. between Sumatra and Malay Peninsula, Penang Mt, ~800 m, secondary forest, on leaf of tree at night, 20–24.XI 2014, A. Gorochov, M. Berezin, E. Tkatsheva.

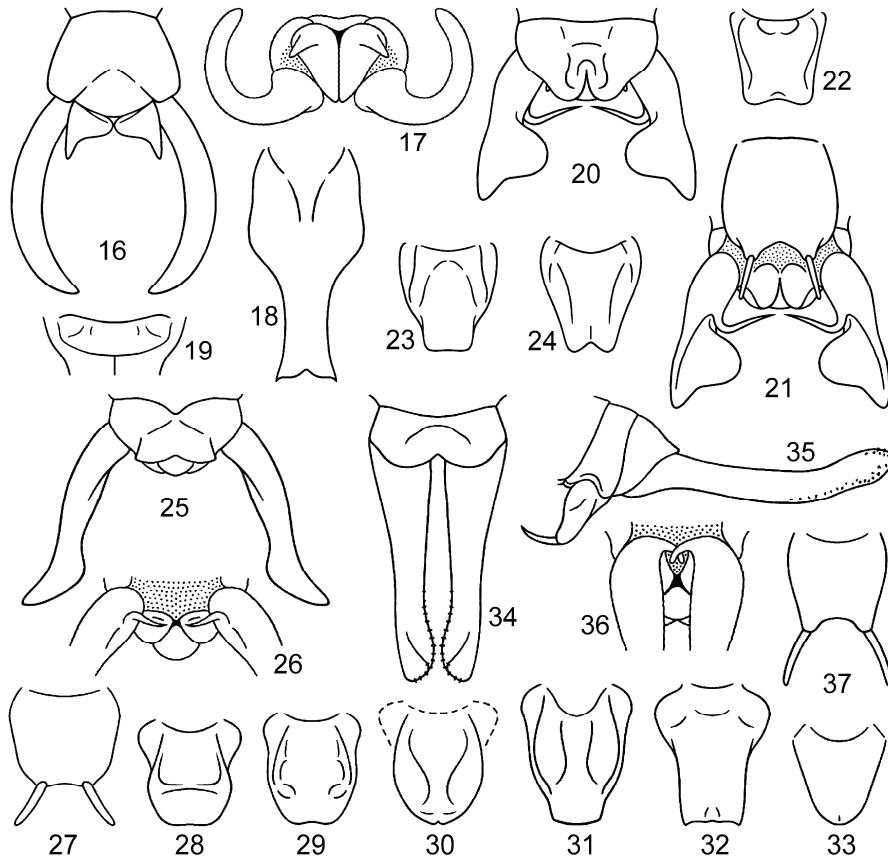
DESCRIPTION. *Male.* Coloration light yellowish with whitish tinge (very light greenish in living condition), slight greyish marks on lateral tegminal fields and on ventral surfaces of spines in fore and middle tibiae as well as on subapical segments in all tarsi, yellow stridulatory vein of left tegmen having small brownish spot on lateral part of this vein, brownish grey oblique oval ring on left mirror (Fig. 1), and almost transparent rest membranes of dorsal tegminal fields. Head with strongly oblique anterior surface, small spinule-like upper rostral tubercle having shallow dorsomedian groove, rounded convexity instead lower rostral tubercle, and scape almost 4 times as wide as space between antennal cavities. Pronotum widest in middle part, slightly wider than long, with anterior and posterior edges roundly truncated, and with each lateral lobe low and having rounded ventral edge (anterior

half of this lobe lower than posterior one and with more sloping ventral edge); thoracic venter with 3 pairs of spines (rather long on prothorax, moderately short on mesothorax, and very short on metathorax). Tegmina somewhat protruding beyond



Figs 1–15. Phisidini and Phlugidini: 1–5 – *Neophisis malaysiana* sp. n.; 6–8 – *Asiophlugis legitima* sp. n.; 9, 10 – *A. l. manukan* subsp. n.; 11–13 – *A. paracercalis* sp. n.; 14, 15 – *A. bintulu* sp. n. Dorsal field of left (1) and right (2) male tegmina; ovipositor from side (3, 8, 10, 13, 15); male genitalia from below (4) and from side (5); pronotum with bases of tegmina from above and slightly from side, male (6), female (7, 9); male body without abdominal apex from side (11); pronotum and tegmina of female from side (12, 14).

abdominal apex but clearly not reaching apical parts of hind femora, with stridulatory apparatus as in Figs 1, 2; hind wings distinctly not reaching tegminal apices (these apices more or less angular). Fore leg with 6 outer and 5 inner femoral spines, a pair of shorter and denticle-like apical spines (spurs), 6 pairs of very long tibial spines, a pair of short ventroapical tibial spines (spurs), and distinctly inflated but not large tympanal region having a pair of very large and oval tympanal openings almost equal to each other in size; middle leg with very small ventral spinule on trochanter, 5 outer femoral spines, 2 distinctly shorter inner spines on proximal part of femur, a



Figs 16–37. Phisidini, Phlugidini and Meconematini: 16–19 – *Neophisis malaysiana* sp. n.; 20–22 – *Asiophlugis lobata* sp. n.; 23, 24 – *A. ?sulawesi* Jin (23, Tangkoko; 24, Bogani Nani Wartabone); 25–28 – *A. legitima* sp. n.; 29 – *A. l. manukan* subsp. n.; 30 – *A. thaumasia* (Heb.); 31 – *A. malacca* Gor.; 32 – *A. bintulu* sp. n.; 33–37 – *A. paracercalis* sp. n. Male abdominal apex without genital plate from above (16, 20, 25, 34) and from behind (17); genital plate of male (18, 27, 37) and female (19, 22–24, 28–33) from below; male abdominal apex with genital plate from below (21) and from side (35) as well as without both this plate and distal cercal half from below (26, 36). [Fig. 30 – after Tan (2011), modified].

pair of femoral spurs similar to those on fore femur, 6 outer and 5 inner long tibial spines, and 3 short tibial spurs (2 inner spurs and outer ventral one); hind leg with femur having a pair of short spurs and 16 outer ventral denticles similar to these spurs in length, and with tibia having 4 rows of rather numerous spines of similar length (but ventral spines less numerous in proximal half of tibia) and 2 pairs of barely shorter spurs. Last tergite slightly longer than previous abdominal tergites, with wide and rather deep posteromedian notch; epiproct wide, almost fused with last tergite, and having short and rounded posteromedian projection; each paraproct almost triangular from behind but slightly vertical, clearly visible behind epiproct, and with spinule-like posterodorsal process directed backwards (Figs 16, 17); cerci simple, rather long and thin, clearly arcuate, and with narrowly rounded apices (Figs 16, 17); genital plate long, with rather wide proximal half and narrow distal one, and with barely widened apex having shallow but angular posteromedian notch and almost lacking styles (Fig. 18). Genitalia with ventral branch of median sclerite semisclerotized, moderately narrow and long, and having distal part gradually narrowing to narrowly rounded apex; dorsal branch of this sclerite shorter, wider and semimembranous; lower and lateral parts of genitalia with additional both semimembranous median plate and a pair of semisclerotized spine-like structures around median sclerite (Figs 4, 5).

Female. General appearance as in male, but upper rostral tubercle less acute at apex, pronotum widest somewhat behind its middle, tegmina uniformly light as well as without stridulatory apparatus and with narrowly rounded apices, last tergite and epiproct smaller, paraprocts rounded and without processes, and cerci more or less similar to those of male in shape but smaller and with almost acute apices; genital plate very short and with wide and almost truncated posterior edge (Fig. 19); ovipositor as in Fig. 3.

MEASUREMENTS. *Length* (in mm). Body: ♂ 12, ♀ 12.5; body with wings: ♂ 15, ♀ 17; pronotum: ♂ 2, ♀ 2.1; visible parts of tegmina: ♂ 11, ♀ 13; hind femora: ♂ 13, ♀ 14; ovipositor 12.2.

COMPARISON. The new species is clearly distinguished from the other species of this subgenus by the characteristic shape of ventral branch of median sclerite in the male genitalia as well as by the presence of additional lateral sclerotizations in these genitalia.

ETYMOLOGY. This new species is named after Malaysia where it was collected.

Tribe Phlugidini

Asiophlugis legitima Gorochov, sp. n.

<http://zoobank.org/urn:lsid:zoobank.org:act:D763F6A6-BF16-4C2A-B3AA-6E538B849ABB>
Figs 6–8, 25–28

MATERIAL. Holotype – ♂, **Indonesia**: Sumatra I., North Sumatra Prov., ~80 km W of Medan City, environs of Bukit Lawang Vill. on Bohorok River near Gunung Leuser National Park, 3°32–33'N, 98°6–7'E, 200–300 m, secondary forest, on leaf of bush at night, 6–14.IV 2018, A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva. Paratype – ♀, same data.

DESCRIPTION. *Male*. Coloration light yellowish (light greenish in living condition) with numerous very small brown spots on proximal part of antennal flagellum, greyish brown to blackish rest of this flagellum, intensively yellow stripe on each tegmen along its anal edge, partly brown to brownish dorsal surfaces of long outer spines on fore tibia, light brown narrow marks on dorsal surface of long inner spines of this tibia, brown dot on each apical lobule of hind femur, brownish dorsal spinules of hind tibiae, blackish marks on ventral surfaces of subapical segments of fore and middle tarsi as well as on all segments of hind tarsus, and darkened apical spines (spurs) of hind tibia. External structure typical of *Asiophlugis* Gorochoy, 1998, but pronotum with hind lobe barely inflated and covering basal areas of tegmina, fore leg with 3 outer and 4 inner spines on femur as well as 4 pairs of long spines and a pair of short ventroapical spinules on tibia, middle leg with latter spinules only, hind leg without spines or denticles on femur as well as with a pair of rows from not very numerous dorsal spinules and 2 pairs of short apical spines on tibia, tegmina reaching cercal apices and with stridulatory apparatus as in Fig. 6, hind wings distinctly protruding beyond tegminal apices, last tergite with very short and barely bilobed posteromedian lobe, epiproct rounded and projected behind this lobe, paraprocts also rounded but smaller than epiproct, proximal portion of cercus rather long and slightly arcuate as well as with small and spinule-like ventrobasal hook directed medially, distal portion of cercus shorter than proximal one and curved laterally as well as somewhat widened at base (Figs 25, 26), and genital plate short and with rather long styles as well as with moderately wide and very shallow notch between them (Fig. 27); genitalia membranous.

Female. General appearance as in male, but stridulatory apparatus absent, and last tergite and cerci unspecialized; genital plate short, with widely truncated apical part and 3 folds (a pair of ventrolateral longitudinal keels and one transverse fold between them and apical part of this plate; Fig. 28); ovipositor as in Fig. 8.

MEASUREMENTS. *Length* (in mm). Body: ♂ 10, ♀ 10.5; body with wings: ♂ 13, ♀ 14.5; pronotum: ♂ 3.4, ♀ 3.4; visible parts of tegmina: ♂ 7.5, ♀ 8; hind femora: ♂ 11, ♀ 12; ovipositor 5.3.

COMPARISON. The new species is similar to *A. thaumasia* Hebard, 1922 and *A. malacca* Gorochoy, 1998 in the male abdominal apex and female genital plate, respectively. However, it is distinguished from *A. thaumasia* by the posteromedian lobe of last male tergite shorter, male epiproct visible from above, male cerci with the distal portion clearly shorter than proximal one (*vs.* these portions almost equal in length), and male genital plate with the posterior edge between styles notched but not convex or almost straight; from *A. malacca*, the new species differs in the female genital plate with the lateral edges of distal part more or less convex (not concave), and with a distinct transverse fold and narrow longitudinal keels (in *A. malacca* and *A. thaumasia*, such fold is absent, and there are a pair of longitudinal inflations instead these keels; see Figs 28, 30, 31).

ETYMOLOGY. Name of this species is the Latin word “legitima” (real, correct).

***Asiophlugis legitima manukan* Gorochov, subsp. n.**

<http://zoobank.org/urn:lsid:zoobank.org:pub:9AE5FB40-CEF6-4B15-BEB4-A8B9494861F4>
Figs 9, 10, 29

MATERIAL. Holotype – ♀, **Malaysia:** Sabah State, Manukan I. in ~5 km NWW of Kota-Kinabalu City on Borneo I., ~sea level, secondary forest, on leaf of bush at night, 24–25.IV 2013, A. Gorochov, M. Berezin, V. Gorochova, E. Tkatsheva.

DESCRIPTION. *Female.* General appearance very similar to that of nominotypical subspecies; however, hind lobe of pronotum somewhat shorter and covering only base of dorsal tegminal fields (*vs.* covering almost third of these fields) as well as less distinctly separated from rest of pronotum (for comparison see Figs 7 and 9), and genital plate without distinct transverse fold (Figs 10, 29).

Male unknown.

MEASUREMENTS. *Length* (in mm). Body 11; body with wings 14; pronotum 3.2; visible parts of tegmina 7.8; hind femora 11; ovipositor 5.4.

COMPARISON. The new subspecies differs from Sumatran *A. l. legitima* in the above-mentioned characters of pronotum and genital plate in female. From similar *A. malacca*, the new subspecies is distinguished by the distal part of female genital plate not concave laterally, as well as by the ventrolateral keels of this plate not inflated (see Figs 29, 31); and from *A. thaumasia*, by the apical part of female genital plate more truncated and with the lateral keels also not inflated (see Figs 29, 30).

ETYMOLOGY. This subspecies is named after its type locality.

***Asiophlugis thaumasia* (Hebard, 1922)**

Fig. 30

MATERIAL. **Indonesia:** Sumatra I., West Sumatra Prov., ~20 km E of Sasak Town, Harau Valley National Park, equator, ~600 m, primary forest, on leaf of tree at night, 24–26.XI 1999, 1 ♂, A. Gorochov.

REMARK. This species, described from Singapore (Hebard, 1922), is here indicated for Sumatra. However, the male studied has 4 pairs of spines on each fore femur (this femur in holotype has 4 inner and 3 outer spines), and its genital plate is with almost straight posterior edge between styles (this edge is clearly convex in holotype). Thus, this male may belong to a new subspecies of *A. thaumasia*, but in order to clarify this problem, it is necessary to have more representative material.

***Asiophlugis paracercalis* Gorochov, sp. n.**

<http://zoobank.org/urn:lsid:zoobank.org:act:D763F6A6-BF16-4C2A-B3AA-6E538B849ABB>
Figs 11–13, 33–37

MATERIAL. Holotype – ♂, **Malaysia:** Borneo I., Sarawak State, 80–90 km WNW of Kuching City, Gunung Gading National Park, 100–300 m, primary forest, on leaf of small tree at night, 22–26.XI 2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov. Paratypes: 2 ♀, same data.

DESCRIPTION. *Male.* General appearance more or less similar to that of *A. legitima*, *A. thaumasia* and *A. malacca* but with following features: colouration slightly lighter (light parts almost whitish), with poorly visible light brownish marks on proximal part of antennal flagellum and on majority of tibial spines and spinules, and

with tegmina lacking marks; pronotum with hind lobe somewhat longer (covering about half of stridulatory apparatus) and clearly more inflated (Fig. 11); tegmina short, reaching 6th abdominal tergite, with rounded distal parts (Fig. 11); hind wings invisible; fore femur with 4 pairs of spines; fore tibia as well as middle and hind legs almost as in above-mentioned congeners; last tergite somewhat narrower than more anterior abdominal tergites but slightly longer than these tergites, with very short and wide posteromedian lobe having rather narrow and short apical notch as well as a pair of widely rounded lobules around this notch; epiproct and paraprocts very small and almost invisible between this lobe and cercal bases; cercus similar to that of *A. cercalis* Gorochov, 2012 but distinctly shorter, almost straight and with distal part slightly curved upwards and having several very small denticles on inner surface (Figs 34–36); genital plate and genitalia similar to those of *A. legitima*, but posteromedian notch of this plate between styles somewhat deeper (Fig. 37).

Female. Coloration and structure of body as in male, but pronotum with distinctly shorter and less inflated hind lobe (Fig. 12), tegmina reaching 5th abdominal tergite and without stridulatory apparatus, last tergite shorter and with convex posterodorsal part not covering rounded epiproct and paraprocts, and cerci unspecialized; genital plate and ovipositor as in Figs 13, 33 (ventral folds on this plate undeveloped).

MEASUREMENTS. *Length* (in mm). Body: ♂ 9.5, ♀ 11.5–12; pronotum: ♂ 3.7, ♀ 3.3–3.4; visible parts of tegmina: ♂ 3.3, ♀ 3.1–3.3; hind femora: ♂ 11.5, ♀ 11.7–12; ovipositor 5.3–5.5.

COMPARISON. The new species is most related to *A. cercalis*, because their male cerci are similar in the structure. But it differs from the latter congener in the male cerci distinctly shorter and not arcuately curved upwards, and with denticles located only in the distal cercal parts (vs. in the middle and distal cercal parts). From all the other congeners, the new species is distinguished by the same characters as *A. cercalis* and may be only a subspecies of the latter species.

ETYMOLOGY. The new species is named after *A. cercalis*, the most similar species.

***Asiophlugis bintulu* Gorochov, sp. n.**

<http://zoobank.org/urn:lsid:zoobank.org:act:D763F6A6-BF16-4C2A-B3AA-6E538B849ABB>
Figs 14, 15, 32

MATERIAL. Holotype – ♀, **Malaysia**: Borneo I., Sarawak State, ~30 km from Bintulu City, Similajau National Park, 3°25'26"N, 113°13'59"E, almost sea level, primary forest near sea, on leaf of small tree at night, 12–16.XI 2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov, N. Grigoreva.

DESCRIPTION. *Female*. General appearance very similar to that of females of *A. paracercalis* and *A. cercalis* (Fig. 14), but genital plate very different in shape (longer, with distal half narrower and having parallel lateral edges, and with widely truncated apex having posterolateral corners slightly projected backwards; for comparison see Figs 32 and 33), and ovipositor slightly more curved (Fig. 15).

Male unknown.

MEASUREMENTS. *Length* (in mm). Body 11.5; pronotum 3.3; visible parts of tegmina 3.2; hind femora 12; ovipositor 5.4.

COMPARISON. The new species is clearly distinguished from all the other congeners with known female by the above-mentioned characters of its female genital plate.

ETYMOLOGY. This species is named after the Bintulu City situated not far from its type locality.

***Asiophlugis rete* Gorochov, 1998**

Asiophlugis rete Gorochov, 1998: 128 (holotype – ♂, Malaysia: Malay Peninsula).

Phlugis thai Helfert et Sanger, 1998: 62 (holotype – ♂, Thailand: Malay Peninsula); **syn. n.**

MATERIAL. **Indonesia**, Sumatra I.: North Sumatra Prov., ~80 km W of Medan City, environs of Bukit Lawang Vill. on Bohorok River near Gunung Leuser National Park, 3°32–33'N, 98°6–7'E, 200–300 m, secondary forest, on leaves of bushes at night, 6–14.IV 2018, 3 ♂, 2 ♀, 1 nymph (♀), A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva; Aceh Prov. near border with North Sumatra Prov., environs of Ketambe Vill. on Alas River in Gunung Leuser National Park, 3°41–42'N, 97°38–39'E, 300–500 m, primary forest, on leaves of bushes at night, 15–24.IV 2018, 3 ♂, 5 ♀, A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva. **Malaysia**: Penang I. between Sumatra and Malay Peninsula, Penang Mt, ~800 m, secondary forest, on leaves of tree at night, 20–24.XI 2014, 2 ♂, 2 ♀, A. Gorochov, M. Berezin, E. Tkatsheva.

REMARK. *Asiophlugis rete* was described in June 1998 from Malay Peninsula (Gorochov, 1998). The material studied here shows that it distributed also in Sumatra and Penang islands and is insignificantly varied in morphology. Thus *Phlugis thai* described in December 1998 from the Thailand part of Malay Peninsula (Helfert & Sanger, 1998) is almost indistinguishable from *A. rete* and considered here as junior synonym of the latter species.

***Asiophlugis trusmadi* Gorochov, 2011**

MATERIAL. **Malaysia**: Borneo I., Sabah State, Tawau Hills National Park near Tawau City, 200–400 m, primary/secondary forest, on leaves of bushes at night, 14–20.V 2013, 4 ♂, 1 ♀, A. Gorochov, M. Berezin, E. Tkatsheva.

REMARK. This species, described from Trus Madi Mt in Sabah, is here recorded from another locality of the same state.

***Asiophlugis lobata* Gorochov, sp. n.**

<http://zoobank.org/urn:lsid:zoobank.org:act:D763F6A6-BF16-4C2A-B3AA-6E538B849ABB>
Figs 20–22, 68

MATERIAL. Holotype – ♂, **Indonesia**: Buton I. very near southeast part of Sulawesi I., environs of Baubau Town, 5°28'55"S, 122°38'18"E, secondary forest on hill, on leaf of bush at night, 23–27.XI 2015, A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva. Paratype – ♀, same country, Sulawesi I., southeast part of Sulawesi I., environs of Kendari City, 3°57'28"S, 122°34'12"E, primary forest on hill, on leaf of bush at night, 21.IX–2.X 2015, A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva.

DESCRIPTION. *Male*. Body rather large for this genus. Coloration yellowish (light greenish in living condition) with numerous small light brown spots on proximal part of antennal flagellum, greyish brown to dark brown rest of this flagellum, rose eyes, light brown both median stripe on pronotum and stripe along anal edge of each tegmen, very light brown longitudinal marks on spines of fore tibia, and greyish brown areas on apical and subapical segments of fore and middle tarsi as well as on all segments of hind tarsus and on apical part of hind tibia. Structure of head and pronotum more or less similar to that of male of *A. legitima* (hind lobe of pronotum covering proximal half of tegminal stridulatory apparatus); tegmina reaching abdominal apex; hind wings clearly protruding beyond tegminal apices but distinctly not reaching apices of hind femora; fore leg with 4 pairs of femoral spines, 4 pairs of long tibial spines and a pair of very short tibial ventroapical spinules (spurs); middle leg with a pair of similar tibial spurs only; hind leg with rather numerous small dorsal spinules and 2 pairs of short spurs on tibia only. Last tergite with a pair of rounded posterodorsal lobes and very narrow notch between them; epiproct small, with rounded distal part; paraprocts also small and rounded; cerci moderately short, with large medial lobe near apical part, and with ventroproximal hook long and almost straight as well as strongly curved near its base; genital plate slightly narrowed in apical part, with moderately wide and shallow posteromedian notch, and with rather long and thin styles (Figs 20, 21); genitalia membranous.

Female. General appearance as in male, but dorsal spinules of hind tibia slightly darker (light brown to brown), pronotum similar to that of female of *A. legitima* in shape, tegmina without stridulatory apparatus, last tergite with straight posterior edge, epiproct and paraprocts somewhat smaller, and cerci thin and straight as well as shorter and with almost acute apices; genital plate short, with truncately notched apex and somewhat concave dorsolateral edges in profile (Figs 22, 68); ovipositor as in Fig. 68.

MEASUREMENTS. *Length* (in mm). Body: ♂ 13.5, ♀ 16.5; body with wings: ♂ 15, ♀ 19.5; pronotum: ♂ 4.4, ♀ 4.7; visible parts of tegmina: ♂ 8.5, ♀ 11; hind femora: ♂ 11.5, ♀ 13.5; ovipositor 6.6.

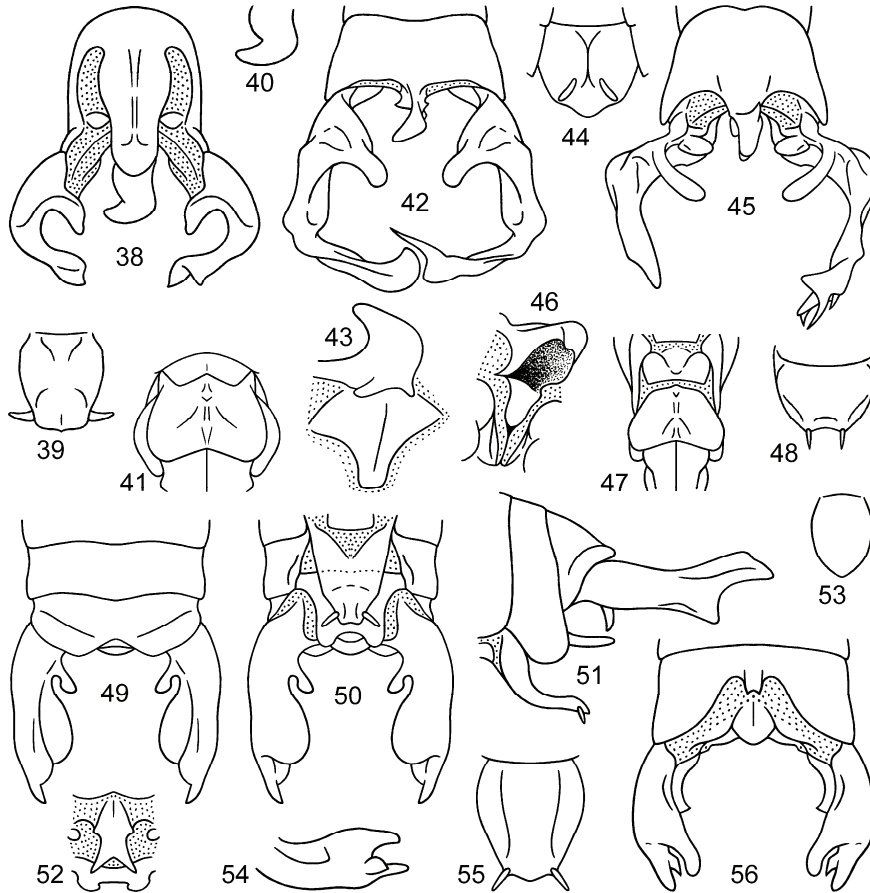
COMPARISON. The new species is most similar and related to *A. sulawesi* Jin, 1993 but with the hind lobe of male pronotum clearly less inflated, and male cerci having large medial lobes near their apices (*A. sulawesi* is without such lobes).

***Asiophlugis ?sulawesi* Jin, 1993**

Figs 23, 24

MATERIAL. **Indonesia**, Sulawesi I., Sulawesi Utara Prov.: Bogani Nani Wartabone National Park near Toraut Vill. not far from Doloduo Town, environs of Wallace Base Camp, primary/secondary forest, on leaves of tree at daytime, 17–25.I 2011, 1 ♀, 1 nymph (♀), A. Gorochoy; ~40 km NE of Manado City, Tangkoko National Park on eastern coast of Minahassa Peninsula, environs of Tangkoko Lodge, secondary forest, on leaf of bush at night, 3–6.II 2011, 1 ♀, A. Gorochoy.

REMARK. These specimens are in accordance to the original description of *A. sulawesi* distributed also in “Sulawesi Utara”; however, the latter species is known only from male (Kevan & Jin, 1993). The above-mentioned females are also similar to *A. lobata* female and distinguished from it only by the genital plate longer and having its apical part narrower. Thus, they could be described as previously unknown females of *A. sulawesi*, but the female from Bagani Nani Wartabone and the female from Tangkoko have the similar but not identical genital plates (Figs 23, 24) and may belong to more than one subspecies or species.



Figs 38–56. Meconematini: 38–41 – *Xiphidiopsis mada* Gor., stat. n.; 42–44 – *X. shcherbakovi* sp. n.; 45–48 – *X. ornata* sp. n.; 49–52 – *Pseudoteratura lambir* Gor., stat. n.; 53 – *P. sundaica* (Kästner); 54–56 – *Xizicus omelkoi* sp. n. Male abdominal apex without genital plate from above (38, 42, 45, 49, 56) as well as with this plate from below (50) and from side (51); genital plate of male (39, 44, 48, 55) and female (41, 47, 53) from below; ventral asymmetrical lobe of posteromedian process of male last tergite from above (40); this process and epiproct from behind/side/below (43, 46); male epiproct and median part of dorsal genital sclerite from behind (52); inner surface of right male cercus without basal part (54).

Tribe Meconematini

Xiphidiopsis (Xiphidiopsis) mada (Gorochov, 2016), stat. n.

Figs 38–41, 69

Xiphidiopsis (Xiphidiopsis) beybienkoi mada Gorochov, 2016a: 11 (holotype – ♀, Vietnam: Dong Nai Province).

MATERIAL. Vietnam: southern part, 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, 2 ♂, 3 ♀ (including holotype), L. Anisyutkin, A. Anichkin.

DESCRIPTION. *Male* (novus). Coloration uniformly yellowish (greenish in living condition) but with whitish line along lateral edge of each dorsal tegminal field, brownish spot behind mirror in each tegmen and small marks on third segment of hind tarsus, transparent rest membranes of stridulatory apparatus and majority of membranes in hind wing, and a pair of brown dots on apex of each (inner and outer) apical lobule of hind femur. Body structure similar to that of *X. (X.) b. beybienkoi* Gorochov, 1993, but last tergite having unpaired posterodorsal process with sclerotized part clearly wider in proximal half and slightly narrowed in distal half, without distolateral lobes curved upwards, with almost semiglobular (not horizontally lamellar) apex and with hook-like and partly (in posterior half) lamellar ventral subapical lobe which asymmetrical and distinctly protruding beyond previous (more dorsal) apex (Figs 38, 40); cerci and genital plate also similar to those of above-mentioned subspecies (Figs 38, 39), but distal cercal parts with clearly shorter lobules, and genital plate with apical part slightly projected behind bases of styles (*vs.* almost not projected behind them); genitalia membranous.

Female. All females according original description of this taxon (Gorochov, 2016a); their genital plate and ovipositor as in Figs 41, 69.

MEASUREMENTS. *Length* (in mm). Body: ♂ 11–13, ♀ 10–11; body with wings: ♂ 22–23.5, ♀ 23–25; pronotum: ♂ 3.8, ♀ 3.7–3.8; visible parts of tegmina: ♂ 18–19.5, ♀ 19.5–21; hind femora: ♂ 10–10.8, ♀ 10.2–11.5; ovipositor 9.5–10.

REMARK. The new material shows that this taxon, described originally as a subspecies of *X. (X.) beybienkoi*, in reality belongs to a separate species.

Xiphidiopsis (Xiphidiopsis) shcherbakovi Gorochov, sp. n.

<http://zoobank.org/urn:lsid:zoobank.org:act:D763F6A6-BF16-4C2A-B3AA-6E538B849ABB>

Figs 42–44

MATERIAL. Holotype – ♂, Malaysia: Borneo I., Sabah State, “Pensiangan env.”, 4°34.948'N, 116°19.935'S, 516 m, 27.V–2.VI 2014, E. Shcherbakov.

DESCRIPTION. *Male.* General appearance very similar to that of previous congener (*X. mada*). Coloration yellowish with light brown narrow stripe on tegmen along proximal two thirds of anal edge, several small spots of same color on distal half of lateral tegminal field, a pair of dark brown dots on apices of inner and outer apical lobules of hind femur, and brownish areas on long spines of fore tibia and on

subapical segment of all tarsi. Body structure as in *X. mada* but with differences in shape of some morphological structures of abdominal apex: last tergite with a pair of much less deep posterior notches and with unpaired posteromedian process rather small and asymmetrical, i.e. latter process having almost triangular distal plate with vertical ventral part and with rest part directed obliquely upwards/laterally; basal part of this plate with two small ventral projections directed downwards and in opposite sides (Figs 42, 43); epiproct rather wide in dorsal (proximal) half and narrow in ventral (distal) part (Fig. 43); cerci also with asymmetrical distal parts, i.e. left cercus with widened lamellar plate at apex having two small teeth on its ventral edge, and right cercus with such plate smaller and lacking ventral teeth but having rather long apical spine (Fig. 42); genital plate with apical part between styles roundly angular and more projected backwards than in *X. mada* (Fig. 44).

Female unknown.

MEASUREMENTS. *Length* (in mm). Body 10.7; body with wings 22.5; pronotum 3.9; tegmina 18; hind femora 10.5.

COMPARISON. The new species is clearly distinguished from all the other species of *Xiphidiopsis* s. str. mainly in the characteristic structure of posteromedian process of last male tergite (especially in the clearly asymmetrical triangular shape of its distal plate).

ETYMOLOGY. The new species is named after its collector, entomologist E.O. Shcherbakov.

***Xiphidiopsis (Xiphidiopsis) ornata* Gorochoy, sp. n.**

<http://zoobank.org/urn:lsid:zoobank.org:act:D763F6A6-BF16-4C2A-B3AA-6E538B849ABB>

Figs 45–48, 70

MATERIAL. Holotype – ♂, **Vietnam**: Kon Tum Prov., Kon Plong Distr., 14 km N of Kon Plong Town, 14°43'20"N, 108°18'58"E, 1030 m, 9–23.IV 2015, A. Abramov. Paratype – ♀, same data.

DESCRIPTION. *Male*. Body structure also rather similar to that of both previous congeners (*X. mada* and *X. shcherbakovi*), but coloration somewhat different: sparse small spots on antennal flagellum, posterior area on pronotal disc, distal part of tegminal stridulatory apparatus and a pair of apical dots on apex of hind femur brown to dark brown; two pairs of narrow lateral stripes on pronotal disc more or less brownish (a pair of stripes located on anterior part of disc rather light; a pair of stripes located on posterior half of disc slightly darker and fused with dark posterior area of this disc); area on membrane of each tympanum, stripe on each tegmen along its anal edge (except for stridulatory apparatus) and several very small spots on distal half of lateral tegminal field light brown; apical area on all tibiae and subapical segment of all tarsi slightly darkened. Shape of last tergite more similar to that of *X. shcherbakovi* than to that of *X. mada*, but its posteromedian process distinguished from that of both these species by smaller or apically rounded distal part having very small and asymmetrical (but not hooked) ventroapical lobule, by presence of deep cavity between this process and small lobule-like epiproct, by asymmetrically concave ventral surface of latter process, and by small spinule-like tubercle located on right dorsolateral part of base of this process (Figs 45, 46); cerci with proximal part

complicated (having additional dorsomedial both rounded lobule and small fold near it), and with distal part of right cercus widened and lamellar as well as corrugated and having deep notch and a few small projections (left cercus with distal part probably damaged during nymphal stage) (Fig. 45); genital plate without any projection between styles (Fig. 48).

Female. General appearance as in male but with smaller and sparser spots on antennal flagellum, almost without pattern on pronotum as well as darkened parts on dorsal tegminal field and along anal edge of lateral tegminal field, with somewhat lighter dots on both apical lobules of hind femur, without tegminal stridulatory apparatus, and with last tergite and epiproct as well as cerci unspecialized; genital plate with small and acute tubercle on basal part (this tubercle very similar to that of female of *X. beybienkoi*, *X. mada* and *X. bituberculata* Ebner, 1939; Figs 47, 70); ovipositor as in Fig. 70.

MEASUREMENTS. *Length* (in mm). Body: ♂ 12.5, ♀ 13; body with wings: ♂ 24.5, ♀ 25.5; pronotum: ♂ 2.2, ♀ 3.8; tegmina: ♂ 19, ♀ 21; hind femora: ♂ 10.5, ♀ 11.5; ovipositor 10.

COMPARISON. The new species differs from all the other species of this subgenus in the presence of distinct darkened marks on the antennae and pronotum (at least in male) and the above-mentioned characters of posteromedian process of male last tergite as well as more complicated structure of proximal and distal parts in the male cercus.

ETYMOLOGY. Name of this species is the Latin word “ornata” (ornated) due to its coloration.

***Pseudoteratura (Pseudoteratura) lambir* Gorochoy, 2014, stat. n.**

Figs 49–52, 85, 86

Pseudoteratura (Pseudoteratura) bella lambir Gorochoy, 2014: 8 (holotype – ♀, Malaysia: Sarawak State).

MATERIAL. **Malaysia**, Borneo I., Sarawak State, Lambir Hills National Park in environs of Miri Town, 100–300 m, primary forest, at light, 19–20.XI 2016, 1 ♂, A. Gorochoy, M. Berezin, E. Tkatsheva, I. Kamskov, N. Grigoreva; the same locality, on leaf of bush at night, 29.III–1.IV 2012, 1 ♀ (holotype), A. Gorochoy, M. Berezin, E. Tkatsheva, I. Kamskov.

DESCRIPTION. *Male* (novus). Coloration yellowish (greenish in living condition) with brown apex of upper rostral tubercle, orange dorsomedian band running from this apex to middle of pronotum, a pair of small light brown marks along posteromedian edge of pronotal disc having a pair of light orange stripes running forwards (from latter marks) and fused with each other into thin median line somewhat not reaching middle of pronotum, whitish area between latter marks and stripes, small brownish grey to blackish spots on antenna (rather numerous in proximal part and somewhat sparser in middle part), brownish to greyish 2 very small areas near tympanum and stripes along dorsal surfaces of spines on fore and middle tibiae as well as distal halves of dorsal spinules on hind tibia, greyish brown marks on apical part of latter tibia and on subapical segment of all tarsi, light brown to orange stripe

on each tegmen along its anal edge, and sparse dark brown small spots on distal half of lateral tegminal field and in apical part of hind wing. External structure of body typical of this subgenus, but last tergite with rather shallow angular posteromedian notch, epiproct not large and narrowed in middle part as well as directed downwards and with characteristically bifurcated distal part (Figs 49, 52), paraprocts very small and rounded, cercus not long and with two characteristic distal lobes as well as small proximomedial process with slightly inflated apical part (Figs 49, 50), genital plate with moderately narrow apical part somewhat projected behind bases of styles and more or less truncated posteriorly (Fig. 50). Genitalia: dorsal sclerite large, plate-like, with wider base articulated with ventrolateral projections of subapical tergite, with a pair of flat posterior lobules, and with distinct notch between these lobules (Figs 50, 51); ventral sclerite smaller than dorsal one, not flat, with a pair of short rounded tubercles at apex, with elongate concavity between and before these tubercles, and with elevated anteromedian edge (Figs 85, 86).

Female. This female sufficiently described by Gorochov (2014: figs 25, 35, 41).

MEASUREMENTS. *Length* (in mm). Body: ♂ 8.7, ♀ 9–10; body with wings: ♂ 21, ♀ 21.5–22; pronotum: ♂ 3.6, ♀ 3.3–3.5; visible parts of tegmina: ♂ 15.5, ♀ 16.5–17; hind femora: ♂ 9.8, ♀ 10–10.5; ovipositor 8.3–8.6.

REMARK. This species was described as a subspecies of *P. (P.) bella* Gorochov, 2008 (Sabah State of Malaysia), but the new material shows that it is more similar to *P. (P.) kenuan* Tan, Gorochov et Wahab, 2017 (Brunei) and differs from them in the following characters: from *P. bella*, in male epiproct bifurcated, and male cercal lobes shorter; from *P. kenuan*, in dorsal sclerite of male genitalia with a deeper notch between its posterior lobules.

***Pseudoteratura (Pseudoteratura) sundaica* (Kästner, 1932)**

Figs 53, 71

MATERIAL. **Indonesia**, Sumatra I.: North Sumatra Prov., ~80 km W of Medan City, environs of Bukit Lawang Vill. on Bohorok River near Gunung Leuser National Park, 3°32–33'N, 98°6–7'E, 200–300 m, secondary forest, on leaves of bushes at night, 6–14.IV 2018, 3 ♂, A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva; Aceh Prov. near border with North Sumatra Prov., environs of Ketambe Vill. on Alas River in Gunung Leuser National Park, 3°41–42'N, 97°38–39'E, 300–500 m, primary forest, on leaf of small tree at night, 15–24.IV 2018, 1 ♀, A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva.

DESCRIPTION. *Female* (nova). Coloration yellowish (greenish in living condition) with pattern of epicranium and pronotum similar to that of *P. (P.) lambir* but having posterior half of pronotal disc with rather large posteromedian greyish brown spot and brownish narrow median stripe running from this spot to middle of disc, with antenna having small and moderately numerous light brown to blackish spots situated more evenly and only on flagellum, and with other marks also similar to those of this species but lighter and less distinct on legs as well as more numerous on tegmina (latter spots located also in proximal half of tegminal lateral field). External structure of body typical of female of this subgenus; genital plate oval with almost angular apex (Fig. 53); ovipositor as in Fig. 71.

Male. General appearance similar to that of female, but coloration somewhat varied: 2 males with pronotal disc lacking greyish brown posterior spot (i.e. posterior half of this disc with orange median line only), and third male with rostral apex orange (not darkened); abdominal apex indistinguished from that of syntypes of this species (see Gorochov, 1998: figs 208–215).

MEASUREMENTS. *Length* (in mm). Body: ♂ 8–9.5, ♀ 9; body with wings: ♂ 19–20.5, ♀ 22.5; pronotum: ♂ 3–3.2, ♀ 3.1; visible parts of tegmina: ♂ 14–15, ♀ 16.7; hind femora: ♂ 9.5–10, ♀ 10.5; ovipositor 7.

REMARK. This species, described from Soekaranda (Sumatra), is here recorded from 2 other Sumatran localities.

Genus *Xizicus* Gorochov, 1993

Type species: *Xiphidiopsis fascipes* Bey-Bienko, 1955, by original designation.

REMARK. In Orthoptera Species File (Cigliano *et al.*, 2018), this genus is considered with 7 subgenera. But some of these subgenera are problematic: *Paraxizicus* Liu, 2004 and *Haploxizicus* Wang, Jing, Liu et Li, 2014 may be synonyms of the subgenera *Furcixizicus* Gorochov, 2002 and *Axizicus* Gorochov, 1998, respectively. Such synonymy is suggested by some subgeneric characters and illustrations given in the partial revision of *Xizicus* s. l. (Wang *et al.*, 2014: figs 4–14). Also, it is necessary to mention that type species of the subgenus *Furcixizicus* is *Xizicus furcicercus* Gorochov, 2002 by original designation (Gorochov, 2002), but in Orthoptera Species File (Cigliano *et al.*, 2018), its type species is erroneously indicated as *Xizicus cryptostictus* (Hebard, 1922).

Xizicus (Furcixizicus) omelkoi Gorochov, sp. n.

<http://zoobank.org/urn:lsid:zoobank.org:act:D763F6A6-BF16-4C2A-B3AA-6E538B849ABB>

Figs 54–56

MATERIAL. Holotype – ♂, 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, at light, 10–30.VI 2017, A. Gorochov, M. Omelko.

DESCRIPTION. *Male*. Coloration yellowish (light greenish in living condition) with light brown eyes and very sparse and small spots on antennal flagellum, brownish stripe on each tegmen along its anal edge (but mirror and nearest lateral, medial and basal membranes transparent) and several rather small spots on tegminal lateral field more or less along its median axis as well as dorsal surface of almost each tibial spine of fore and middle legs, a pair of dark brown apical dots on hind femur, and slightly darkened spines of hind tibia and areas on subapical segment of all tarsi. Body structure similar to that of other representatives of this subgenus, but hind wings insignificantly protruding beyond very long tegmina, last tergite with deeper posteromedian notch and very small and practically non-bifurcated posterodorsal process (apex of this process somewhat notched; Fig. 56), epiproct rather small and elongately oval as well as directed downwards, paraprocts rounded and similar to epiproct in size, cerci symmetrical and moderately short, distal half of each cercus

with elongate dorsoapical lobule (directed backwards and slightly medially) as well as with similar ventroapical lobule partly curved medially and having angular tooth at base of its medial surface (Figs 54, 56), proximal half of each cercus with small but distinct angular medial projection (Figs 54, 56), genital plate rather small and simple (Fig. 55), and genitalia membranous.

Female unknown.

MEASUREMENTS. *Length* (in mm). Body 9; body with wings 18.5; pronotum 3.2; tegmina 14.3; hind femora 8.5.

COMPARISON. The new species is clearly distinguished from all the other species of *Furcixizicus* by the unpaired posterodorsal process of male last tergite notched at the apex but not distinctly bifurcated, by the ventroapical lobule of male cercus with a medial tooth (such tooth in other representatives of this subgenus is absent, located on the basal part of dorsoapical cercal lobule or between dorso- and ventroapical cercal lobules), or by the male genital plate less narrowed in the distal half [only from *X. (?Furcixizicus) fallax* Wang, Jing, Liu et Li, 2014].

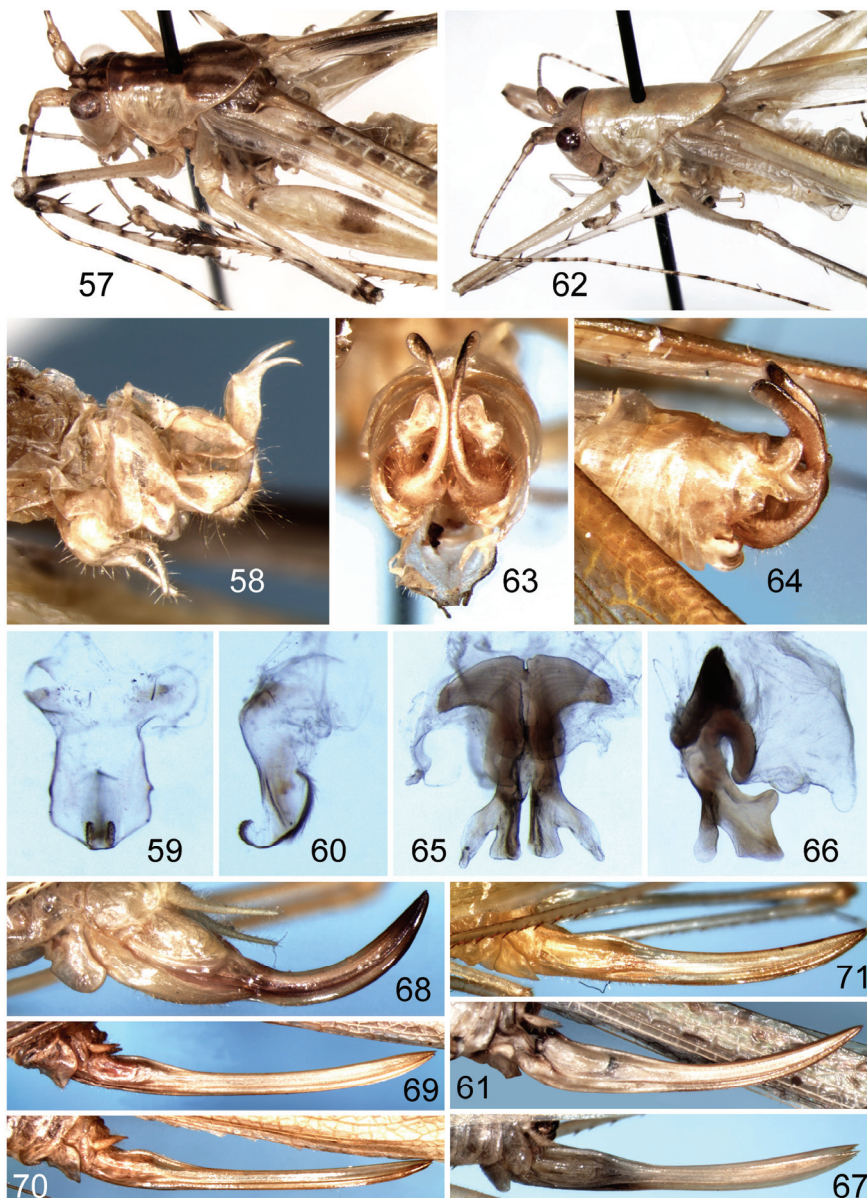
ETYMOLOGY. The species is named in honor of the lepidopterist M.M. Omelko for his help during my field work in Laos.

Genus *Cercoteratura* Gorochov, gen. n.

<http://zoobank.org/urn:lsid:zoobank.org:act:B55826E2-BD60-478D-9CD7-0D1511ED1598>

Type species: *Cercoteratura variegata* sp. n., here designated.

DIAGNOSIS. Body structure typical of Meconematini: upper rostral tubercle conical, rather short, with slight median groove on dorsum; lower rostral tubercle undeveloped; anterior surface of head almost not oblique; maxillary palpi with apical segment long, thin and almost equal to subapical one in length; pronotum elongated, rather high, with disc slightly convex anteriorly and almost roundly angular posteriorly, with lateral lobe having posterior half more or less gradually narrowing backwards (i.e. practically without humeral notch), and with hind lobe not inflated in both sexes; wings long or insignificantly shortened, with rather narrow tegmina having narrowly rounded apices and (in male) usual stridulatory apparatus; legs with a pair of oval (opened) tympana, a pair of small and acute apical denticles on hind femur, several moderately long spines and a pair of short apical spurs on ventral keels of fore and middle tibiae, numerous spinules on dorsal keels of hind tibia as well as sparse ones on its ventral keels, and 3 pairs of moderately short spurs on latter tibia. However: last tergite of male with short posteromedian lobe which rather diverse in shape and width (Figs 72, 73, 82, 83); epiproct rather large, complicated and divided into a pair of lateral lobes by deep posteromedian notch (Figs 72, 82); male cerci strongly curved upwards and situated very close to each other in rest position (middle parts of cerci in this position located between lateral lobes of epiproct; Figs 58, 63, 64, 73, 82, 83); male genital plate normal but narrowed in distal part and with developed styles (Figs 75, 81); male genitalia with large sclerotized or semisclerotized median structure (Figs 59, 60, 65, 66); female abdominal apex unspecialized but with diverse genital plate and with rather long and simple ovipositor (Figs 61, 67, 78, 84).



Figs 57–71. Meconematini and Phlugidini: 57–61 – *Cercoteratura variegata* sp. n.; 62–67 – *C. modesta* sp. n.; 68 – *Asiophlugis lobata* sp. n.; 69 – *Xiphidiopsis mada* Gor., stat. n.; 70 – *X. ornata* sp. n.; 71 – *Pseudoteratura sundaica* (Kästner). Male body without posterior part from side/above (57, 62); male abdominal apex with cerci in rest position from side (58, 64) and from behind (63); sclerotized part of male genitalia from above (59, 65) and from side (60, 66); ovipositor with genital plate from side (61, 67–71).

COMPOSITION. Type species; *Xiphidiopsis abbreviata* Karny, 1924; *X. spinicauda* Sanger et Helfert, 1998; *C. modesta* sp. n.; possibly *X. nebulosa* Karny, 1924.

COMPARISON. The new genus differs from all the other genera of Mecone-matini in the characteristic structure of epiproct and cerci in male (especially in the location of middle cercal parts between the lateral lobes of epiproct in the rest position).

ETYMOLOGY. This new genus is named after the Latinized (from Greek root) morphological term “cercus” and generic name *Teratura*.

***Cercoteratura variegata* Gorochov, sp. n.**

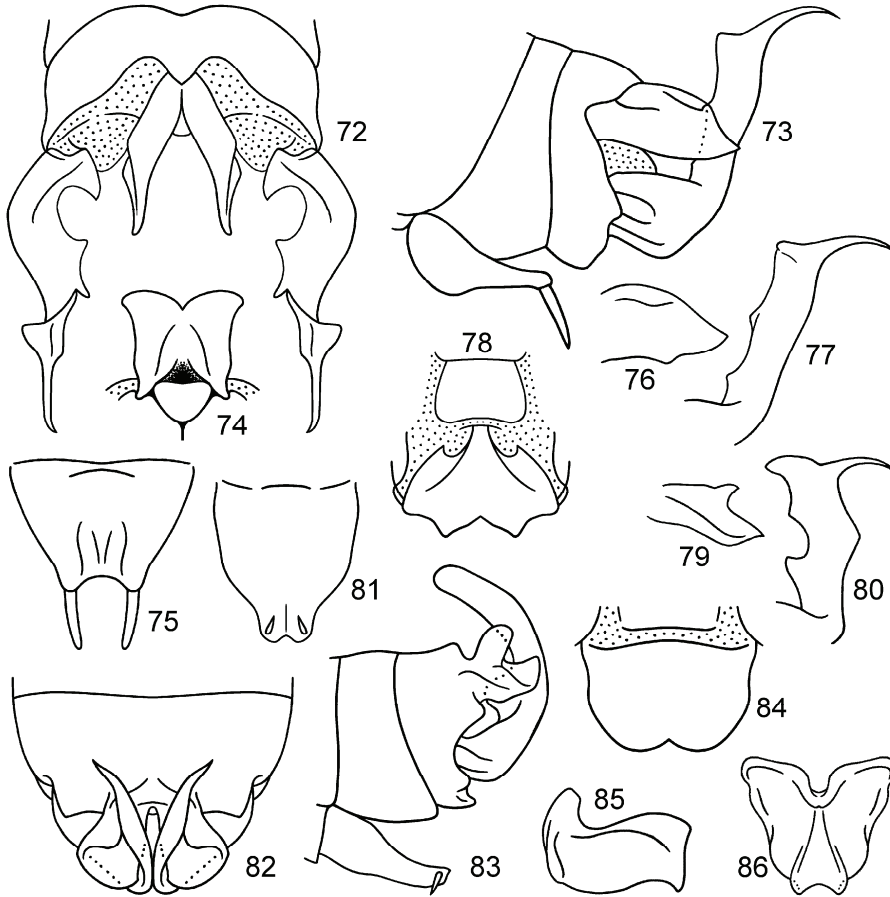
<http://zoobank.org/urn:lsid:zoobank.org:act:D763F6A6-BF16-4C2A-B3AA-6E538B849ABB>

Figs 57–61, 72–78

MATERIAL. Holotype – ♂, **Indonesia**: Sumatra I., Aceh Prov. near border with North Sumatra Prov., environs of Ketambe Vill. on Alas River in Gunung Leuser National Park, 3°41–42'N, 97°38–39'E, 300–500 m, primary forest, at light, 15–24.IV 2018, A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva. Paratypes: 1 ♂, same data; 1 ♀, **Malaysia**: Borneo I., Sarawak State, environs of Miri Town, Lambir Hills National Park, 100–300 m, primary forest, on leaf of tree at night, 19–20.XI 2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov, N. Grigoreva.

DESCRIPTION. *Male* (holotype). Coloration (Fig. 57) yellowish with whitish tinge and following pattern: epicranium with brown eyes and a few stripes on dorsum (one transverse stripe between eyes and 4 longitudinal stripes behind previous one) as well as light brown areas between these stripes and in apical part of rostral tubercle; antenna with light brown scape and pedicel (but scape with yellowish ventral surface having longitudinal light brown stripe) as well as with rather numerous brownish to blackish spots on flagellum; palpi with greyish brown apices; pronotal disc with rather wide light brown longitudinal band (posterior half of this band widened and occupying lateral parts of disc also) having 3 longitudinal narrower and somewhat darker (brown) stripes on anterior half as well as 5 such stripes on posterior half; tegmina with brown lateral parts of stridulatory apparatus and moderately numerous spots on lateral tegminal fields (these fields also with many of crossveins and some of longitudinal veins white); hind wings semitransparent, greyish with apical parts coloured as in tegmina; legs with greyish brown areas in apical parts of femora and 2 spots on proximal third of hind femur (one at base of outer femoral surface, and one larger and more distal on dorsal part of femur), darkened tibial spines and spinules (including spurs) as well as areas in basal and apical parts of tibiae, partly darkened fore and middle tarsi, and almost completely darkened hind tarsi. Wings long: tegmina reaching middle of spread hind tibiae (i.e. strongly protruding beyond abdominal apex); hind wings significantly protruding beyond tegminal apices. Last tergite with small posteromedian lobe located in depth of large posteromedian notch (Fig. 72); epiproct consisting of a pair of rather large lamellar lobes having dorsal and ventral parts somewhat curved laterally as well as apical part almost angular and ventral edge with short projection (Figs 72, 76); small oval median lobule under these lobes probably also part of epiproct separated from these lobes by deep median concavity

(Fig. 74); cerci S-shaped, with thickened basal part, almost lamellar rest part, thin and arcuate apical spine, and 4 rather short lobules (most proximal lobule largest) (Figs 72, 77); genital plate with long styles (Fig. 75); genitalia with large semisclerotized structure having a pair of apical lobules which finely denticulated, curved upwards/forwards (hooked) and located near each other (Figs 59, 60).



Figs 72–86. Meconematini: 72–78 – *Cercoteratura variegata* sp. n.; 79, 80 – *C. spinicauda* (Sänger et Helfert); 81–84 – *C. modesta* sp. n.; 85, 86 – *Pseudoteratura lambir* Gor. Male abdominal apex with spread cerci from above (72); same but with cerci in rest position from side (73, 83) and from above (82); male epiproct from behind (74) and from side (76, 79); male genital plate from below (75, 81); male left cercus in view similar to that in Figs 73 and 83 (77, 80); female genital plate with posterior sternite or its part (78, 84); ventral sclerite of male genitalia from side (85) and from above (86). [Figs 79, 80 – after Sänge & Helfert (1998), modified].

Variation. Second male with rostral tubercle having darkened dorsal stripe connecting its apical area with transverse stripe between eyes, abdominal apex somewhat deformed during drying (Fig. 58), and lateral lobes of epiproct having short projection on dorsal edge (but not on ventral edge) (Fig. 73).

Female. General appearance as in male paratype, but longitudinal band on pronotal disc not widened in posterior half and with 3 darker longitudinal stripes only), stridulatory apparatus undeveloped, and last tergite and epiproct as well as cerci unspecialized; genital plate short, with very narrow anterior part, with wide posterior part having a pair of short angular medial projections posteriorly and a pair of rounded lateral lobules around them, and with a pair of oblique folds along lateral edges of this plate (Fig. 78); ovipositor as in Fig. 61.

MEASUREMENTS. *Length* (in mm). Body: ♂ 9–10, ♀ 11; body with wings: ♂ 24–24.5, ♀ 25; pronotum: ♂ 3.7–3.9, ♀ 3.9; tegmina: ♂ 17.5–18, ♀ 18.5; hind femora: ♂ 12–12.5, ♀ 13.5; ovipositor 8.3.

COMPARISON. The new species is most similar to *C. spinicauda* comb. n. from Thailand. However, it is distinguished from the latter congener by the male epiproct without rather large dorsal process on each lateral lobe (see Figs 73, 76 and 79), male cercus with clearly smaller lobules (see Figs 77 and 80), male genitalia with the semisclerotized structure longer and having more strongly curved apical lobules, and probably female genital plate very characteristic in the shape (in *C. spinicauda*, this plate is simple, roundly square).

ETYMOLOGY. Name of this species is the Latin word “variegata” (variegate, motley).

REMARK. The female paratype is collected rather far from these males, has some small differences in coloration and may belong to a separate subspecies of this species.

***Cercoteratura modesta* Gorochoy, sp. n.**

<http://zoobank.org/urn:lsid:zoobank.org:act:D763F6A6-BF16-4C2A-B3AA-6E538B849ABB>
Figs 62–67, 81–84

MATERIAL. Holotype – ♂, **Indonesia**: Sumatra I., Aceh Prov. near border with North Sumatra Prov., environs of Ketambe Vill. on Alas River in Gunung Leuser National Park, 3°41–42'N, 97°38–39'E, 300–500 m, primary forest, on leaf of bush at night, 15–24.IV 2018, A. Gorochoy, M. Berezin, I. Kamskov, E. Tkatsheva. Paratypes: 2 ♂, 2 ♀, same data.

DESCRIPTION. *Male* (holotype). Coloration (Fig. 62) almost uniformly yellowish (light greenish in living condition) with brown eyes, small and numerous light brown to dark brown spots on antennal flagellum, greyish brown apices of palpi and dots on both sides of femoral apices, darkened spines and spinules (including spurs) on tibiae as well as areas on tympanal membranes and on distal part of hind tibia, and almost blackish small marks on subapical segment of tarsi. Wings insignificantly shortened: tegmina narrow, reaching apices of hind femora (i.e. distinctly protruding beyond abdominal apex), and with apical parts approximately as in *C. variegata*; hind wings reaching tegminal apices but not protruding beyond them. Last tergite slightly narrower than in this species, somewhat narrowing to apex, with wide and

short posterolateral lobe having almost truncated posterior edge with small (shallow) posteromedian notch; these edge and notch poorly distinct, because last tergite partly fused with large but not long epiproct; this epiproct consisting of a pair of lateral lobes having rather complicated shape including two obtuse lobules (dorsal and ventral); cercus arcuately curved upwards and forwards in rest position, with somewhat thickened basal part and almost lamellar more distal portion, with 2 short lobules (at base and in middle part of cercus), and with apical part rounded in profile (Figs 63, 64, 82, 83); genital plate with short styles and very small posteromedian notch between them (Figs 81, 83); genitalia with median sclerotized structure as in Figs 65, 66.

Variations. Paratypes with darkened marks slightly lighter, and their abdominal apex somewhat deformed during drying; in one male, hind wings barely protruding beyond tegminal apices, and median sclerite of genitalia with desclerotized proximal part.

Female. General appearance as in males, but tegminal stridulatory apparatus undeveloped, and last tergite, epiproct and cerci unspecialized; genital plate of simple shape and with small posteromedian notch (Fig. 84); ovipositor as in Fig. 67.

MEASUREMENTS. *Length* (in mm). Body: ♂ 10–10.5, ♀ 8.5–13; body with wings: ♂ 16–17, ♀ 17–18.5; pronotum: ♂ 4.3–4.5, ♀ 4–4.2; tegmina: ♂ 12.5–13, ♀ 13.5–14; hind femora: ♂ 12.5–13.5, ♀ 13–13.5; ovipositor 9–9.2.

COMPARISON. The new species is most similar to *C. abbreviata* comb. n. from South Sumatra. It differs from the latter species in the male epiproct having obtuse (not almost spine-like) ventral lobules of lateral lobes, male cercus with the apical part rounded (not angularly bifurcated) in profile, and female genital plate with a small apical notch (*vs.* without apical notch); from *C.? nebulosa* comb. n. (Indonesia: unknown locality) having the male cerci more or less similar in shape, the new species is distinguished by these cerci more arcuately (not almost angularly) curved in profile, and by the lateral lobes of male epiproct not hooked.

ETYMOLOGY. Name of this species is the Latin word “modesta” (modest, simple), because its body coloration is rather uniform.

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REFERENCES

- Cigliano, M.M., Braun, H., Eades, D.C., & Otte, D. 2018. *Orthoptera Species File Online. Version 5.0/5.0*. Available from: <http://Orthoptera.SpeciesFile.org>. (Accessed: 19 November 2018).
- Gorochoy, A.V. 1998. New and little known Meconematinae of the tribes Meconematini and Phlugidini (Orthoptera: Tettigoniidae). *Zoosystematica Rossica*, 7(1): 101–131.

- Gorochov, A.V. 2002. A new subgenus and two new species of *Xizicus* (Orthoptera: Tettigoniidae: Meconematinae). *Zoosystematica Rossica*, [2001] 10(2): 256.
- Gorochov, A.V. 2012. Taxonomy of the katydids (Orthoptera: Tettigoniidae) from East Asia and adjacent islands. Communication 5. *Far Eastern Entomologist*, 252: 1–26.
- Gorochov, A.V. 2014. Taxonomy of the katydids (Orthoptera: Tettigoniidae) from East Asia and adjacent islands. Communication 9. *Far Eastern Entomologist*, 283: 1–12.
- Gorochov, A.V. 2016a. Taxonomy of the katydids (Orthoptera: Tettigoniidae) from East Asia and adjacent islands. Communication 10. *Far Eastern Entomologist*, 304: 1–32.
- Gorochov, A.V. 2016b. Taxonomy of the katydids (Orthoptera: Tettigoniidae) from East Asia and adjacent islands. Communication 11. *Far Eastern Entomologist*, 320: 1–26.
- Hebard, M. 1922. Studies in Malayan, Melanesian and Australian Tettigoniidae (Orthoptera). *Proceedings of the Academy of Natural Sciences of Philadelphia*, 74: 121–299.
- Helfert, B. & Sanger, K. 1998. *Phlugis thai* sp. n., a new Phlugidini (Insecta: Ensifera, Tettigoniidae, Meconematinae) from Thailand. *Annalen des Naturhistorischen Museums in Wien*, 100 B: 61–68.
- Jin, X.-B., Kevan, D.K.McE. & Yamasaki, T. 1990. A new genus, subgenus and species of small predaceous orthopteroids from the Ryukyu Islands (Grylloptera: Tettigonoidea: Meconematidae). *Proceedings of the Japanese Society of Systematic Zoology*, 42: 21–31.
- Jin, X.-B. & Kevan, D.K.McE. 1992. *Taxonomic revision and phylogeny of the tribe Phisidini (Insecta: Grylloptera: Meconematidae)*. Koenigstein: Koeltz scientific books. 360 p.
- Kevan, D.K.McE. & Jin, X.-B. 1993. Remarks on the tribe Phlugidini Eichler and recognition of new taxa from the Indo-Malayan Region and East Africa (Grylloptera: Tettigonoidea: Meconematidae). *Invertebrate Taxonomy*, 7: 1589–1610.
- Sanger, K. & Helfert, B. 1998. New species and records of Meconematinae from Thailand (Insecta: Ensifera: Tettigoniidae). *Senckenbergiana biologica*, 77(2): 211–224.
- Tan, M.K. 2011. The species of *Asiophlugis* Gorochov, 1998 in Singapore (Orthoptera: Tettigoniidae: Meconematinae). *Nature in Singapore*, 4: 233–239.
- Wang, H., Jing, J., Liu, X. & Li, K. 2014. Revision on genus *Xizicus* Gorochov (Orthoptera, Tettigoniidae, Meconematinae, Meconematini) with description of three new species from China. *Zootaxa*, 3861(4): 301–316.