

Review and reclassification of the Old World genus *Physopelta* (Hemiptera: Heteroptera: Largidae)

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Abstract. The genus *Physopelta* Amyot & Serville, 1843 (Largidae: Physopeltinae: Physopeltini) is revised and reclassified. Four subgenera are recognized: *Physopelta* s. str. (3 species, Oriental Region), *Neophysopelta* Ahmad & Abbas, 1987, stat. nov. (19 species and 2 subspecies, Oriental and Australian Regions), *Physopeltoides* subgen. nov. (1 species, Afrotropical Region) and *Afrophysopelta* subgen. nov. (5 species, Afrotropical Region). The subgenera are keyed, and all included species are reviewed. Seven new species are described: *Physopelta* (*Neophysopelta*) *dembickyi* sp. nov. (Thailand, Vietnam), *Physopelta* (*Neophysopelta*) *nigripes* sp. nov. (Philippines), *Physopelta* (*Neophysopelta*) *parvula* sp. nov. (Vietnam), *Physopelta* (*Neophysopelta*) *redeii* sp. nov. (Thailand), *Physopelta* (*Neophysopelta*) *sulawesiensis* sp. nov. (Indonesia: Sulawesi), *Physopelta* (*Physopeltoides*) *dentipes* sp. nov. (Subsaharan Africa), and *Physopelta* (*Afrophysopelta*) *flavofemorialis* sp. nov. (Reunion). The species *Physopelta* (*Neophysopelta*) *woodlarkiana* (Montrouzier, 1855) is redescribed, its identity is fixed by designation of a neotype, and it is confirmed as a valid species. One new synonym is proposed: *Neophysopelta* *neoslanbuschi* Parveen & Ahmad, 1991, syn. nov. = *Physopelta* (*Neophysopelta*) *slanbuschii* (Fabricius, 1787). A lectotypes are designated for *Pyrrhocoris analis* Signoret, 1858 and *Physopelta melanoptera* Distant, 1904. Two new types of stridulatory organs in *Physopelta* are described. One species, *Physopelta apicalis* Walker, 1873, is excluded from *Physopelta* to be accommodated in a new genus later. A new tribe, Kmentiini trib. nov., is described for a new genus, *Kmentia* gen. nov., established for the Afrotropical *Lygaeus festivus* Fabricius, 1803, resulting in the new combination *Kmentia festiva* (Fabricius, 1803) comb. nov. The genus *Wachiella* Schmidt, 1931, endemic to Sulawesi and known only in the female sex, is considered as Physopeltinae incertae sedis. *Wupatkus* Bliven, 1959 is confirmed as junior subjective synonym of *Largus* Hahn, 1831. All 23 valid genera of Largidae, the numbers of their included species and their distribution, are reviewed. The possible origin of the New World subfamily Larginae is discussed. The following new country records are provided for *Physopelta* (*Physopelta*) *robusta* Stål, 1863 (Malaysia), *Ph.* (*Neophysopelta*) *australis* Blöte, 1933 (West Australia), *Ph.* (*N.*) *cincticollis* Stål, 1863 (Japan, Malaysia, Taiwan, Vietnam), *Ph.* (*N.*) *gutta gutta* (Burmeister,

1834) (Bhutan, Brunei, Cambodia, Singapore, Vietnam), *Ph. (N.) indra* Kirkaldy & Edwards, 1902 (Myanmar, Sri Lanka), *Ph. (N.) quadriguttata* Bergroth, 1894 (Vietnam), *Ph. (N.) slanbuschii* (Fabricius, 1787) (Bhutan, Vietnam), *Ph. (Afrophysopelta) analis* (Signoret, 1858) (Central African Republic), *Ph. (A.) melanoptera* (Angola, Chad, Comoros, Ethiopia, Gabon, Kenya, Malawi, São Tomé and Príncipe, Senegal, Sierra Leone), and *Kmentia festiva* (Angola, Gabon, Kenya, Malawi, Mozambique, Niger, Sierra Leone, Tanzania).

Key words. Heteroptera, Largidae, Physopeltinae, Larginae, taxonomy, new tribus, new genus, new subgenus, new species, new synonymy, morphology, stridulatory organs, phylogeny, distribution, Afrotropical Region, Australian Region, Oriental Region

Introduction

Largidae is a tropicopolitan family of pentatomomorphan true bugs belonging to the superfamily Pyrrhocoroidea. According to SCHUH & SLATER (1995), the family comprises 15 genera and about 100 species, and according to HENRY (2009) 13 genera and about 106 species. However, these numbers were much underestimated as there are 23 valid genera and 220 species-group taxa of Largidae (including taxa described in this paper, see Appendix), currently classified into two subfamilies and five tribes – the New World Larginae Amyot & Serville, 1843, including Largini (9 genera), Arhaphini Bliven, 1973 (2 genera), and Largulini Stehlík & Jindra, 2007 (4 genera) (HUSSEY 1929, HENRY 1988, BRAILOVSKY & BARRERA 1994, SCHAEFER 2000, STEHLÍK 2007b, STEHLÍK & JINDRA 2007, STEHLÍK & BRAILOVSKY 2011, STEHLÍK & KMENT 2011), and Old World Physopeltinae Hussey, 1929, including Physopeltini and the monotypic Lohitini Ahmad & Abbas, 1987 (HUSSEY 1929, AHMAD & ABBAS 1987, SCHAEFER 2000). For a review of the genera, numbers of included species and subspecies, and their distribution, see Appendix.

HUSSEY (1929) included three genera in his newly established Physopeltini: *Physopelta* Amyot & Serville, 1843, *Iphita* Stål, 1870, and *Macrocheraia* Guérin-Méneville, 1835 (= *Lohita* Amyot & Serville, 1835). The fourth genus, *Delacampius* Distant, 1903, HUSSEY (1929) misplaced in Pyrrhocoridae following the original description by DISTANT (1903b). Moreover, HUSSEY (1929) overlooked another genus, *Dindymellus* Distant, 1919, including only *D. coimbatorensis* Distant, 1919, which was originally considering to be allied with *Dindymus* Stål, 1861 (Pyrrhocoridae) (DISTANT 1919). This genus was recognized as a synonym of *Iphita* by BLÖTE (1931). SCHMIDT (1931, 1932) described two new monotypic genera, *Wachsiella* Schmidt, 1931, for *Wachsiella horsti* Schmidt, 1931 from Sulawesi, and *Taeuberella* Schmidt, 1932, for *Taeuberella papuensis* Schmidt, 1932 from Papua New Guinea.

TAEUBER (1927: 179) and BLÖTE (1931: 101) suspected that *Delacampius* is merely a subgenus of *Physopelta*. STEHLÍK (1965a: 288) formally synonymized *Delacampius* with *Physopelta*, because the distinguishing characters of *Delacampius* given by BLÖTE (1931) are shared also by some *Physopelta* species. However, AHMAD & ZAIDI (1987) (apparently not being aware of STEHLÍK 1965a) supported *Delacampius* as a separate genus, mentioning several characters of

male genitalia and metathoracic scent gland peritreme as its apomorphies. Independently, not aware of AHMAD & ZAIDI (1987), STEHLÍK & KERZHNER (1999: 122) restituted *Delacampius* as a valid subgenus of *Physopelta*, listing the diagnostic characters. Finally, STEHLÍK (2005a,b, and subsequent papers) accepted *Delacampius* as a valid genus without further comments.

AHMAD & ABBAS (1985, 1987) proposed a new tribe, Lohitini, to accommodate the monotypic Oriental genus *Macrocheraia* (= *Lohita*), first conditionally (and therefore invalidly) (AHMAD & ABBAS 1985: 18), and subsequently validating their act (AHMAD & ABBAS 1987) (see KERZHNER 2001).

Based on examination of only two of the described *Physopelta* species, AHMAD & ABBAS (1987) established a new genus, *Neophysopelta* Ahmad & Abbas, 1987, for one of the species, *Physopelta slانبuschii* (Fabricius, 1787). STEHLÍK & KERZHNER (1999), emphasizing the considerable morphological diversity within the genus, synonymized *Neophysopelta* with *Physopelta*. STEHLÍK (2006a) added another new genus, *Jindraia* Stehlik, 2006, including only *Jindraia dimorphica* Stehlik, 2006 from northern India. Finally, STEHLÍK & JINDRA (2008a) transferred *Physopelta fimbriata* Stål, 1863 to the genus *Iphita*, and STEHLÍK & KMENT (2012) described a new species, *Physopelta finisterrae* Stehlik & Kment, 2012, from Papua New Guinea.

Concerning morphology of *Physopelta* and related genera of Physopeltini, the following additional papers must be mentioned: KUMAR (1968) described in detail the male aedeagus and female ovipositor of *Physopelta famelica* Stål, 1863, ZAMAL & CHOPRA (1990) described male and female genitalia of several Indian species, STEHLÍK & KMENT (2012) figured male genitalia of *Physopelta finisterrae*, and RÉDEI et al. (2012) figured in detail male genitalia of *Delacampius villosus* (Breddin, 1901).

The present revision of the genus *Physopelta* in its traditional concept (i.e., excluding *Delacampius*) revealed that it is not a monophyletic taxon. *Physopelta apicalis* Walker, 1873 and *Ph. festiva* (Fabricius, 1803) must be transferred each to a new genus, the latter deserving even a new tribe. The remaining species of the narrowly understood *Physopelta* apparently form a monophyletic group which can be divided into four clearly delimited subgenera. The known species of *Physopelta* are reviewed, and seven new species are described in the this paper.

Material and methods

The morphological terminology largely follows VAN DOESBURG (1968), but for the pygophore the more specific terms proposed by SCHAEFER (1977) are employed. The measurements are presented as mean followed by minimum and maximum values in parentheses. For citation of the label data of type specimen, a single slash (/) indicates different lines, a double slash (//) is used to indicate data on different labels, the abbreviation 'hw' stands for handwritten and 'p' for printed, and the author's comments are given in square brackets [].

Non-coated specimens were examined by a Hitachi S-3700N environmental electron microscope at the Department of Paleontology, National Museum in Prague, thanks to the kind assistance of Petr Kment. For examination of the external scent efferent system of *Physopelta gutta*, scanning electron micrographs of gold-coated specimen were taken by Petr Kment in 2009 in the Laboratory of Electron Microscopy, Biological Section, Charles University in Prague, using a JEOL 6380 LV scanning electron microscope. The following

specimens were used for the scanning electron microscopy: *Physopelta* (*Physopelta*) *robusta* Stål, 1863: Malaysia, Perak, Kwale-Kangsar, 1902, 2 ♂♂, Grubauer lgt. (NHMW); *Physopelta* (*Neophysopelta*) *gutta gutta* (Burmeister, 1834): Taiwan, Taitung County, 14 km W of Chihshang, 16.xi.2008, 1 ♂ 1 ♀, L. Dembický lgt. (NMPC); *Physopelta* (*Physopeltoides*) *dentipes* sp. nov.: Democratic Republic of the Congo, Sud-Kivu, Rwankwi, iii.1952, 1 ♂, J. V. Leroy lgt. (ISNB); *Physopelta* (*Afrophysopelta*) *melanopetra* Distant, 1904: Ivory Coast, Bingerville, iv.1962, 1 ♂, J. Decelle lgt. (MRAC); *Kmentia festiva* (Fabricius, 1803): Ghana, Abrafo, Kakum NP, 3.viii.2009, 1 ♂, J. Votýpka lgt. (NMPC).

The materials examined are deposited in the following collections:

AMNH	American Museum of Natural History, New York, USA;
BMNH	The Natural History Museum, London, England, United Kingdom;
BPBM	Bernice P. Bishop Museum, Honolulu, Hawaii, USA;
DEIC	Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany;
EHIA	Ernst Heiss collection, Innsbruck, Austria;
HNHM	Hungarian Natural History Museum, Budapest, Hungary;
ISNB	Institut Royal des Sciences Naturelles, Bruxelles, Belgium;
MHNG	Museum d'Histoire Naturelle, Genève, Switzerland;
NHMB	Naturhistorisches Museum, Basel, Switzerland;
MMBC	Moravian Museum, Brno, Czech Republic;
MNHN	Museum National d'Histoire Naturelle, Paris, France;
MRAC	Musée Royal de l'Afrique Centrale, Tervuren, Belgium;
MUUS	Entomology Museum, University of Missouri, Columbia, Missouri, U.S.A.;
MZHF	Zoological Museum, University of Helsinki, Finland;
NHMW	Naturhistorisches Museum in Wien, Wien, Austria;
NHRS	Naturhistoriska Riksmuseet, Stockholm, Sweden;
NMPC	National Museum, Praha, Czech Republic;
NMWC	National Museum Cardiff / Amgueddfa Genedlaethol Caerdydd, Cardiff, Wales, United Kingdom;
RMNH	National Museum of Natural History (Naturalis), Leiden, the Netherlands;
SMTD	Senckenberg Naturhistorische Sammlungen Dresden (former Staatliches Museum für Tierkunde), Dresden, Germany;
USNM	United States National Museum of Natural History, Washington, D.C., U.S.A.;
ZJPC	Zdeněk Jindra collection, Praha, Czech Republic;
ZMAS	Zoological Institute, Russian Academy of Science, St. Petersburg, Russia;
ZMHB	Museum für Naturkunde (former Zoologisches Museum, Humboldt Universität), Berlin, Germany;
ZMUC	Zoological Museum, University of Copenhagen, Copenhagen, Denmark;
ZMUH	Zoologisches Museum, Universität Hamburg, Hamburg, Germany;
ZSMC	Zoologisches Staatssammlung, München, Germany.

Taxonomy

Physopeltinae Hussey, 1929

Diagnosis. Physopeltinae are principally diagnosed by the intersegmental sulci between abdominal sternites being deeply sinuated (S-shaped). In Larginae, the intersegmental sulci between sternites are straight.

Comment. The genera of Largidae are quite diversified in their external morphology and quite uniform in genitalic morphology, so no additional clear-cut diagnostic characters for the subfamilies can currently be recognized.

Key to the tribes and genera of Physopeltinae

- 1 (2) Male abdomen much prolonged, in large males hemelytra not reaching mesotergite IV, in smaller males hemelytra reaching middle of mesotergite V. Female abdomen not elongated, in large females not reaching apex of abdomen, in smaller females reaching apex of abdomen. Antennae very long, in large males antennomere 1 reaching apex of membrane, in smaller specimens reaching only apex of clavus. Very large species, body length: males 28.5–62.5 mm, females 26.0–36.0 mm. Oriental Region. **Lohitini: Macrocheraia** Guérin-Ménéville, 1835
- 2 (1) Male abdomen never prolonged. Antennae much shorter. Small to large species, body length 5.2–20.0 mm. 3
- 3 (6) Profemora ventrally without longitudinal furrow. 4
- 4 (5) Profemora ventrally with denticles on its entire surface (Figs 83, 97). Body dorso-ventrally rather flat. Lateral margins of callar lobe forming a low, rounded carina. Procoxa without any tubercle (Figs 81–82). Body covered with short, adpressed hairs. Body length: males 15.5–19.6 mm, females 16.0–18.9 mm. Afrotropical Region. **Kmentiini trib. nov.: Kmentia gen. nov.**
- 5 (4) Profemora ventrally with two rows of denticles separated by a flat surface; anterior row of denticles apically with two long spines, posterior row in apical half with four shorter spines (apicalmost one being longest). Body not flattened. Lateral margins of callar lobe flattened, forming high and sharp carina directed horizontally. Procoxa ventrolaterally with a single small tubercle. Body covered with dense and long erect hairs. Body length: 20 mm. Male unknown. Indonesia: Sulawesi. **genus incertae sedis: Wachsiella** Schmidt, 1931
- 6 (3) Profemora ventrally with a longitudinal furrow. **Physopeltini** Hussey, 1929 7
- 7 (8) Callar lobe of pronotum strongly gibbose, posteriorly strongly constricted and markedly demarcated from pronotal lobe. Body length 8.6–8.8 mm. Australia, New Guinea. **Taeuberella** Schmidt, 1932
- 8 (7) Callar lobe of pronotum neither strongly gibbose nor markedly demarcated from pronotal lobe. 9
- 9 (10) Head short, positioned much lower than strongly gibbose dorsal surface of callar lobe (see in lateral view). Lateral margin of pronotum broad. Males pterygodimorphic, macropterous or brachypterous. In macropterous morph, all coxae provided with denticles. Body length 12.7–13.4 mm. Female unknown. ... **Jindraia** Stehlik, 2006
- 10 (9) Head not shortened and situated about the same level as pronotum. 11
- 11 (12) Lateral margins of pronotum widely explanate, elevated above pronotal surface. Callar lobe weakly gibbose in both sexes. Macropterous. Large species, body length 14.8–21.2 mm. Oriental Region, New Guinea. **Iphia** Stål, 1873
- 12 (11) Lateral margins of pronotum narrow. Callar lobe strongly to weakly gibbose. Usually smaller species. 13
- 13 (14) Larger, body length 9.5–20.0 mm. Callar lobe strongly gibbose in male, less gibbose in female (different among subgenera). Macropterous. Stridulatory organs (when present) on coxa and trochanter of fore leg. Afrotropical, East Palaearctic, Oriental and Australian Regions. **Physopelta** Amyot & Serville, 1843

- 14 (13) Smaller, body length 5.2–8.7 mm. Callar lobe equally elevated in both sexes. Often pterygodimorphic, with macropterous and brachypterous morphs. Stridulatory organs (when present) on lateral margins of pronotum and corium. Oriental and Australian Regions. *Delacampius* Distant, 1903

Physopeltini Hussey, 1929

Physopeltini Hussey, 1929: 28. Type genus: *Physopelta* Amyot & Serville, 1843.

Diagnosis. Labium reaching between meso- and metacoxae. Callar lobe gibbose or not. Ventral surface of profemora with smooth longitudinal furrow along its entire length, denticles forming two longitudinal rows, one on each side of the furrow. Parameres short, directed obliquely towards midline of the genital chamber, not crossing each other, not surpassing ventral rim of pygophore. Parameres basally wide, middle portion forming rounded lobe with sensory setae on its ventral side; apical part narrowed, straight, apically narrowly rounded (Figs 8–12, 30–34, 55–59, 75–79).

These characters were examined in all known genera of the subfamily (except male characters of *Wachsiella*). Parameres of various genera and species and their modifications were figured e.g. by ZAMAL & CHOPRA (1990) and STEHLÍK & JINDRA (2008a).

Genera included. *Delacampius* Distant, 1903, *Iphita* Stål, 1870, *Jindraia* Stehlik, 2006, *Physopelta* Amyot & Serville, 1843, and *Taeuberella* Schmidt, 1932.

The systematic position of the genus *Wachsiella* is doubtful. The profemur of this taxon lacks any longitudinal furrow ventrally, which is a diagnostic character of the tribe Physopeltini. As the genus is known only by the female sex and male characters cannot be considered to elucidate its relationships, I classify the genus here as Physopeltinae *incertae sedis*.

Physopelta Amyot & Serville, 1843

Physopelta Amyot & Serville, 1843: 271. Type species: *Physopelta erythrocephala* Amyot & Serville, 1843 (= *Cimex albofasciatus* DeGeer, 1773), subsequent designation by HUSSEY (1929: 28).

Note. DISTANT's (1903a: 97) designation of *Cimex albofasciatus* De Geer as the type species of *Physopelta* is unavailable, because its synonymy with *Physopelta erythrocephala* Amyot & Serville, an originally included nominal species, was not mentioned by Distant (see KERZHNER 2001: 246).

Physopelta: STÅL (1861): 195 (key to genera, list of species); STÅL (1863): 390 (revision of species); STÅL (1866): 2 (key to genera, diagnosis); STÅL (1868): 79 (diagnosis); STÅL (1870): 91, 99 (key to genera and species, catalogue, distribution); WALKER (1873): 17 (key to species, catalogue, distribution); LETHIERRY & SEVERIN (1894): 241–242 (catalogue, distribution); BREDDIN (1901): 175 (distribution); KIRKALDY & EDWARDS (1902): 165 (taxonomy); DISTANT (1903a): 94, 97–99 (key to genera, diagnosis, revision of Indian fauna); BERGROTH (1913): 167 (catalogue); HUSSEY (1929): 28–33 (type species designation, catalogue, distribution); SCHMIDT (1931): 45–47 (catalogue, distribution); CACHAN (1952): 72–73 (diagnosis, revision of Madagascar fauna); VILLIERS (1952): 120 (diagnosis); STEHLÍK (1965a): 287–289 (taxonomy); LESTON (1969): 225–227 (key to species of Ghana, biology, ecology); LIU (1981): 222–224, pl. 28 (key, revision of the fauna of China and Taiwan); AHMAD & ABBAS (1987): 132, 136–138, 141–142 (key to genera, redescription, figures, phylogeny, distribution); ZAMAL & CHOPRA (1990): 3–7, 10–12 (key to genera, revision of Indian fauna); STEHLÍK & KERZHNER (1999): 121–122 (taxonomy); KERZHNER (2001): 245–246 (catalogue); CASSIS & GROSS (2002): 625–627 (catalogue); ROBERTSON (2004): 2, 4–5 (key to African genera and species, catalogue, distribution); STEHLÍK (2006a): 658 (differences from *Jindraia*); VOIGT (2006): 223–225 (key to Palearctic genera and species); RÉDEI et al. (2009): 11–12 (morphology, distribution, fauna of Taiwan); ZHU et al. (2012): 193–198 (ecology, distribution).

Diagnosis. Head not shortened, not positioned much lower than pronotum. Callar lobe of pronotum usually strongly gibbose in male and less gibbose in female (different among subgenera). Pronotum not constricted, its lateral margins narrow, only slightly concave medially. Profemora ventrally with a longitudinal furrow (Figs 5, 19, 51, 66–67, 98). Stridulatory organs (when present) on coxa and trochanter of fore leg (Figs 1–2, 17–18). Macropterous. Male abdomen never prolonged behind apex of hemelytra. Body length 9.5–20.0 mm.

Discussion. The present revision of the genus *Physopelta* in its traditional concept (i.e., excluding *Delacampius*) revealed that it is not a monophyletic taxon. While *Physopelta festiva* and *Ph. apicalis* must be excluded from the genus, the remaining species belonging to *Physopelta* can be further divided into four well-delimited subgenera. In contrast with the two Afrotropical subgenera proposed in the present paper (*Afrophysopelta* subgen. nov., *Physopeltoides* subgen. nov.) which lack any sexual dimorphism, the two subgenera from the Oriental and Australian Regions (*Physopelta* s. str., *Neophysopelta* sensu novo) have developed sexual dimorphism: males have more gibbose callar lobe, incrassate profemora, and a longitudinal row of small denticles on the ventral surface of the protibia. This sexual dimorphism is also connected with allometry causing individual differences among the conspecific males. This sexual dimorphism and allometry were described by STEHLÍK (2007: 127) who provided colour photos of a normal male, an allometric male, and a female of *Physopelta* (*Neophysopelta*) *gutta gutta* (Burmeister, 1834) and *Ph. (N.) quadriguttata* Bergroth, 1894. Moreover, males of *Physopelta* s. str. have a strong spine anteapically on the ventral surface of the protibia, which is missing in females. The presence of a longitudinal row of small denticles on the ventral surface of the meso- and metafemora, which could be sexually dimorphic and may also vary within the allometry in males, is recognized here as useful character for defining genera within Physopeltinae. This character was used for the first time in descriptions of *Physopelta trimaculata* Stehlík & Jindra, 2008 and *Ph. kotheae* Stehlík & Jindra, 2008 (STEHLÍK & JINDRA 2008a). In some cases, a longitudinal furrow on the ventral surface of the metafemora may even be present.

The Oriental subgenera *Physopelta* s. str. and *Neophysopelta* possess stridulatory organs, which has a specific structure in both of the subgenera, and which are missing in the Afrotropical *Physopeltoides* subgen. nov. and *Afrophysopelta* subgen. nov. These stridulatory organs, described here for the first time, seems to be unique within all known Heteroptera.

Key to the subgenera of *Physopelta*

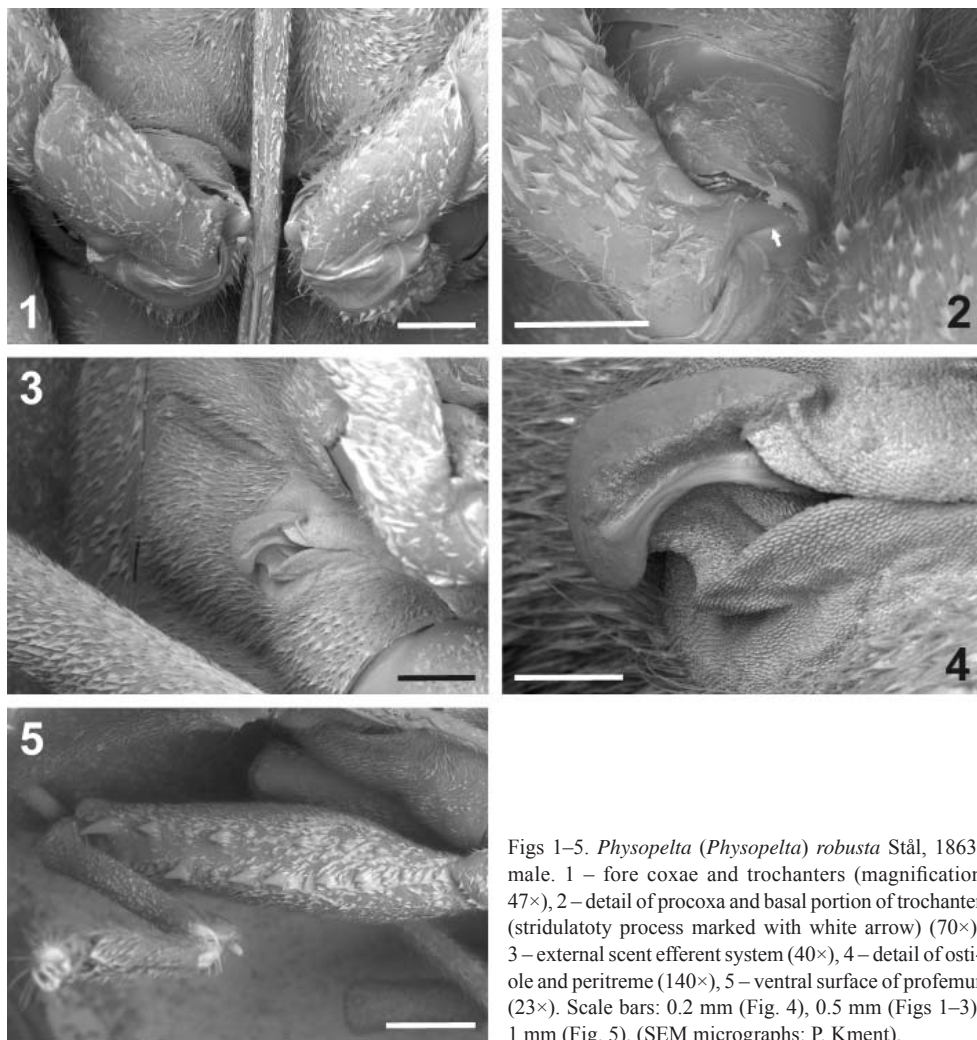
- 1(4) Stridulatory organs present on procoxa and prothrochanter (Figs 1–2, 17–18). Peritreme of metathoracic scent glands horizontal, scimitar-shaped, directed laterad to posterolaterad (Figs 3–4, 20, 22). Sexual dimorphism and allometry in males well developed. Mostly large species (with few exceptions, 10.5–21.0 mm). Oriental and Australian Regions.
.....2
- 2(3) Antennomere 1 longer than antennomere 2. Males with a strong, orthogonally directed apical tooth on ventral surface of protibia (Figs 5, 15). Stridulatory organ in form of a strong tooth (strigil) on prothrochanter and a depression on ventral surface

- of procoxa (pectrum) (Figs 1–2). Peritreme of metathoracic scent glands directed laterad (Figs 3–4). Paramere with apex longer and narrower, outer margin angulately produced basally (Figs 8–12). Large species: 15.7–21.0 mm. *Physopelta* Amyot & Serville, 1843
- 3(2) Antennomere 1 shorter than antennomere 2 (except *Ph. finisterrae*). Tibiae in males apically without tooth. Stridulatory organ in form of a tooth on procoxa (strigil) and a wrinkled cuticle on protochanter (pectrum) (Figs 17–18). Peritreme of metathoracic scent glands directed posterolaterad (Figs 20, 22). Paramere with apex shorter and narrower, outer margin without distinct angulate process (Figs 30–34). Smaller species: 10.5–15.1 mm. *Neophysopelta* Ahmad & Abbas, 1987 **stat. nov.**
- 4(1) Stridulatory organs on fore leg absent (Figs 48–49, 64–65). Peritreme of metathoracic scent glands longitudinal, crescent-shaped, projecting both anteriad and posteriad (Figs 68–69). Sexual dimorphism and allometry in males not developed. Antennomere 1 shorter than antennomere 2. Smaller species (8.5–12.6 mm). Subsaharan Africa including Madagascar and Mascarenes. 5
- 5(6) Callar lobe distinctly gibbose; profemora incrassate (Figs 60–61); meso- and metafemora of both sexes ventrally with a row of small denticles along their entire length. *Physopeltoides* **subgen. nov.**
- 6(5) Callar lobe weakly gibbose; profemora not incrassate (Figs 62–63); meso- and metafemora ventrally without row of small denticles. *Afrophysopelta* **subgen. nov.**

Subgenus *Physopelta* Amyot & Serville, 1843

Diagnosis. Body large (15.7–21.0 mm) and wide (5.1–7.0 mm). Labium reaching between metacoxae. Antennomere 1 long in both sexes, invariably longer than antennomere 2, as long as or sometimes even longer than pronotum. Sexual dimorphism well expressed, callar lobe strongly gibbose in males (Fig. 13), weakly gibbose in females (Fig. 14). Profemora in males strongly incrassate, ventral surface with longitudinal furrow in its entire length bordered with a number of spines on both sides (Fig. 5). In females profemora distinctly more slender, with fewer spines. Protibia ventrally with a strong anteapical tooth and a row of small denticles along its entire length in males (Figs 5, 15), unarmed in females. Mesofemora of males ventrally with a row of small denticles, these missing in females. Allometry of males exists: the sexually dimorphic characters are much more expressed in some males than in others. Stridulatory organs in form of a large tooth (strigil) on protochanter, matching a depression on ventral surface of procoxa (pectrum) (Figs 1–2). Peritreme of metathoracic scent glands horizontal, more or less scimitar-shaped with rounded apex, from ostiole directed laterad to slightly posterolaterad (Figs 3–4). Paramere with apex longer and narrower, outer margin basally angulately produced (Figs 8–12).

Included species. There are three species placed in *Physopelta* s. str., all of them distributed in the Oriental Region. I am not aware of any undescribed species.



Figs 1–5. *Physopelta (Physopelta) robusta* Stål, 1863, male. 1 – fore coxae and trochanters (magnification 47×), 2 – detail of procoxa and basal portion of trochanter (stridulatoxy process marked with white arrow) (70×), 3 – external scent efferent system (40×), 4 – detail of ostiole and peritreme (140×), 5 – ventral surface of profemur (23×). Scale bars: 0.2 mm (Fig. 4), 0.5 mm (Figs 1–3), 1 mm (Fig. 5). (SEM micrographs: P. Kment).

Physopelta (Physopelta) albofasciata (DeGeer, 1773)

(Figs 13–15)

Cimex albo-fasciatus DeGeer, 1773: 335, Pl. XXXIV: Fig. 1. SYNTYPE(S): 'Indes' (lost?).

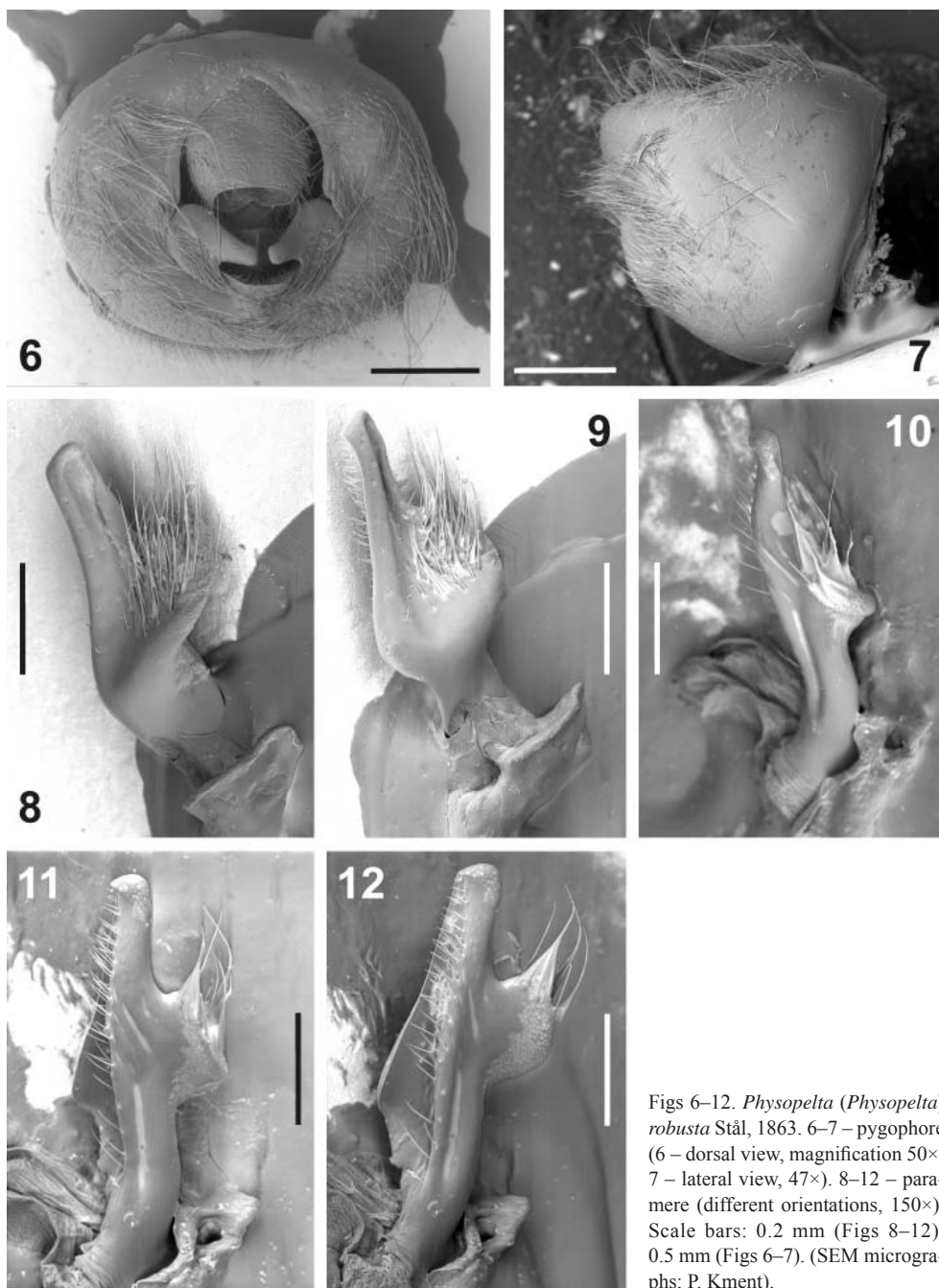
Note. DeGeer's collection is deposited in NHRS (HORN et al. 1990: 87); however, there is no specimen of this species preserved in DeGeer's collection (G. Lindberg, pers. comm.).

Cimex Albo-fasciatus: GOEZE (1778): 270–271 (diagnosis).

Cimex albofasciatus: FABRICIUS (1781): 364 (diagnosis, erroneous distribution); FABRICIUS (1787): 299 (diagnosis).

Cimex erythromelas Gmelin, 1790: 2171 (diagnosis, *Cimex albofasciatus* considered synonym of *C. erythromelas*).

SYNTYPE(S): Suriname (lost?).



Figs 6–12. *Physopelta (Physopelta) robusta* Stål, 1863. 6–7 – pygophore (6 – dorsal view, magnification 50×; 7 – lateral view, 47×). 8–12 – paramere (different orientations, 150×). Scale bars: 0.2 mm (Figs 8–12), 0.5 mm (Figs 6–7). (SEM micrographs: P. Kment).

Lygaeus albofasciatus: FABRICIUS (1794): 153 (new combination, diagnosis, distribution).

Lygaeus albofasciatus: FABRICIUS (1803): 221 (catalogue, distribution).

Physopelta erythrocephala Amyot & Serville, 1843: 271–272 (description, distribution). SYNTYPES (1 ♂ 1 ♀): Indonesia, Java (NHMW, H. Zettel, pers. comm.). Synonymized by STÅL (1861: 390).

Physopelta affinis Amyot & Serville, 1843: 272 (description, distribution). HOLOTYPE (♂): Indonesia, Java (NHMW, H. Zettel, pers. comm.). Synonymized by STÅL (1861: 390).

Physopelta albofasciata: STÅL (1861): 195 (list of species).

Physopelta albo-fasciata: STÅL (1863): 390 (catalogue, new synonyms, distribution); STÅL (1870): 101 (catalogue, distribution).

Physopelta albofasciata: WALKER (1873): 18 (key, catalogue, distribution); LETHIERRY & SEVERIN (1894): 241 (catalogue, distribution); BREDDIN (1901b): 139 (distribution), DISTANT (1903b): 251 (catalogue, distribution); BREDDIN (1905): 205, 215 (distribution, zoogeography); TAEUBER (1927): 174 (distribution); HUSSEY (1929): 29 (catalogue, distribution); BLÖTE (1931): 99 (distribution); SCHMIDT (1931): 46 (distribution); RÉDEI et al. (2009): 12 (distribution); HUA (2000): 187 (listed, distribution).

Physopelta (Physopelta) albofasciata: VOIGT (2006): 223–224 (key, distribution).

Material examined. MALAYSIA: MALAYAN PENINSULA: KEDAH: West Coast, Langkawi Is., 26.iv.1928, 1 ♂, ex. F.M.S. Museum, P. Kment det. (BMNH). – **PAHANG:** Tioman Island, road Kampong Terek-K. Juara, 0–400 m a.s.l., 4.–16.iii.1981, 2 ♀♀, De Hauk lgt. (ISNB, NHMW). – **SELANGOR–PAHANG:** The Gato, 2,700 ft [= 823 m a.s.l.], i.1915, 1 ♂, ex F.M.S. Museum, P. Kment det. (BMNH). **KALIMANTAN: SABAH:** Bettotan, near Sandakan, 20.vii.1927, ex F.M.S. Museum, 1 ♀, P. Kment det. (BMNH); Samawang, near Sandakan, jungle, 13.vii.1927, ex F.M.S. Museum, 1 ♀, P. Kment det. (BMNH); Sandakan District, Rumidi, R. Labuk, 16.–30.ix.1973, 1 ♂ 2 ♀♀, C. Pruett lgt., P. Kment det. (BMNH); Banguay b. Borneo, no date, 1 ♀, Taeuber coll., P. Kment det. (BMNH). – **SARAWAK:** Bidi, iii.1909, 1 ♂, C. J. Brooks lgt., P. Kment det. (BMNH); Tringos, 27.ii.1909, C. J. Brooks lgt., P. Kment det. (BMNH); Semongok, light trap, xi.1967, 1 ♀, coll. G. H. L. Rothschild, P. Kment det. (BMNH). – **INDONESIA/MALAYSIA:** Borneo, no date, 1 ♀, no collector, P. Kment det. (MNHN). – **INDONESIA: BALI:** Bali, 2 ♂♂, W. Doherty lgt., P. Kment det. (BMNH); Beduql Distr., Tamblingquan Lake, Nat. Res., 1,200 m a.s.l., iii.2004, 1 ♀ (ISNB), xi.2004, 2 ♀♀ (ISNB, NHMW); 1,300 m a.s.l., iv.2004, 1 ♀ (ISNB), i.–ii. 2005, 1 ♀ (ISNB), v.2005, 9 ♀♀ (ISNB, NHMW), all S. Jákl lgt. – **JAVA:** Java, 1898, 1 ♀, coll. Noualhier, P. Kment det. (MNHN). **JAWA BARAT PROVINCE:** Bibidjilan, Mts. Djampang, vii.1936, 5 ♂♂ 3 ♀♀, no collector (ISNB); Bibidjilan, Mts. Djampang, Radjamundala, 1,200 m a.s.l., x.1936, 6 ♂♂ 7 ♀♀, no collector (ISNB); Bibidjilan, 10.xii.1937, 1 ♂ 1 ♀, 20.xii.1937, 1 ♀, both M. E. Walsch lgt. (HNHM); Tjikanrangtenah, Gg. Djampang: 6.xi.1937, 3 ♂♂ 1 ♀, M. E. Walsch lgt. (ZMHB); Goenoeng Gedogan [= Gunung Gedogan], 2,000 ft [= 610 m a.s.l.], 8.ii.1937, 1 ♀, M. E. Walsch lgt. (HNHM); Palabuan, 1898, 1 ♂, coll. Noualhier, P. Kment det. (MNHN); Soekaboemi [= Sukabumi], no date, 3 ♂♂ 1 ♀, Dr. F. Weber lgt. (HNHM); Sukabumi, 2,000 ft [= 610 m a.s.l.], 1893, 1 ♂, H. Frühstorfer lgt., coll. Noualhier, P. Kment det. (NMPC); Volcan Gédé, 1898, 1 ♂ 2 ♀♀, coll. Noualhier, P. Kment det. (MNHN). – **JAWA TIMUR PROVINCE:** Malang, no date, 1 ♀, no collector (ZSMC). – **KALIMANTAN:** KALIMANTAN TIMUR PROVINCE: Balikpapan, 1 ♂, Dr. Mohler lgt. (HNHM). – **MENTAWAI ISLANDS:** Siberut, ix. 1924, 1 ♂, C.B.K. & N.S. lgt., P. Kment det. (BMNH); Siberut 12.ix.1924, 1 ♀, H. H. Karny lgt., P. Kment det. (BMNH); S. Siberut, Salappa, 50 m a.s.l., ii.2006, 2 ♂♂, S. Jákl lgt. (ISNB, NHMW). – **SUMATRA: ACEH PROVINCE:** Banda [Aceh], 50 m a.s.l., 7.ii.1994, 1 ♀, E. Diehl lgt. (ZSMC). **BENGKULU PROVINCE:** Benkaelen [= Bengkulu], Morang Liwa, no date, 1 ♀, no collector, P. Kment det. (MNHN). **SUMATERA BARAT:** Mt. Singgalang, Annai valley, Nat. Res., 500–1,000 m a.s.l., iv.2005, 2 ♀♀, S. Jákl lgt. (ISNB, NHMW). **SUMATERA UTARA PROVINCE:** near Brastagi, Air Panas, Desa Semangat Ganung, hotel, 03°13'27"N 98°30'48"E, 1,350 m a.s.l., 1.–2.iii.2002, 1 ♂, T. Kothe lgt. (ZSMC); Dolok Ulu, Kora Kora, at light, 20.ix.1979, 1 ♀, Ebner lgt. (EHIA); Lampung Krui, Pahmungan, Damar garden, 6.xi.2001, 1 ♂, K. Smets lgt. (ISNB); Sidikalang, 1,250 m a.s.l., 15.–16.ii.2002, 2 ♂♂ 3 ♀♀, T. Kothe lgt. (ZSMC); Simarjarunjung near Lac Toba, 02°50'11"N 98°46'20"E, 1,700 m, 18.ii.1999, 1 ♀, Buchbaum lgt. (ZSMC); Sipirok, 11.iv.1994, 1 ♀, E. Diehl lgt. (ZSMC). – **PHILIPPINES: PALAWAN:** Paragua [= Palawan], no date, 1 ♂ 1 ♀, no collector, P. Kment det. (MNHN).

Distribution. Thailand (Pattani Region) (DISTANT 1903b), Malaysia (Malayan Peninsula: Kedah (Langkawi Islands), Johor, Pahang (Tioman Island), Selangor; Kalimantan: Sarawak, Sabah (incl. Banguay Island)) (WALKER 1873: Mount Ophir; BREDDIN 1901b, 1905; VOIGT

2006, no details; this paper), **Indonesia** (Bali, East Kalimantan, Java, Mentawai Islands: Siberut, Sumatra) (AMYOT & SERVILLE 1843, as *Ph. affinis*, *Ph. erythrocephala*; WALKER 1873; BREDDIN 1901b; BLÖTE 1931; SCHMIDT 1931; this paper), **Philippines** (Palawan) (BREDDIN 1901b, 1905; this paper).

FABRICIUS (1781, 1794, 1803) and GOEZE (1790) recorded the species from Surinam in error. Old records of *Physopelta albofasciata* from China, Japan (e.g., MATSUMURA 1905, HUA 2000), and Taiwan, refer either to *Ph. cincticollis* or to *Ph. parviceps* (KERZHNER 2001). The occurrence of *Ph. albofasciata* in Taiwan was not confirmed recently (RÉDEI et al. 2009). MATSUMURA (1905) listed the species from India with a question mark (it was also listed in this way by HUSSEY (1929)) and its distribution in India is mentioned by VOIGT (2006); however, such a record was not confirmed by a study of extensive museum materials, and it is not probable.

Physopelta (Physopelta) biguttata Stål, 1870

(Fig. 16)

Physopelta biguttata Stål, 1870: 100 (description, distribution). SYNTYPE(s): ♂, Philippines, Luzon, Manilla (NHRS, G. Lindberg, pers. comm.).

Physopelta biguttata: STÅL (1871): 665 (list of species); LETHIERRY & SEVERIN (1894): 241 (catalogue, distribution); TAEUBER (1927): 174 (listed); HUSSEY (1929): 30 (catalogue distribution).

Material examined. PHILIPPINES: no further details, 1 ♂ 1 ♀ (MMBC). – **TAWI TAWI ISLAND:** Tawi Tawi Island, Tarawakan, north of Batu Batu, caught by Malaise traps, 31.x.1961, 1 ♀, Noona Dan Exp. (ZMUC).

Distribution. Philippines (Tawi Tawi Island) (this paper). STÅL's (1870) record from Manilla (Luzon) has never been confirmed and may actually represent the place from which the material was shipped, or a case of mislabelling.

Physopelta (Physopelta) robusta Stål, 1863

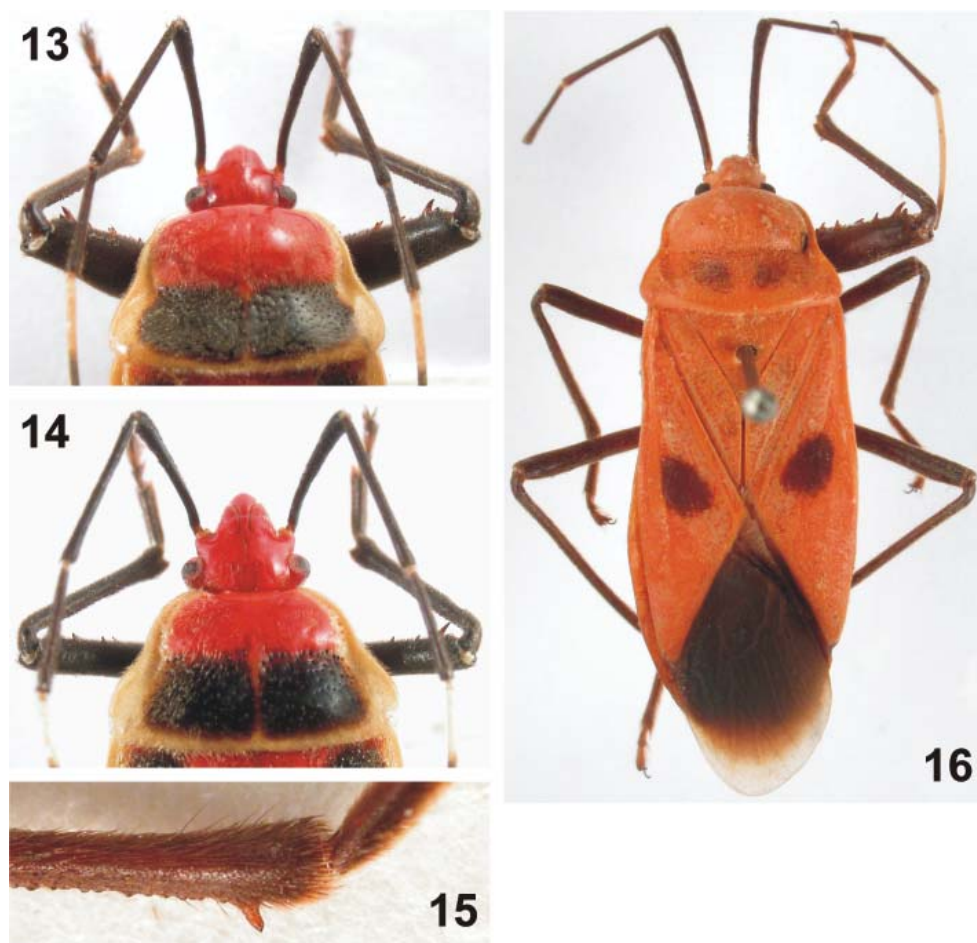
(Figs 1–12)

Physopelta robusta Stål, 1863: 390 (description, distribution). SYNTYPE(s): ♀, Laos (NHRS, G. Lindberg, pers. comm.).

Physopelta robusta: STÅL (1870): 100 (catalogue, distribution); WALKER (1873): 18 (key, catalogue, distribution); LETHIERRY & SEVERIN (1894): 242 (catalogue, distribution); HUSSEY (1929): 32 (catalogue, distribution); LIU (1981): 223, pl. 28 (key, redescription, figure); HUA (2000): 187 (listed, distribution); KERZHNER (2001): 246 (catalogue, distribution); STEHLÍK & JINDRA (2003): 7 (distribution); STEHLÍK (2005a): 145 (distribution); ZHU et al. (2012): 195–198 (ecology, distribution).

Physopelta (Physopelta) robusta: VOIGT (2006): 224 (key, distribution).

Material examined. CHINA: HAINAN: Jianfengling Mts., Tiachi Lake env., Bishu villa, 18°44'40"N 108°50'41"E, 950 m a.s.l., at light, 9.–11.v.2011, 1 ♂, M. Fikáček & L. Li lgt. (NMPC); You Boi, Hainan, B.M. 1911–288, 26.vi.1904, 1 ♀, no collector (BMNH). – **VIETNAM:** HA GIANG PROVINCE: Gam (Rivière Claire) [= Song Gam river], 1 ♂ 1 ♀, Madon lgt. (ISNB). HOA BINH PROVINCE: Tonkin, Hoa-Binh, 1919, 4 ♂♂ 7 ♀♀, A. de Cooman lgt., coll. R. Oberthür, P. Kment det. (MNHN); Tonkin, rég. de Hoa-Binh, 1928, 2 ♀♀, A. de Cooman lgt., P. Kment det. (MNHN). – NINH BINH PROVINCE: Cue Phuong, 11.–18.viii.2010, I.G. 31.668, 1 ♀, J. Constant & P. Limbourg lgt. (ISNB). – QUANG TRI PROVINCE: Da Krong Nat. Park, 16°37'N 106°47'E, I.G. 31.933, 5.–10.vii.2011, light trap, 1 ♂ 3 ♀♀, J. Constant & J. Bresseel lgt. (ISNB). – TUA THIEN-HUE PROVINCE: Hue, 5.iv.1983, 1 ♀, Macháček lgt. (NMPC). – PROVINCE NOT IDENTIFIED: Tonkin, Than-Moi, vi.–viii.[no year], 1 ♂ 1 ♀, H. Frühstorfer coll. (NHMW). – **LAOS:** KHAMMOUAN PROVINCE: Ban Khoun Ngeun, 18°07'N 104°29'E, 250 m a.s.l., 4.–16.xi. + 25.–30.xi.2000, 1 ♀, E. Jendek & P. Pacholátko lgt., P. Kment det. (NHMW). SEKONG PROVINCE: ca. 51 km N Sekong, Ho Chi Minh



Figs 13–16. 13–15 – *Physopelta (Physopelta) robusta* Stål, 1863: 13–14 – head and pronotum (13 – male, 14 – female), 15 – apex of male protibia. 16 – *Physopelta (Physopelta) biguttata* Stål, 1870. (Photos: L. Dembický).

trail, 15°48.1'N 106°39.4'E, 580 m a.s.l., at light, 13.–15.v.2010, 1 ♀, J. Hájek lgt. (NMPC). – **THAILAND: CHANG DAO PROVINCE:** Lakhon, 1878, 1 ♀, Harmand lgt., P. Kment det. (MNHN). – **CHIANG MAI PROVINCE:** Doi Chiang env., 19°24'45"N 98°51'30"E, 1,200+50 m a.s.l., 9.–13.v.2009, 1 ♀, L. Dembický lgt. (MMBC); Chiang Mai env., 1989, 1 ♂, S. Lehman lgt. (ZSMC). – **LOEI PROVINCE:** Na Hao (biol. station), 5.–12.v.2001, 1 ♂, Constant & Grootaert lgt. (ISNB). – **NAKHON RATCHASIMA PROVINCE:** Kao Yai National Park, 2,000 ft [= 610 m a.s.l.], 22.iv.1970, 1 ♂, E. V. Classey lgt., P. Kment det. (BMNH). – **NAKHON SRI TAMARAT PROVINCE:** Nakhon Sri Tamarat, Khao Ram, 1200 ft [= 366 m a.s.l.], 24.ii.1922, 1 ♀, Xavier lgt., P. Kment det. (BMNH). – **PHUKET PROVINCE:** Phuket, v.1996, 1 ♀, no collector, P. Kment det. (BMNH). – **PRACHUAP KHIRI KHAN PROVINCE:** Prachumbkhiri – Khan [= Prachuap Khiri Khan], 16.v.1956, 1 ♂, no collector, M. S. K. Ghauri det., P. Kment revid. (BMNH). – **SURATTHANI PROVINCE:** Suratthani env., no date, 1 ♂ 1 ♀, S. Lehman lgt. (ZSMC). – **MALAYSIA: PERAK:** Perak, no date, 3 ♀♀, Doherty lgt., P. Kment det. (BMNH); Kwale-Kangsar, 1902, 4 ♂♂, Grubauer lgt. (NHMW).

Distribution. China (Guangdong, Guangxi, Yunnan, Hainan) (LIU 1981, HUA 2000, KERZHNER 2001; this paper), Vietnam (HUA 2000, VOIGT 2006, no details; this paper), Laos (STÅL 1863, STEHLÍK 2005a), Thailand (WALKER 1873, STEHLÍK & JINDRA 2003), Malaysia (Perak) (new record). The records from Nepal (VOIGT 2006, no detail) and Myanmar (VOIGT 2006, no detail) have never been confirmed despite studies of extensive museum material; the record from Nepal is most probably erroneous, whereas the presence of the species in southern Myanmar (Tenasserim) is probable.

Subgenus *Neophysopelta* Ahmad & Abbas, 1987, stat. nov.

Neophysopelta Ahmad & Abbas, 1987: 132, 134–136, 138, 141–142 (key to genera, description, figures, phylogeny, distribution). Type species: *Cimex slanbuschii* Fabricius, 1787, original designation.

Note. AHMAD & ABBAS (1987) did not explicitly designate a type species for *Neophysopelta*, but in a comment on p. 136 they stated: ‘this species is at the moment the only species of the genus,’ which should be understood as designation of the type species by monotypy (KERZHNER 2001).

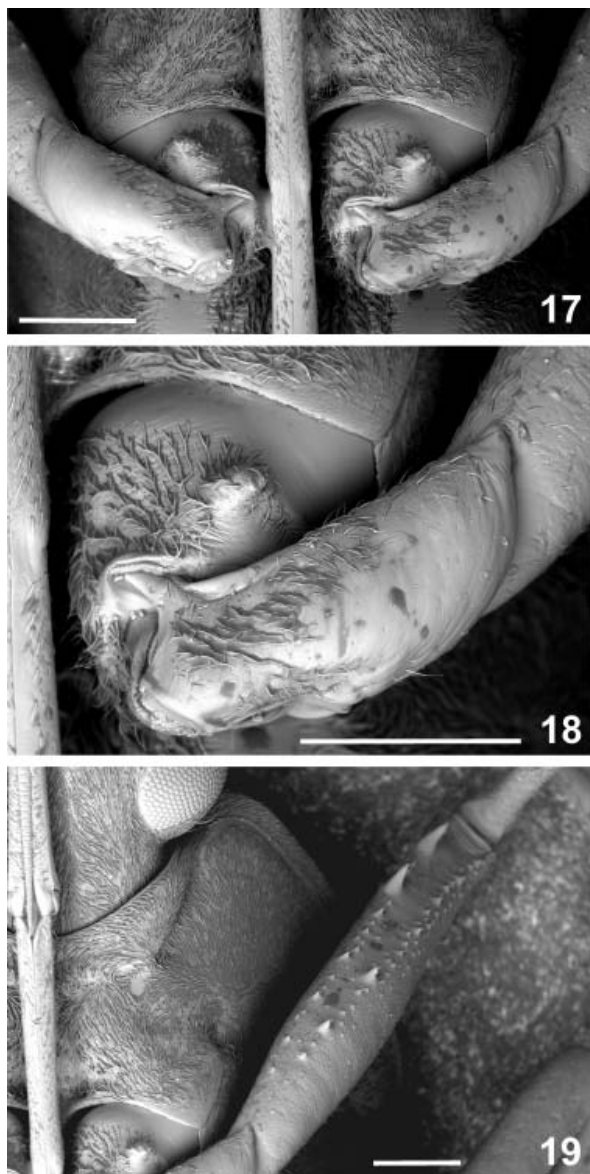
Neophysopelta: PERVEEN & AHMAD (1991): 161–162 (key to species, taxonomy); STEHLÍK & KERZHNER (1999): 121 (synonymized with *Physopelta*).

Diagnosis. Body rather large, relatively narrow. Labium reaching between metacoxae. Antennomere 1 shorter than antennomere 2, much shorter than length of pronotum. Sexual dimorphism markedly developed. Callar lobe strongly gibbose in males, only slightly gibbose in females. Profemora strongly incrassate in males, ventrally provided with a longitudinal furrow along its entire length, bordered with a number of spines on both sides of the furrow (Figs 19, 98). Profemora distinctly more slender in females, with fewer spines. Protibia of males with a row of small denticles along its entire length but without any strong tooth ventrally near the apex. In females protibia unarmed.

The presence or absence of the longitudinal furrow and small denticles on the meso- and metafemora vary among the species of this subgenus. The small denticles as well as the longitudinal furrow may be present on the ventral surface of the mesofemora but missing on the metafemora, or be present on both the meso- and metafemora; in males, more rarely also in females, the denticles could be very small, or may be completely missing. There are also differences between allometric males with strongly expressed sexual characters and less developed specimens. In *Physopelta slanbuschii* (Fabricius, 1803), the meso- and metafemora lack any longitudinal furrow and denticles. In allometric males of *Ph. trimaculata* Stehlik & Jindra, 2008 with pronounced sexual characters, the tibiae are curved.

A stridulatory organ occurs in the form of a tooth on the ventral surface of the procoxa (strigil), and a flat, wrinkled area of cuticle on the protrochanter (pectrum) (Figs 17–18). The peritreme of the metathoracic scent glands is roughly horizontal, ca. scimitar-shaped, with a rounded apex, from the ostiole directed posterolaterad (Figs 20, 22). The paramere with its apex shorter and wider and its outer margin basally without angulate process (Figs 30–34).

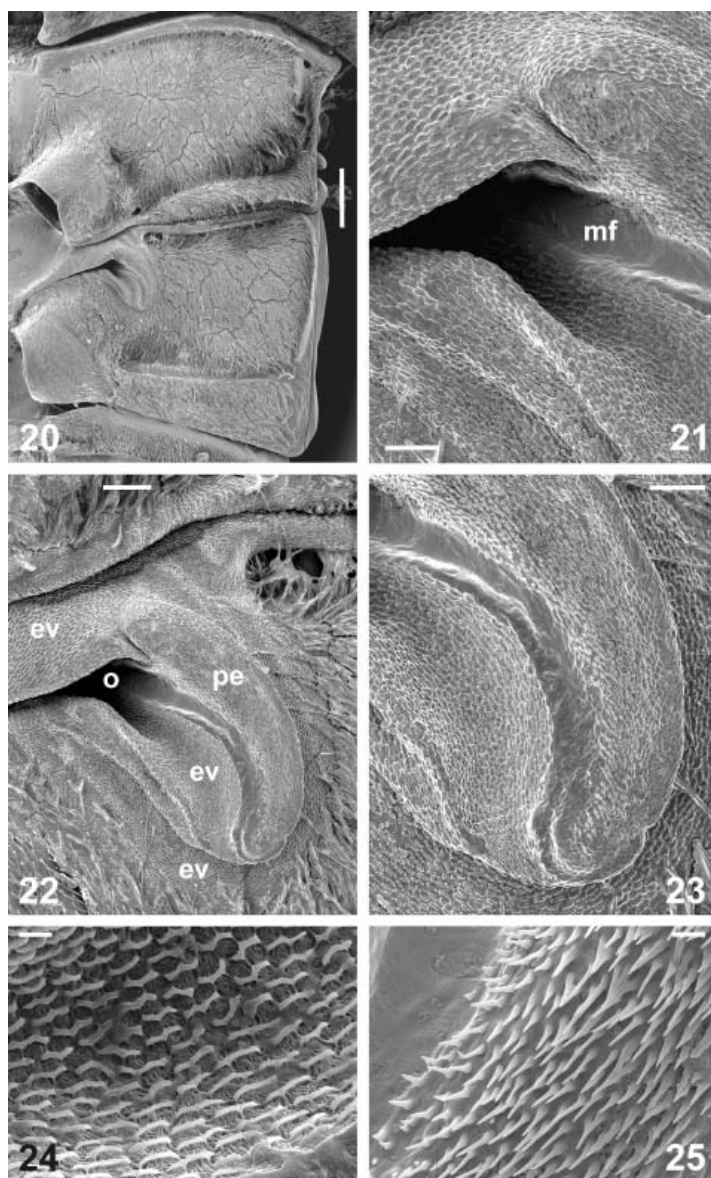
Comment. *Neophysopelta* Ahmad & Abbas, 1987 was established by AHMAD & ABBAS (1987) as a genus to accommodate a single species, *Physopelta slanbuschii*, distinguishing it from all the remaining *Physopelta* species. AHMAD & ABBAS (1987) distinguished *Neophysopelta* from *Physopelta* by the following characters: body bright red; covered with more



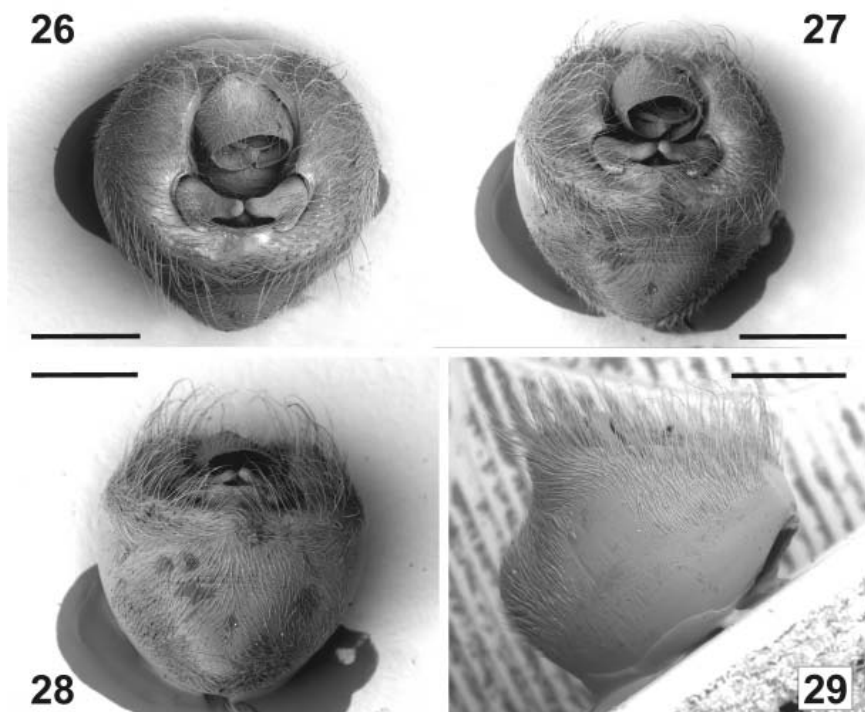
Figs 17–19. *Physopelta* (*Neophysopelta*) *gutta gutta* (Burmeister, 1834), male. 17 – fore coxae and trochanters (magnification 50 \times), 18 – detail of procoxa and protrochanter (95 \times), 19 – ventral surface of profemur (37 \times). Scale bars: 0.5 mm. (SEM micrographs: P. Kment).

silvery hairs and long black stiff hairs; antennomere 1 subequal to length of head; spermatheca with a long duct having many coils; paramere with middle dorsal lobe slightly above the middle portion. *Physopelta* was characterized: dull reddish ochraceous body covered with less silvery hairs and without long black stiff hairs; antennomere 1 distinctly longer than length of head; spermatheca with a short duct; and paramere with middle dorsal lobe more towards the proximal end (AHMAD & ABBAS 1987). STEHLÍK & KERZHNER (1999) pointed out that all characters used for distinguishing *Neophysopelta* from *Physopelta* are variable within the genus, and therefore considered *Neophysopelta* as a junior subjective synonym of *Physopelta*. However, as *Neophysopelta* Ahmad & Abbas, 1987 is an available generic name for the clade of *Physopelta* which includes *Ph. slanbuschii*, it is redefined and restituted as a valid subgenus in the present paper.

Included species. The subgenus *Neophysopelta* in its revised sense includes 20 described species and two subspecies distributed in the East Palaearctic, Oriental, and Australian Regions from Afghanistan, Pakistan and Japan to New Guinea, Solomon Islands, and northern Australia. However, there are several undescribed species from New Guinea and surrounding islands available in collections.



Figs 20–25. *Physopelta* (*Neophysopelta*) *gutta gutta* (Burmeister, 1834), female. 20 – meso- and metapleuron with the external scent efferent system (magnification 30×); 21 – detail of ostiole (300×); 22 – ostiole, peritreme, and surrounding evaporatorium (130×); 23 – apical portion of peritreme in detail (300×); 24 – evaporatorium, detail of mycoid microsculpture mesad of the median furrow (1200×); 25 – peritreme, detail of microsculpture (smooth peritremal surface of median furrow left, spinules of the remaining peritremal surface right; 1200×). Lettering: ev – evaporatorium, mf – median furrow of peritreme, o – ostiole, pe – peritreme. Scale bars: 10 μm (Figs 24, 25), 50 μm (Figs 21, 23), 100 μm (Fig. 22), 500 μm (Fig. 20). (SEM micrographs: P. Kment).



Figs 26–29. *Physopelta (Neophysopelta) gutta gutta* (Burmeister, 1834), male, pygophore (magnification 50×): 26 – dorsal view, 27 – postero-dorsal view, 28 – posterior view, 29 – lateral view. Scale bars: 0.5 mm. (SEM micrographs: P. Kment).

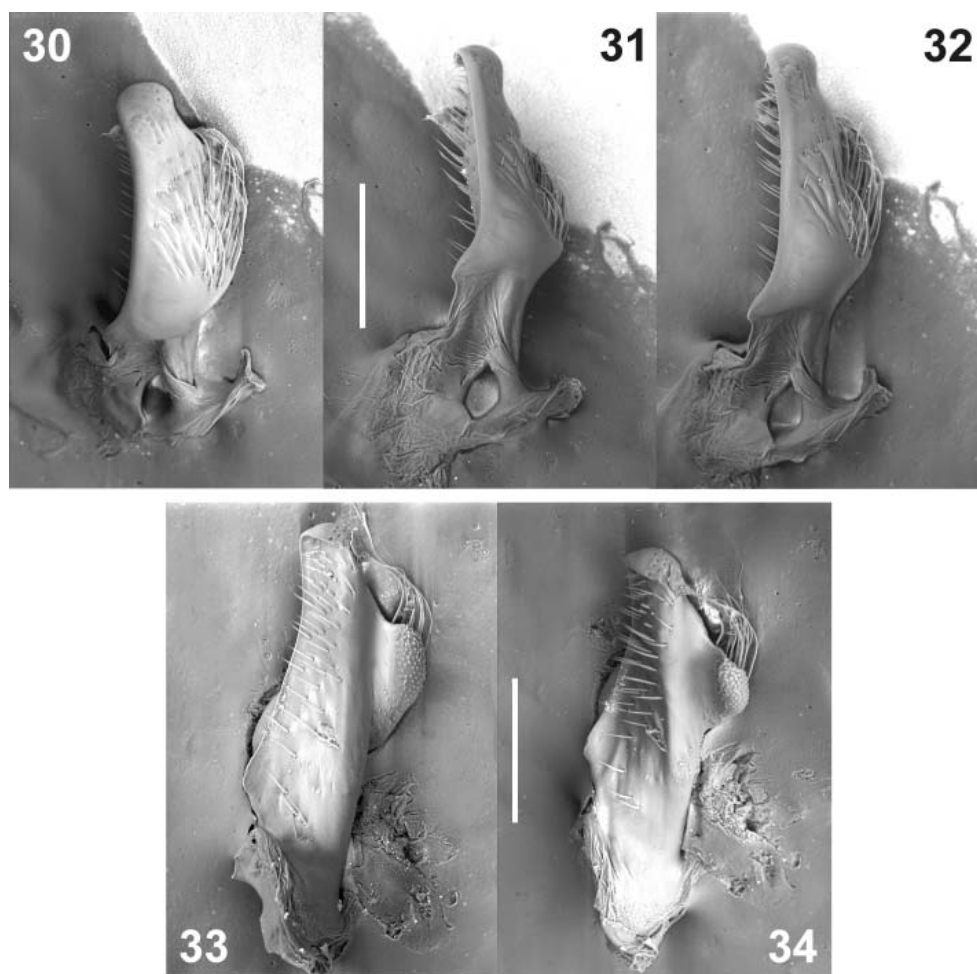
Physopelta (Neophysopelta) australis Blöte, 1933

Physopelta australis Blöte, 1933: 589 (description, distribution). SYNTYPES: 3 ♀♀, Australia, Northern Territory, Darwin (BMNH).

Physopelta australis: CASSIS & GROSS (2002): 626 (catalogue, distribution).

Type material examined. SYNTYPES: 2 ♀♀ (BMNH), 'Co- / type [p, white round label with yellow margin] // AUSTRALIA / Darwin N. T. / G. F. Hill. [hw, white label] // Pres. by / Imp. Inst. Ent. / Brit. Mus. / 1932-359 [p, white label] // *Physopelta / australis* ♀ [hw] / det.Blöte [p] / Cotype. [hw, white label]'; 1 ♀ (BMNH), 'Co- / type [p, white round label with yellow margin] // G. F. Hill / Darwin, N. T. [p, white label] // Pres. by / Imp. Inst. Ent. / Brit. Mus. / 1932-359 [p, white label] // 359 [hw, white label] // *Physopelta / australis* ♀ [hw] / det.Blöte [p] / Cotype. [hw, white label]'

Additional material examined. AUSTRALIA: NORTHERN TERRITORY: Port Darwin, no date, 1 ♂, no collector, P. Kment det. (BMNH); Darwin, 27.–30.ix.1953, 1 ♀, G. F. Gross lgt., P. Kment det. (BMNH); Mary river, 100 km W of Jabiru, 1.–4.xi.1984, 3 ♂♂ 6 ♀♀, M. & B. Baehr lgt. (ZSMC); Stapleton, no date, 1 ♀, G. F. Hill lgt., P. Kment det. (BMNH); 70 km SW of Mataranka, 15°19'S 132°50'E, 190 m a.s.l., 22.–23.xii.2008, 1 ♀, S. Jákł lgt., P. Kment det. (NMPC); Nitmiluk N.P., Edit Falls, 24°18'S 131°34'E, 37 m a.s.l., 3.xi.2008, 1 ♀, S. Jákł lgt., P. Kment det. (MMBC); Victoria Road, 110 km to Kununnura, 15°57'S 129°33'E, 76 m a.s.l., 30.xi.2008, 1 ♀, S. Jákł lgt., P. Kment det. (MMBC); 25 km SE of Katherine, near Cutta Cutta Caves, 14°31'S 132°25'E, 168 m a.s.l., 23.–31.xii.2008, 1 ♀,



Figs 30–34. *Physopelta* (*Neophysopelta*) *gutta gutta* (Burmeister, 1834), male, paramere (different orientations, magnification 190×). Scale bars: 0.2 mm. (SEM micrographs: P. Kment).

S. Jákl lgt., P. Kment det. (MMBC). – **WESTERN AUSTRALIA:** Kununnura (campground), 15°46.04'S 128°44.84'E, 64 m a.s.l., light traps, 14.–16.iv.2009, 1 ♀, V. Ryjáček lgt., P. Kment det. (MMBC); Ord river, 105 km N of Hall's Creek, 15.–16.xi.1984, 9 ♂♂ 11 ♀♀, M. & B. Baehr lgt. (ZSMC); Ord river, by Ivanhoe, 11.–13.xi.1984, 1 ♀, M. & B. Baehr lgt. (ZSMC); Fitzroy Crossing, 18.–20.xi.1984, 6 ♂♂ 8 ♀♀, M. & B. Baehr lgt. (ZSMC); 2 km East of Karratha, 38 m a.s.l., 19.ii.2006, 1 ♂ 1 ♀, M. Baehr lgt. (ZSMC); 135 km N of Hall's Creek, 14.–15.xi.1984, 7 ♂♂ 5 ♀♀, M. & B. Baehr lgt. (ZSMC).

Distribution. Australia: Northern Territory (BLÖTE 1933, CASSIS & GROSS 2002), Queensland (CASSIS & GROSS 2002), Western Australia (new record).

Physopelta (Neophysopelta) cincticollis Stål, 1863

Physopelta cincticollis Stål, 1863: 392 (description, distribution). SYNTYPES: ♀♀, 'India orientalis' (NHMW?, not found; 1 syntype in NHRS, G. Lindberg, pers. comm.) (see also SEHNAL & KERZHNER 1999, KERZHNER 2001: 246).

Physopelta cincticollis: STÅL (1870): 101 (catalogue, distribution); WALKER (1873): 18–20 (key, variability, catalogue, distribution); BERGROTH (1894): 161 (differences from *Ph. quadriguttata*); LETHIERRY & SEVERIN (1894): 241 (catalogue, distribution); DISTANT (1903a): 98 (redescription); HUSSEY (1929): 30 (catalogue, distribution); BLÖTE (1931): 99–100 (differences from *Ph. parviceps*, figure, distribution); SCHOUTEDEN (1933): 59 (distribution); LIU (1981): 222, 224, pl. 28 (key, redescription, figure); LEE & KWON (1991): 50 (distribution); STEHLÍK & KERZHNER (1999): 122 (identification of *parviceps* and *cincticollis*); HUA (2000): 187 (check-list, host plants, distribution); KERZHNER (2001): 246 (catalogue, distribution); KWON et al. (2001): 300–301 (listed, host plants, distribution); STEHLÍK & JINDRA (2003): 7 (distribution); STEHLÍK (2005a): 144 (distribution); STEHLÍK (2007a): 117 (distribution); STEHLÍK & JINDRA (2008a): 622, 626–627 (identification of *cincticollis* and *kotheae*, figure of paramere, habitus photo); RÉDEI et al. (2009): 13, 16, 18 (key, figure, distribution); ZHU et al. (2012): 195–198 (ecology, distribution).

Physopelta cincticollis (possible misidentifications): SCOTT (1874): 291 (distribution); SCOTT (1880): 306 (distribution); ESAKI (1926): 157 (distribution); ESAKI (1952): 230 (redescription, habitus, distribution); MIYAMOTO (1965): 232 (distribution); MIYAMOTO (1970): 265 (distribution); ISHIHARA et al. (1974): 72 (distribution); Manna et al. (1985): 621–630 (chromosomes, figures, distribution); MIYAMOTO & YASUNAGA (1989): 179 (checklist: Japan); TOMOKUNI (1989): 190 (distribution); TOMOKUNI (1993): 59, 197 (redescription, habitus, biology); KOHNO et al. (2002): 393 (distribution).

Physopelta (Physopelta) cincticollis: VOIGT (2006): 223–225 (key, distribution).

Material examined. JAPAN: KYUSHU: FUKUOKA PREFECTURE: Chikugo (Morodan), 1 ♂ 1 ♀, Miyamoto lgt. (MNHN); Hicosan [= Hikosan] (Buzen), 29.viii.1950, 1 ♀, K Yasumatsu lgt. (MNHN). – **CHINA: JIANGXI:** 15 km SSE Jiuliang, Lianhuan forest park, 29°6'N 116°1'E, 1 ♀, 30.v.2004, J. Turna lgt. (EHIA). – **HAINAN:** Limushan Mts., first administr. Centre, 19°10'30"N 109°44'33"E, 630 m a.s.l., at light, 4.–6.v.2011, 1 ♀, M. Fikáček, V. Kubeček & L. Li lgt. (NMPC). – **HUBEI:** 10 km S Duncun, 30°9'N 110°95'E, 1 ♂, J. Turna lgt. (EHIA). – **ZHEJIANG:** Chekiang [= Zhejiang], Hangtheou [= ?Hangtu], 1925, 1 ♀, A. Pichon lgt. (MNHN). – **TAIWAN: HUALIEN COUNTY:** S corner, Coastal Range SE of Fuli, 23°09'N 121°17'E, 12.–16.xi.2008, 6 ♂♂ 17 ♀♀, L. Dembický lgt. (MMBC). – **MIAOLI COUNTY:** hills SW Sanai, 24°22'N 120°44'E, 200–500 m a.s.l., 27.x.2008, 1 ♀, L. Dembický lgt. (MMBC). – **NANTOU COUNTY:** Sun Moon Lake, Putt-Yüchin env., 12.–18.vi.1995, 3 ♀♀, J. Dalihod lgt. (ZJPC). – **PINGTUNG COUNTY:** Kenting env., 3.–17.vi.1994, 1 ♀, J. Dalihod lgt. (ZJPC). – **TAIPEI COUNTY:** E of Sansia, 24°55'N 121°30'E, 80 m a.s.l., 11.–12.xi.2008, 1 ♀, L. Dembický lgt. (MMBC). – **TAITUNG COUNTY:** 14 km W of Chihshang, 23°09'N 121°04'E, 900 m a.s.l., 16.xi.2008, 2 ♀♀, L. Dembický lgt. (MMBC). – **VIETNAM: CAO BANG PROVINCE:** Phia Den, I.G. 31.668, on light trap, 8.viii.2010, 2 ♂♂, J. Constant & Limbourg lgt. (ISNB); Pia Oac Mt., 22°36'N 105°53'E, pine forest, on light trap, 3.viii.2010, 2 ♂♂ 2 ♀♀, J. Constant & Limbourg lgt. (ISNB). – **LAOS: LUANG PRABANG PROVINCE:** Non Lung, 26.iv.1918, 1 ♀, R.V. de Salvaza lgt. (BMNH). – **THAILAND: PRACHIN BURI PROVINCE:** Pachim, 1 ♂, J. M. Bel lgt. (MNHN). – **MALAYSIA: PENINSULAR MALAYSIA: KELANTAN:** Kampong Raja env., 10.–16.iv.1999, 2 ♀♀, V. Kabourek lgt. (MMBC). – **PAHANG:** Cameron Highlands, 4,500–5,000 ft [= 1372–1524 m a.s.l.], 10.vi.1935, 1 ♀, 16.vi.1935, 1 ♂, 18.vi.1935, 4 ♂♂ 2 ♀♀, 19.vi.1935, 3 ♀♀, H. M. Pendlebury lgt. (BMNH); Cameron Highlands, Fraser's Hill, 4,280 ft [= 1305 m a.s.l.], 16.vii.1936, 1 ♂ 4 ♀♀, H. M. Pendlebury lgt. (BMNH); Cameron Highlands, Tanah Rata, 4,700 ft [= 1433 m a.s.l.], 13.v.1939, 1 ♂, 6.vi.1940, at light, 1 ♂ 1 ♀, both H. M. Pendlebury lgt. (BMNH); ditto, 3.x.1980, 1 ♂, R. Harmann lgt. (BMNH); Cameron Highlands, Glitlialat, 5,000 ft [= 1524 m a.s.l.], at light, 24.v.1939, 1 ♂, H. M. Pendlebury lgt. (BMNH); Cameron Highlands, Tanah Rata, 13.–16.iii.1997, 3 ♂♂, I. Jeniš lgt. (ZJPC); Cameron Highlands, Tanah Rata, 1500–2000 m a.s.l., primieval mountain forest, 12.–17.iii.2007, 2 ♀♀, V. Hula lgt. (NMPC); Cameron Highlands, Tanah Rata, Jasar, 12.–15.ii.1998, 1 ♀, S. Bečvář lgt. (MMBC); ditto, 2.–3.iii.1998, 1 ♂, S. Bečvář lgt. (ZJPC); Cameron Highlands, Tanah Rata vill. env., Gunung Jasar (Mt.), 04°28.4'–7'N 101°21.6'–22.1'E, 1470–1705 m a.s.l., 18.iv.–10.v.2009, 6 ♂♂ 4 ♀♀, J. Hájek lgt. (NMPC). – **PERAK:** Banjaran Bintang, Bukit Berapit (Taiping), 20.–23.ii.1997, 2 ♀♀, I. Jeniš lgt. (ZJPC). – **SELANGOR:** N of Kuala Lumpur, 10.ii.1989, 3 ♀♀, S. Bečvář lgt. (MMBC). – **KALIMANTAN: SABAH:** Mt. Kinabalu, Nat. Park, 1,500 m a.s.l.,

22.–27.iv.1996, 1 ♂ 2 ♀♀, S. Snäll lgt. (ZJPC). – **STATE NOT IDENTIFIED**: P.S.A.15., Sianran [not identified], 25.ix.1925, 1 ♂, ex F.M.S. Museum, no collector (BMNH). – **INDONESIA**: **JAVA**: JAWA BARAT PROVINCE: Ujung Kulon Nat. Park, 0–200 m a.s.l., 20.–27.vii.1996, 1 ♂, S. Jákl lgt. (ZJPC). – **MENTAWAI ISLANDS**: Siberut Island, SW coast, iii.2005, 1 ♀, St. Jákl lgt. (ZJPC). – **SUMATRA**: JAMBI PROVINCE: Aro Estate [= Kayu Aro], Mt. Kerintji [= Kerinci], Au Kayo, 1.–5.iii.1954, 2 ♀♀, A. H. G. Alston lgt. (BMNH). SUMATERA BARAT PROVINCE: Mt. Talang, 29.x.2007, 4 ♂♂ 4 ♀♀, local collector (ZJPC). SUMATERA UTARA PROVINCE: Brastagi env., S of Medan, 1,500–2,000 m a.s.l., 14.–17.iii.1998, 1 ♀, L. Bocák lgt. (ZJPC); Brastagi, Mt. Sibayak, 1,500–2,000 m a.s.l., 20.–26.iv.1998, 2 ♂♂ 1 ♀, V. Kabourek lgt. (ZJPC); near Brastagi, Ganung, Mt. Sibayak, 03°14'N 98°29'E, 1,650 m a.s.l., 2.iii.2002, 3 ♀♀, M. Fiebiger & K. Larsen lgt. (ZSMC); Dairi East near Sumbul, 02°46'17"N 98°32'06"E, 20.ii.1999, 3 ♂♂ 5 ♀♀, U. Buschbaum lgt. (ZSMC); Parapat, xii.1997, 1 ♀, M. Habarta lgt. (ZJPC); Sidikalang, 02°41'51" N 98°18'18"E, 1,250 m a.s.l., 1.–2.xii.2002, 1 ♀, U. Buschbaum lgt. (ZSMC); ditto, 15.–16.ii.2002, 1 ♂ 1 ♀, T. Kothe lgt. (ZSMC); near Sipirok, Danau Marsaput, 01°37'50"N 99°20'30" E, 1,435 m a.s.l., 27.ii.2002, 3 ♀♀, T. Kothe lgt. (ZSMC).

Distribution. **Japan** (Kyushu) (new record), **Korea** (South, Chejudo Island) (LEE & KWON 1991, KWON et al. 2001, KERZHNER 2001), **China** (Guangdong, Guizhou, Henan, Hubei, Hunan, Fujian, Jiangxi, Shandong, Shaanxi, Sichuan, Yunnan, Xizang, Zhejiang, Hainan) (LIU 1981, HUA 2000, KERZHNER 2001; this paper), **Taiwan** (new record), **India** (Meghalaya) (WALKER 1873, STEHLÍK 2007a; this paper), **Vietnam** (new record), **Laos** (STEHLÍK 2005a; this paper), **Thailand** (STEHLÍK & JINDRA 2003; this paper), **Malaysia** (Malayan Peninsula: Kelantan, Pahang, Perak, Selangor; Kalimantan: Sabah) (new records), **Indonesia** (Java, Mentawai Islands: Siberut, Sumatra) (BLÖTE 1931, SCHOUTEDEN 1933; this paper).

Old records of *Physopelta albofasciata* from China, Japan, and Taiwan refer either to *Ph. cincticollis* or to *Ph. parviceps* (LIU 1981, KERZHNER 2001). Records of *Ph. cincticollis* from Japan (e.g., SCOTT 1874, 1880; MANNA et al. 1985; TOMOKUNI 1989; MIYAMOTO 1970; ISHIHARA et al. 1974; KOHNO et al. 2002) and Taiwan (e.g., ESAKI 1926, MIYAMOTO 1965) were previously referred to as *Ph. parviceps* (STEHLÍK & KERZHNER 1999, KERZHNER 2001, RÉDEI et al. 2009). However, in this paper the distribution of *Ph. cincticollis* in Japan (Kyushu) and Taiwan is confirmed, which suggests that some of the previous records may be correct. WALKER (1873: 20) described also two unnamed varieties of *Ph. cincticollis* from localities Batchian [= Baccan Islands] in Moluccas and Sulu [Archipelago] in the Philippines. These records definitely belong to other species.

Physopelta (*Neophysopelta*) *confusa* Zamal & Chopra, 1990

Physopelta confusus [sic!] Zamal & Chopra, 1990: 7, 11–12 (description, figures, distribution). HOLOTYPE: ♂, India, Jharkhand, Hundru, Ranchi (deposited either in Department of Entomology, Haryana Agricultural University, Hisar, or Assam Agricultural University, Jorhat).

Original description (adopted from ZAMAL & CHOPRA 1990): ‘General colouration fusco-testaceous; head, tylus, juga and antenniferous tubercle dull reddish-brown; bucculae dark-brown; eyes, antennae and labium fuscous. Pronotum dark reddish-brown; thoracic pleura fuscous with posterior margins blackish; area near bases of coxae lighter in colour; metathoracic scent gland lobes dull sanguineous; scutellum dark-brown; hemelytra fusco-testaceous with a small round spot near middle and a very small spot outer to it fuscous to black; membrane fuscous. Abdominal intersternal sutures dark with curved lateral fuscous depressions.

Body oblong; head pubescent and impunctate, head length: 1.50–1.60; tylus declivent; eyes comparatively large almost touching antero-lateral pronotal margins; width across eyes:

2.10–1.30 [sic!]; interocular distance: 1.10–1.30; antenniferous tubercle small; antenna medium sized, length antennal segments: I, 1.80–2.00; II, 1.50–2.10; III, 1.40–1.50; IV, 1.80–1.90; labium extending to hind coxae; labial segment I not reaching base of head; length labial segments: I, 1.30–1.40; II, 1.20–1.40; III, 1.20–1.30; IV, 1.20–1.40. Pronotum pubescent; anterior pronotal convexity prominent both in males and females, but more so in males; anterior pronotal lobe comparatively small and impunctate; posterior lobe punctate, lateral pronotal margins carinate, moderately sinuate at middle but out reflexed; length pronotum: 2.60–3.10; width: 4.20–4.40; scutellum triangular, pubescent and punctate; somewhat transversely impressed anteriorly; scutellar length: 1.90–2.00; width: 2.20–2.30; fore coxae with a small blunt spine like protuberance; fore femora slightly incrassate with thick spines beneath throughout in males but with only a few spines at apex in females; hemelytra extending to tip of abdomen. Abdominal length: 9.60–10.20.

Male pygophore with a small, hairy and distally rounded median lobe; median projection apically separate; clasper with a large lobe at middle having two long hairs; spermatheca with spherical bulb, short pump and duct; flange absent.

Total length: 14.10–14.50.

Physopelta confusa sp. nov. is apparently similar to *Ph. gutta* but can be easily distinguished by its colouration, presence of an additional spot on hemelytra and characteristic male genitalia and female spermatheca.

Distribution. India (Jharkhand) (ZAMAL & CHOPRA 1990).

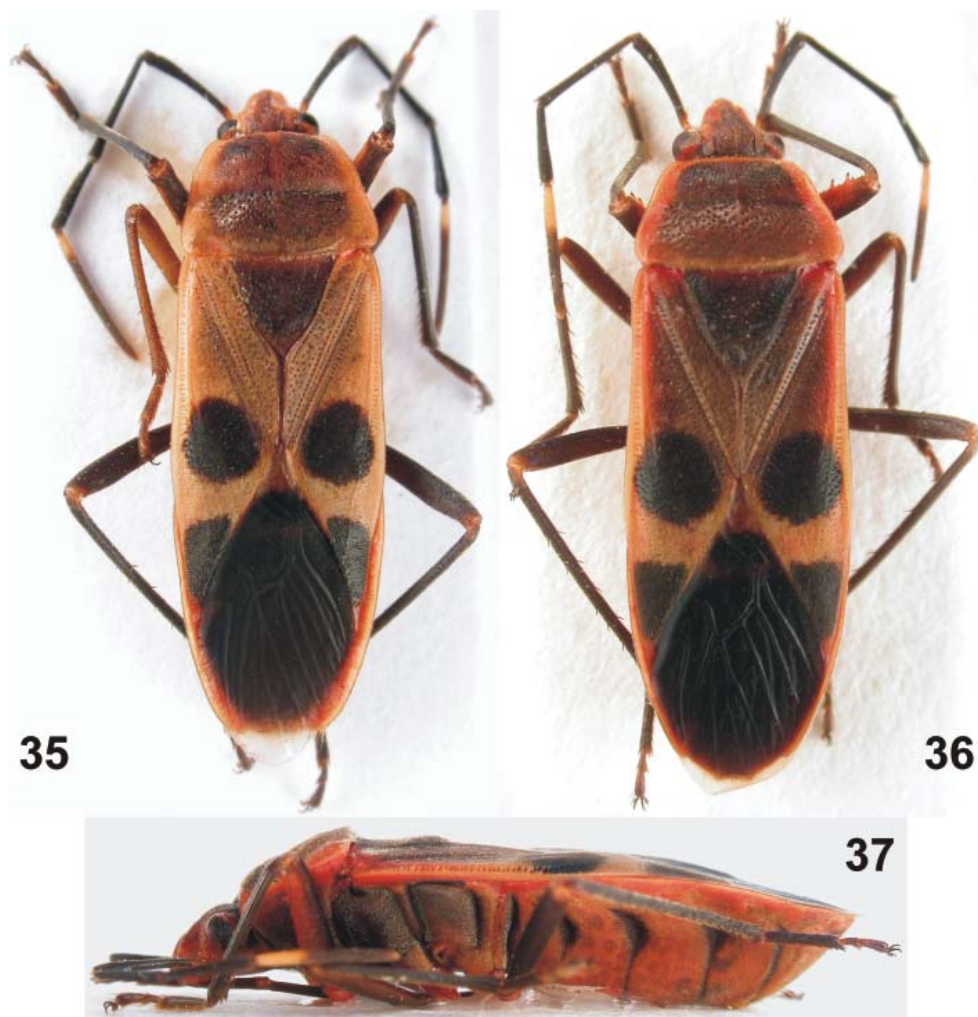
Note. When describing *Physopelta trimaculata* (STEHLÍK & JINDRA 2008a) I was not aware of the description of *Ph. confusa*. Comparing the types of *Ph. trimaculata* with the original description of *Ph. confusa* by ZAMAL & CHOPRA (1990), the two species are very similar, sharing the presence of two black spots in the middle of the corium, a larger inner one and a smaller outer one. *Physopelta confusa* apparently differs in the absence of the black spot in the posterior angle of the corium, a feature not mentioned by ZAMAL & CHOPRA (1990), and the general body colouration (fusco-testaceous in *Ph. confusa*, reddish in *Ph. trimaculata*). Body length of *Ph. confusa* is 14.1–14.5 mm (ZAMAL & CHOPRA 1990) which is within the variation of *Ph. trimaculata* (13.2–15.7 mm) (STEHLÍK & JINDRA 2008a). Without examination of the type material of *Ph. confusa* it is not possible to decide whether the two species represent only colour varieties of a single species, or represent two distinct species.

Physopelta (Neophysopelta) dembickyi sp. nov.

(Figs 35–37)

Type locality. Vietnam, Vinh Phuc Province, Tam Dao National Park (21°31'N 105°33'E).

Type material. HOLOTYPE: ♂, VIETNAM: VINH PHUC PROVINCE: 'Coll. I. R. Sc. B. / Vietnam, Tam Dao N.P. / 21°31'N 105°33'E, 25.- / 30.vii.2011, light trap / leg. J. Constant & J. Bresseel, I.G.31.933' [p, yellow label] // '♂' [p, small white label] // 'Holo- / typus' [p, red label with black frame submarginally] // 'Physopelta / dembickyi / sp. n. [hw, underlined] / det. J.L.Stehlik [p] 2012 [hw]' [red label with black frame]. Holotype is glued on white card, complete (IRSB). PARATYPES: VIETNAM: VINH PHUC PROVINCE: 1 ♀, the same data as holotype (IRSB); VIETNAM: THUA THIEN PROVINCE: 1 ♂, 'C. Vietnam, Bach Ma N.P., 16°12'N 107°52'E, day coll., 12–17.vii.2011, J. Constant & J. Basseel, I.G. 31.933' (IRSB). THAILAND: CHIANG MAI PROVINCE: 2 ♀♀, 'Thailand, Chiang Mai Prov. / Doi Chiang Dao env., 1,200±50 m / 19°24'45"N 98°51'30" E / L. Dembický leg., 9.-13.v.2009 / TH 3/2009 MZM EXPEDITION' [p, white label] (MMBC).



Figs 35–37. *Physopelta* (*Neophysopelta*) *dembickyi* sp. nov. 35 – male, holotype; 36–37 – female, paratype. (Photos: L. Dembický).

Description. Colouration (Figs 35–37). The following body parts are black: antennae (except ca. basal third of antennomere 4), a large spot on vertex reaching up to basal 2/3 of clypeus, pronotum (except anterior, posterior, and lateral margins including margins of callar and pronotal lobes), scutellum, a large round central spot on corium, a large triangular spot on apex of corium, membrane, labium, pleura, profemora dorsally, entire meso- and metafemora, all tibiae and tarsomeres, and crescent-shaped spots on bases of abdominal sternites. Head (except spot on vertex) red. Antennomere 4 basally whitish. Anterior, posterior, and lateral margins

of pronotum (including margins of callar and pronotal lobe), pronotal epipleuron, posterior pleural flanges I–III reddish. Costal margin and surface of corium between central and apical spot whitish-orange. Clavus and base of corium anteriorly of central spot darkened. Posterior margin of membrane whitish. Abdominal sternites pale orange. Black crescent-shaped lateral spots on bases of abdominal sternites as follows: on sternite II narrow and long, on sternites III–VI shorter, medially rather wide, on sternite V surpassing narrowly on posterior margin of sternite IV, on sternite VII only an indistinct spot (see Fig. 37).

Pilosity. Pronotum, thoracic pleura, clavus, and corium covered with silvery pubescence, so dense on pleura that they appear grey. Scutellum posteriorly with black erect hairs.

Punctuation. Posterior pronotal lobe, scutellum, clavus, and corium with small, dense punctures, obsolete in posterior portion of corium.

Structure. Body elongate, parallel-sided. Callar lobe distinctly gibbose in male, slightly gibbose in female. Labium reaching between metacoxae. Profemora apically on ventral surface with two remote teeth and row of small denticles. Mesofemora on ventral surface with small denticles in male, unarmed in female. Metafemora without denticles.

Measurements (in mm). Males (holotype / paratype). Body length: 12.69 / 14.53; head: width (including eyes) 1.94 / 2.00, interocular width 1.08 / 1.13; lengths of antennomeres: 1 – 2.05 / 2.05, 2 – 2.21 / 2.37, 3 – 1.51 / 1.57, 4 – 2.97 / absent; pronotum: length 2.67 / 2.81, width 3.56 / 3.73; scutellum: length 1.89 / 1.94, width 2.00 / 1.67; corium: length 6.64 / 6.26, width 1.78 / 2.00.

Females (n = 3). Body length: 12.51 (12.26–12.96); head: width (including eyes) 2.02 (1.97–2.05), interocular width 1.15 (1.08–1.24); lengths of antennomeres: 1 – 1.91 (1.89–1.94), 2 – 2.20 (2.11–2.27), 3 – 1.46 (1.40–1.51), 4 – 2.40 (2.38–2.43); pronotum: length 2.49 (2.38–2.54), width 3.65 (3.56–3.78); scutellum: length 1.82 (1.78–1.89), width 1.98 (1.94–2.05); corium: length 6.99 (6.43–7.39), width 2.02 (2.00–2.05).

Differential diagnosis. The general habitus of *Ph. dembickyi* sp. nov. is very similar to that of *Ph. gutta gutta*, but the new species is smaller and more slender. For comparison, measurements of males and females of *Ph. gutta gutta* are given (in mm):

Males (n = 5). Body length: 14.18 (12.42–16.63); width (including eyes) 2.15 (2.00–2.32), interocular width 1.18 (1.08–1.30); lengths of antennomeres: 1 – 2.56 (2.27–2.97), 2 – 2.75 (2.43–4.10), 3 – 1.72 (1.54–1.94), 4 – 2.95 (2.70–3.24); pronotum: length 3.26 (2.43–4.10), width 4.35 (3.78–5.05); scutellum: length 2.12 (1.84–2.48); width 2.37 (2.11–2.17); corium: length 7.79 (6.97–9.13), width 2.25 (1.94–2.59).

Females (n = 5). Body length: 14.40 (12.80–15.01); width (including eyes) 2.21 (2.16–2.32), interocular width 1.24 (1.19–1.35); lengths of antennomeres: 1 – 2.21 (2.00–2.38), 2 – 2.56 (2.38–2.70), 3 – 1.49 (1.21–1.73), 4 – 2.86 (2.70–3.13); pronotum: length 2.81 (2.38–3.08), width 4.40 (3.94–4.81); scutellum: length 2.00 (1.89–2.11); width 2.30 (2.16–2.43); corium: length 7.66 (6.86–8.45), width 2.27 (2.05–2.48).

The new species also resembles *Ph. cincticollis*, although the body of *Ph. cincticollis* is shorter and wider; both species are easily distinguished by the colouration of the abdominal sternites, which are black in *Ph. cincticollis*, and pale orange with black crescent-shaped spots laterally in *Ph. dembickyi* sp. nov. Also, *Ph. indra* resembles the new species by its size and similar colouration of abdominal sternites, but it differs by its pale scutellum (not black),

smaller central black spot on the corium, base of the corium anterior of the central spot not darkened, and having all femora orange.

Etymology. The new species is dedicated to one of its collectors, Luboš Dembický (Moravian Museum, Brno), an excellent collector and discoverer of numerous undescribed Oriental insects.

Bionomics. The type specimens were collected in a primary forest, specifically a subtropical moist evergreen low mountain forest in Tam Dao National Park and moist evergreen tropical forest in Bach Ma National Park (J. Constant, pers. comm). Some of the specimens were collected at light.

Distribution. Northern Thailand, northern and central Vietnam (this paper).

Physopelta (Neophysopelta) finisterrae Stehlík & Kment, 2012

Physopelta (Neophysopelta) finisterrae Stehlík & Kment, 2012: 350–353 (original descriptions, differential diagnosis, figures). HOLOTYPE: ♂, Papua New Guinea, Madang Province, Finisterre Range, Saidor, Matoko (BPBM).

Material examined. PAPUA NEW GUINEA: MADANG PROVINCE: Finisterre Mts., Budemu, ca. 4,500 ft [= 1372 m a.s.l.], 15.–24.v.1964, 2 ♂♂, M. E. Bacchus lgt. (BMNH); Finisterre Mts., Moro, ca. 5500 ft [= 1676 m a.s.l.], 30.x.–15.xi.1964, 1 ♂, M. E. Bacchus lgt. (BMNH).

Distribution. Papua New Guinea (Madang Province).

Physopelta (Neophysopelta) gutta gutta (Burmeister, 1834)

(Figs 17–34, 98)

Lygaeus (Pyrrhocoris) Fall., *Platynotus* Schill.) *gutta* Burmeister, 1834: 300–301, pl. XLI: fig. 10. SYNTYPE(S): Philippines, Manila env. (ZMHB, 1 ♂).

Pyrrhocoris gutta: BURMEISTER (1835): 285 (new combination, diagnosis, distribution).

Physopelta bimaculata Stål, 1855: 186 (description, distribution). SYNTYPE(S): Indonesia, Java (NHRS, G. Lindberg, pers. comm.). Synonymized by STÅL (1861: 195).

Physopelta gutta: STÅL (1861): 195 (new synonymy, list); STÅL (1863): 391 (catalogue, distribution); STÅL (1870): 99–100 (key to species, catalogue, distribution); STÅL (1871): 665 (list of species); WALKER (1873): 18, 19 (key, catalogue, distribution); SCOTT (1874): 291 (distribution); DISTANT (1879a): 127 (distribution); DISTANT (1879b): 37 (distribution); DISTANT (1883): 417 (distribution); LETHIERRY (1888): 463 (distribution); KIRBY (1891): 105 (distribution); LETHIERRY & SEVERIN (1894): 242 (catalogue, distribution); UHLER (1897): 265 (variability, distribution); BREDDIN (1900): 161 (distribution; not distinguishing *Ph. g. famelica*); BREDDIN (1901b): 139 (distribution); DISTANT (1903a): 97 (redescription, figures, distribution); DISTANT (1903b): 250 (catalogue, distribution); MAXWELL-LEFROY (1909): 325 (distribution); ESAKI (1926): 157 (distribution); TAEUBER (1927): 174–177 (redescription, variability, distribution; differences from *Ph. lisae* and *Ph. roseni*, respectively); BLÖTE (1931): 99–100 (distribution); SCHMIDT (1931): 46 (distribution); LIU (1981): 222, 224, pl. 28 (key, redescription, figure); AHMAD & ABBAS (1987): 137–138, 141–142 (redescription, figures, host plant, distribution); AHMAD & PERVEEN (1986): 162, 164–166 (morphology of abdomen and genitalia); AHMAD & PERVEEN (1989): 49–50 (cephalic morphology); ZAMAL & CHOPRA (1990): 4–5 (redescription, figures, distribution); LEE & KWON (1991): 50 (distribution); TOMOKUNI (1993): 59, 197 (redescription, habitus, larva, egg, biology); SEN et al. (1998): 331, 333–334, 339–340 (checklist, key, diagnosis, distribution); HUA (2000): 187 (check-list, host plants, distribution); KWON et al. (2001): 301–302 (check-list, host plants, distribution); TOMOKUNI (2006): 352 (distribution); SAHA & BAL (2007): 322–324 (checklist, key, diagnosis, distribution); CHANDRA et al. (2012): 70–71 (figure, distribution); CHANDRA & KUSHWAHA (2012): 253 (distribution); CHANDRA & KUSHWAHA (2013): 678 (distribution); SINGH & BANYAL (2013): 1056 (distribution).

Physopelta gutta gutta: HUSSEY (1929): 30–31 (catalogue, distribution); ESAKI (1952): 230 (redescription, habitus, distribution); STEHLÍK (1965a): 287 (identification of *gutta* and *famelica*, distribution); MANNA et al. (1985): 621–630 (chromosomes, figures, distribution); CHAKRABARTY et al. (1994): 34–35 (differential diagnosis, distribution); KERZHNER (2001): 246 (catalogue, distribution); CASSIS & GROSS (2002): 626–627 (catalogue, distribution – mixed with *gutta famelica*); KOHNO et al. (2002): 393 (distribution); STEHLÍK & JINDRA (2003): 7 (distribution); STEHLÍK (2004): 2–3 (description of 5th larval instar, description); STEHLÍK (2005a): 144 (distribution); STEHLÍK (2007a): 117–118, 127 (habitus, variability, identification and distribution of *gutta* and *famelica*); RÉDEI et al. (2009): 8, 12–15, 48 (redescription, key, figures, distribution); KMENT & VILÍMOVÁ (2010): 4, 11–12 (morphology of external scent effluent system).

Physopelta (Physopelta) gutta gutta: VOIGT (2006): 224 (key, distribution – mixed with *gutta famelica*).

Physopelta (Physopelta) gutta famelica (misidentification): VOIGT (2006): 224 (record from China).

Physopelta guttata (incorrect subsequent spelling): YANG (2003): 200–201 (morphology, figures).

Material examined. JAPAN: KYUSHU: Korasan, Chikugo, 1.viii.1955, 1 ♂, 25.ix.1955, 1 ♀, S. Miyamoto lgt. & det. (NMPC). – RYUKYUS: OKINAWA ISLAND: W slope of Katsudake Motobu Pen., 28.ix.1945, 1 ♂, F. G. Werner lgt. (AMNH); ditto, Iwa, 28.vii.1945, 1 ♂ 1 ♀, F. G. Werner lgt. (AMNH). ZAMANI-SHIMA: Ketto, xi.1945, 1 ♀, Wh. Nutting lgt. (AMNH). – **CHINA:** GUIZHOU: Kouy-Tchéou [= Guizhou], Rég. de Pin-Fa, 1909, 1 ♂, Pére Cavalerie lgt., P. Kment det. (MNH). – HAINAN: Bawangling Mts., Baote env., 19°05.3'N 109°07.4'E, 415–800 m a.s.l., 7.–8.v.2011, 1 ♀, M. Fikáček, V. Kubeček & L. Li lgt. (NMPC). – **TAIWAN:** MIAOLI COUNTY: hills SW Sanyi, sand-steppe, 24°22'N 120°44'E, 200–500 m a.s.l., 27.x.2008, 1 ♂, L. Dembický lgt. (MMBC). – NANTOU COUNTY: Meifeng, 24°05'25"N 121°10'21"E, 10.–11.v.2001, 1 ♂ 1 ♀, K. Schönlitzer lgt. (ZSMC); Puli-Yüchin, Sun Moon Lake, 16.–18.vi.1993, 2 ♂♂, J. Dalihod lgt. (ZJPC); road No. 14, NE Puli Reyen, Shi-Reg. Meifeng, Tamblingan Lakes, Nat. Res., 24°06'N 121°10'E, 2,200 m a.s.l., 9.–11.xi.2002, 1 ♀, W. Schlacht lgt. (ZSMC). – **NEW TAIPEI CITY:** Shiuesham Mts., Fushan Botanical Garden, ca. 24°46'N 121°35'E, 650 m a.s.l., 17.–22.vi.2000, 1 ♂ 1 ♀, W. Schlacht lgt. (ZSMC). – **TAITUNG COUNTY:** 14 km W of Chihshang, 29°09'N 121°04'E, 900 m a.s.l., 16.xi.2008, 30 ♂♂ 32 ♀♀, L. Dembický lgt. (MMBC, NMPC). – **AFGHANISTAN:** KABUL: Sarobi [= Sarowbi or Surobi], 1100 m a.s.l., 16.x.1961, 2 ♀♀, G. Ebert lgt., L. Hoberlandt 1984 det. (NMPC). **NURISTAN:** Bashgultal [= Landaisin river aka Bashgul river], 1300 m a.s.l., 24.v.1953, 1 ♀, J. Klapperich lgt., L. Hoberlandt 1984 det. (NMPC). – **PAKISTAN:** PUNJAB: Murree Hills, Bhurban, 1,900 m a.s.l., 3.–6.v.1978, 1 ♂, C. Holzschuh lgt. (EHIA); Murree, no date, 2 ♀♀, coll. Atkinson (BMNH). – **INDIA:** HIMACHAL PRADESH: Simla [= Shimla], 3.–4. ix.1975, 2150 m a.s.l., 2 ♀♀, A. Čejchan & L. Hoberlandt lgt. (NMPC). – **WEST BENGAL:** Boutan, Pedong, 1897, 2 ♀♀, coll. Oberthür, P. Kment det. (MNH). – **NEPAL:** BAGMATI ZONE: Kathmandu, British Embassy, 4500' [= 1372 m a.s.l.], 20.v.–23.vi.1983, 2 ♀♀, M. J. D. Brendell lgt. (BMNH); Nagarjun, 27°45'N 85°17'E, 1,387 m a.s.l., forest, 29.vii.2000, 1 ♀, J. Schneider lgt. (MMBC). **KARNALI ZONE:** Rara Lake, 3300 m a.s.l., 6.–10.ix.1984, 2 ♀♀, Jt. SVC Rara Exped., M. G. Allen lgt. (BMNH). – **KOSI ZONE:** Kuwapani-Chichlia, 2,100–2,300 m a.s.l., 24.iv.1984, 1 ♂, I. Löbl & A. Smetana lgt. (MHNG). – **BHUTAN:** Bhoutan Anglais, 1900, 3 ♂♂ 2 ♀♀, coll. Oberthür, P. Kment det. (MNH); Maria Basti, 1897, 1 ♂ 1 ♀, coll. Oberthür, P. Kment det. (MNH). – **SRI LANKA:** Kandy env., 600 m a.s.l., 1.–18.iv.1991, 2 ♂♂ 1 ♀, J. Kolibáč lgt. (ZSMC). – **MYANMAR:** KAYIN: Dawna [Range], 10.v.1992, 1 ♂, S. Steinke lgt. (ZMHB). – **TENASERIM:** Tenass Vall, Myitta, no date, 1 ♀, Doherty lgt., coll. Distant, P. Kment det. (BMNH). – **YANGON:** Rangoun [= Yangon], 1902, 1 ♂, J. Claine lgt., P. Kment det. (MNH). – **VIETNAM:** AN GIANG PROVINCE: Chaadoc [= Chau Doc], 1898, 1 ♂, coll. Noulhier (MNH). – **BAC GIANG PROVINCE:** Dong Lo, no date, 1 ♂, no collector, P. Kment det. (MNH). – **BAC THAI PROVINCE:** Quang Chu, 25.v.1987, 1 ♀, Mats.-Dl.-Top. lgt. (HNHM). – **CAO BANG PROVINCE:** Phia Den, 8.viii.2010, light trap, 1 ♀, J. Constant & P. Limbourg lgt. (ISNB); Pia Oac Mt. Nat. Res., 22°36'N 105°53'E, pine forest, 9.viii.2010, light trap, 18 ♂♂ 8 ♀♀, J. Constant & P. Limbourg lgt. (ISNB); ditto, 4.–6.viii.2010, light trap, 8 ♂♂ 9 ♀♀, J. Constant & P. Limbourg lgt. (ISNB). – **HANOI PROVINCE:** Hanoi, ii.1986, 1 ♂ 1 ♀, P. Valíček lgt. (ZJPC); Hanoi, Trau Quy – Gia Lam, I.G. 31.508, 28.xi.2004, 1 ♀, X. Lamens lgt. (ISNB). – **HOA BINH PROVINCE:** Tonkin, Hoabinh, i.1917, 1 ♂, R. V. de Salvaza lgt. (BMNH). – **LAO CAI PROVINCE:** Sa Pa, v.1990, 3 ♂♂ 2 ♀♀, J. Picka lgt. (NMPC); ditto, vi.1990, 4 ♂♂ 6 ♀♀, Duong Tat Tu lgt. (NMPC); 16 km west of Sa Pa, frontier base camp, 1,800 m a.s.l., 16.iii.1989, 3 ♂♂, L. Peregovits & T. Vászárhelyi lgt. (HNHM). – **NGHE AN PROVINCE:** forestière [= gamekeeper's lodge] Quy Chau, forest pluv. trop. semidecid. [= tropical semi-deciduous rain forest], 200 m a.s.l., at light, 24.viii.1963, 1 ♀, T. Pocs lgt. (HNHM). – **NINH BINH PROVINCE:** Cuc

Phuong, 3.–10.v.1966, 1 ♂, Gy. Topál lgt. (HNHM). – **QUANG TRI PROVINCE**: Da Krong Nat. Park, 16°37'N 106°47'E, I.G. 31.933, 5.–10.vii.2011, light trap, 6 ♀♀, J. Constant & J. Bresseel lgt. (ISNB). – **TUA THIEN-HUE PROVINCE**: Hue, 5.iv.1983, 1 ♀, Macháček lgt. (NMPC). – **VINH PHU PROVINCE**: Me Linh Station for Biodiversity, 30.–31.v.2007, on light, 1 ♂, P. Grootaert lgt. (ISNB); Tam Dao, 900 m a.s.l., 27.v.–2.vi.1986, 4 ♂♂ 2 ♀♀, J. Horák & V. Švihla lgt.; 17.–21.iii.1990, 1 ♂ 1 ♀, J. Horák lgt. (NMPC); ditto, 1,200 m a.s.l., 13.x.1986, 1 ♂, T. Vásárhelyi lgt. (HNHM); ditto, 9.v.1987, 1 ♂, Natskási & Topál lgt. (HNHM); ditto, 200 m a.s.l., 12.x.1988, 1 ♂, T. Vásárhelyi lgt. (HNHM); ditto, xi.1990, 2 ♀♀, G. Csorba lgt. (HNHM); ditto, I.G. 31.668, 25.–28.viii.2010, day catch, 1 ♀, 25.–26. viii.2010, at light, 1 ♀, J. Constant & P. Limbourg lgt. (ISNB); ditto, 25.–28.viii.2010, light trap, 1 ♀, J. Constant & P. Limbourg lgt. (ISNB); ditto, 21°31'N 105°33'E, I.G. 31.933, 25.–30.vii.2011, 1 ♀, J. Constant & J. Bresseel lgt. (ISNB); ditto, 21°31'N 105°33'E, 30.vii.2011, at light, 1 ♀, J. Constant & J. Bresseel lgt. (ISNB); Tonkin, Guang Yen [= Quang Yen], 26.iii.1915, 1 ♀, R. V. de Salvaza lgt. (BMNH). – **LAOS**: **ATTAPU PROVINCE**: Annam Highlands Mts., Dong Ampan NBCA, Nong Fa (crater lake) env., 15°05.9'N 107°25.6'E, ca. 1,160 m a.s.l., 30.iv.–4.v.2010, 1 ♂ 1 ♀, J. Hájek lgt. (NMPC). – **CHAMPASAK PROVINCE**: Bolavens Plateau, ca. 3 km SE Ban Lak 40 (village), coffee plantation / forest, 15°09.8'N 106°08.5'E, 1070 m a.s.l., 9.v.2010, 2 ♂♂, J. Hájek lgt. (NMPC). – **HUA PHAN PROVINCE**: Ban Saluei → Phou Pane Mt., 20°12'–13.5'N 103°59.5'–104°01'E, 1340–1870 m a.s.l., 15.iv.–15.v.2008, Lao collectors lgt. (NMPC); Phu Phan Mt., 20°12'N 104°01'E, 1,500–1,900 m a.s.l., 17.v.–3.vi.2007, 4 ♂♂ 5 ♀♀, V. Kubán lgt. (MMBC). – **SEKONG PROVINCE**: ca. 12 km S Sekong, Tad Faek waterfalls, 15°14.7'N 106°45.1'E, 118 m a.s.l., at light, 8.–12.v.2010, 1 ♂, J. Hájek lgt. (NMPC). – **VIENTIANE PROVINCE**: Lao Pako env., 55 km NE of Vientiane, 200 m a.s.l., 1.–4.v.2005, 3 ♂♂ 3 ♀♀, J. Bezděk lgt., Z. Jindra det. (NMPC); Kamphaeng Nakhon Viang Chan prov., 25 km of Vientiane, 1 ♀, Boudon lgt. (MNH). – **CAMBODIA**: **KAMPOT PROVINCE**: Bokor Nat. Park, Hill Station, scrub, 22.iv.2005, 1 ♀, K. Smets & I. Var lgt. (ISNB). – **PURSAT PROVINCE**: Phnom Samkos W.S., Temple Hill, grassland, bamboo forest, 18.v.2005, light trap, 1 ♂, K. Smets & I. Var lgt. (ISNB). – **SIEM REAP PROVINCE**: Angkor Thorn, 5.iii.2005, light trap, 1 ♂, D. R. Jump lgt. (ISNB); ditto, viii.2005, by net, 1 ♂, D. R. Jump lgt. (ISNB). – **THAILAND**: **KAMPAENG PHET PROVINCE**: Khiong Lan Nat. Park, 16°07'N 99°16'E, UV pan trap, 6.iv.2003, 2 ♀♀, Sites, Vitheepredit, Prommi & Setaphan lgt. (MUUS). – **LOEI PROVINCE**: Na Hao, Biol. Station, light trap, 5.–12.v.2001, 4 ♂♂, J. Constant & P. Grootaert lgt. (ISNB); ditto, Na Hao, river bank, on light trap, 15.v.2003, 1 ♂, P. Grootaert, J. Constant & K. Smets lgt. (ISNB); Na Hao, forest clearing, on light trap, 16.v.2003, 1 ♂, J. Constant & K. Smets lgt. (ISNB). – **MAE HONG SON PROVINCE**: Northern – Pai, 1.–12.v.2001, 1 ♂ 1 ♀, R. Kocina lgt., Z. Jindra det. (NMPC); Namtok Mae Surin Nat. Park, Ma Nam Pai, 19°21'N 97°59'E, 310 m a.s.l., 31.iii.2003, 1 ♂ 1 ♀, UMC & CMU teams lgt. (MUUS); Pang Mapha, 19°31.159'N 98°14.844'E, 19.iii.2009, 1 ♀, R.V. Sites lgt. (MUUS). – **NAN PROVINCE**: Mae Charin Nat. Park, 18°36'N 100°59'E, 285 m a.s.l., UV pan trap, 22.iv.2003, 1 ♂ 1 ♀, Vitheepredit, Prommi & Setaphan lgt. (MUUS). – **PHRAE PROVINCE**: Wieng Ko Sai Nat. Park, 17°58'N 99°35'E, 350 m a.s.l., pan UV light trap, 29.iii.2003, 1 ♀, Sites, Vitheepredit & Prommi lgt. (MUUS). – **PITHANULOG PROVINCE**: Phu Hin Rongkhla Nat. Park, on vapor light at guest house, 11.iii.2002, 3 ♂♂ 4 ♀♀, Sites, Vitheepredit & Kirawanich lgt. (MUUS); ditto, Phu Hin Rongkhla Nat. Park, Nam Tok Romglao, 16°59'N 101°00'E, 1,190 m a.s.l., 22.iv.2002, 1 ♂, CMU Team lgt. (MUUS); ditto, Phu Hin Rongkhla Nat. Park, 17°00'N 100°59'E, 1,144 m a.s.l., trap at guest house, 5.v.2003, 1 ♀, Vitheepredit, Prommi & Ferro lgt. (MUUS); ditto, Thung Salaeng Luang, 12.v.2004, 1 ♀, Vitheepredit & Prommi lgt. (MUUS). – **PROCHUP KHIRI KHAN PROVINCE**: Amphur Kui Buri, Forest, Plantation Station, on black light, 12°04'N 99°43'E, 147 m a.s.l., 22.iv.2002, 1 ♀, Vitheepredit & Kirawanich lgt. (MUUS). – **SURATTHANI PROVINCE**: Suratthani env., 1989, 1 ♂, S. Lehman lgt. (ZSMC). – **UPPER RATHATARU PROVINCE**: Phu Chong Na Yoi Nat. Park, 14°26.125'N 105°15.360'E, 1 ♀, Sites & Vitheepredit lgt. (MUUS); ditto, Phu Chong, Nat. Park, Kaeng Ka Loa, 14°26.178'N 105°16.831'E, 182 m a.s.l., 11.iv.2004, 1 ♀, Sites & Vitheepredit lgt. (MUUS). – **MALAYSIA**: **MALAY PENINSULA**: **FEDERAL TERRITORY OF KUALA LUMPUR**: Kuala Lumpur, at light, 3.xi.1922, 1 spec., ex F.M.S. Museum, P. Kment det. (BMNH). – **KEDAH**: West Coast, Langkawi Island, 28.iv.1928, 1 ♂, 29.iv.1928, 1 ♀, ex F.M.S. Museum, P. Kment det. (BMNH). – **PAHANG**: Cameron's Highlands, 4,000–5,000 ft [= 1219–1524 m a.s.l.], 10.vi.1935, H. M. Pendlebury lgt., P. Kment det. (BMNH). – **PERAK**: Taiping, x.1977, 3 ♂♂ 7 ♀♀, P. Pfanner lgt. (MHNG). – **SELANGOR**: Bukit Kutu, 3,500 ft [= 1067 m a.s.l.], 6.ix.1929, 1 ♀, 13.ix.1929, 1 ♀, 14.ix.1929, 1 ♀, H. M. Pendlebury lgt., P. Kment det. (BMNH). – **KALIMANTAN**: **SABAH**: Kinabalu, xi.1978, 1 ♂, no collector (MNH); Mt. Kinabalu, Nat. Park, 1,500 m a.s.l., 22.–27.iv.1996, 1 ♀, S. Snäll lgt. (ZJPC). – **SARAWAK**: Gunong Mulu Nat. Park, RGS. Mulu Exped., 1 ♀, J. D.

Holloway lgt. (BMNH). – **STATE NOT IDENTIFIED**: North Borneo, Tawan, on cocoa, 13.ii.1959, 3 ♂♂, K. L. Leong lgt., M. S. K. Ghauri 1963 det. (BMNH). – **SINGAPORE**: Singapore, 89–38, no date, 1 spec., no collector (BMNH); Singapore, 96–10, no collector, 1 ♂ 1 ♀, P. Kment det. (BMNH); Singapore, 97–12, 1 ♀, H. N. Ridley lgt., P. Kment det. (BMNH); Singapore, 1900–114, H. N. Ridley lgt., P. Kment det. (BMNH). – **BRUNEI**: Temburong District, ridge NE Kuala Belalong, 125W m. v. light, ca. 300 m a.s.l., xi.1992, 1 ♂ 2 ♀♀, J. H. Martin lgt., P. Kment det. (BMNH); [Sungai] Selanjak, 4463.1432, mangrove, 0 m a.s.l., 6.–7.iii.1984, 1 ♂, Helps T. P. G. Maj. [lgt.], P. Kment det. (BMNH). – **INDONESIA**: **BALI**: Beduql distr., 1,300 m a.s.l., i.–ii.2005, 1 ♂♂ 2 ♀♀, S. Jákl lgt. (ZJPC). – **JAVA**: **JAWA BARAT PROVINCE**: Bibidlijan, 10.xi.1937, 3 ♂♂ 2 ♀♀, M. E. Walsch lgt. (ZMHB); Bogor, no date, 1 ♂, Handschin lgt. (ZMHB); Radjamandala, 1,200 m a.s.l., 6.xi.1937, 4 ♂♂, M. E. Walsch lgt. (ZMHB); Soekaboemi [= Sukabumi], 1 ♀, F. Weber lgt. (ZMHB). – **JAWA TIMUR PROVINCE**: Meru, Betiri Nat. Park, Malang-sari villeg, 20.v.–5.vi.1996, 1 ♂, S. Jákl lgt. (ZJPC). – **KALIMANTAN**: **KILIMANTAN SELATAN PROVINCE**: S. Kalimantan prov., Loksado 17 km NE, I.G. 31.175, 2 ♀♀, St. Jákl lgt. (ISNB). – **KILIMANTAN TIMUR PROVINCE**: Balikpapan, 1947/1948, 1 ♀, W. A. Mohler lgt. (ZMHB). – **MENTAWAI ISLANDS**: Nias Island, East coast, Lawlo, 26.ix.1979, 1 ♂, Ebner lgt. (EHIA). – **SUMATRA**: **RIAU PROVINCE**: Indragiri, 1899, 1 ♀, A. Mechel lgt. (ZMHB). – **SUMATERA BARAT PROVINCE**: Bukittinggi, hotel 'Bukit Tinggi View', 00°15'30"N 100°21'13"E, 980 m a.s.l., 19.–23.ii.2002, 1 ♀, T. Kothe lgt. (ZSMC); Mt. Singgalang, Annai valley env., 600 m a.s.l., v.2006, 12 ♂♂ 14 ♀♀, S. Jákl lgt. (ISNB, ZJPC). – **SUMATERA UTARA PROVINCE**: Dolak Ulu, Kora Kora, 20.ix.1979, 1 ♂ 1 ♀, Ebner lgt. (EHIA); Sidikalang, 02°41'51"N 98°18'18"E, 1,250 m a.s.l., 15.–17.ii.2002, 1 ♂ 1 ♀, T. Kothe lgt. (ZSMC); near Sipirok, Danau Marsaput, 01°37'50"N 99°20'30"E, 1,435 m a.s.l., 1 ♀, T. Kothe lgt. (ZSMC); S. Pomatang Siantar, 1,100 m a.s.l., 28.–29.x.1992, 1 ♀, E. de Bros lgt. (ZMHB). – **PHILIPPINES**: **LUZON**: IFUGAO PROVINCE: Mayoyao, viii.1988, 1 ♂ 1 ♀, P. Lays lgt. (ISNB). Ilicos NORTE PROVINCE: E of Salsona, 18°05'N 120°54'E, 1,450 m a.s.l., 31.iii.2000, 2 ♀♀, L. Dembický lgt. (MMBC). – **MINDANAO**: **SOUTH COTOBATO PROVINCE**: Lake Sebu, Mt. Tasaday, 6°18'N 124°42'E, v.–vi.1994, 1 ♂, P. Lays lgt. (ISNB); Lake Sebu, 6°13'N 124°42'E, 700 m a.s.l., at light trap (neon), 1.–15.i.1998, 1 ♂ 2 ♀♀, P. Lays lgt. (ISNB). **LANAO DEL NORTE PROVINCE**: Iligan, 1 ♀, W. Schulze lgt. (ZSMC). – **BUKIDNON PROVINCE**: Bukidnon, 1.–10.x.1988, 3 ♂♂ 1 ♀, K. Černý lgt. (MMBC). – **NEGROS ISLAND**: **NEGROS ORIENTAL PROVINCE**: Camp Lookout, Dumaguete, 15.ii.–15.iv.1961, 1 ♂, T. Schneir & A. Reyes lgt. (AMNH). – **PALAWAN**: Irawan Forest, 1000 ft, swept, B.M. 1988–2, i.–ii. 1988, 1 ♀, J. H. Marting lgt. (BMNH); Mantalingajan Range, Pinigisan, approx. 600 m a.s.l., 31.viii.1961, 1 ♂, 8.ix.1961, 1 ♂, 9.ix.1961, 2 ♂♂ 2 ♀♀, all Noona Dan Expedition (ZMUC); Palawan, Irawan Forest, swept, 1,000 ft [= 305 m a.s.l.], i.–ii.1988, 1 ♀, J. H. Marhn lgt. (BMNH). – **TAWI TAWI ISLANDS**: Tarawakan, north of Batu Batu, 14.xi.1961, 3 ♀♀, Noona Dan Expedition (ZMUC); ditto, Lapid Lapid at Manalik Channel, 19.xi.1961, 1 ♀, Noona Dan Expedition (ZMUC).

Distribution. **Japan** (Honshu, Kyushu, Ryukyus) (SCOTT 1874, DISTANT 1883, UHLER 1897, BLÖTE 1931, MANNA et al. 1985, KERZHNER 2001, KOHNO et al. 2002, TOMOKUNI 2006; this paper), **Korea** (South, Chejudo Island) (LEE & KWON 1991, KWON et al. 2001, KERZHNER 2001), **China** (Fujian, Guangdong, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Xizang, Zhejiang, Hainan) (STÅL 1870, WALKER 1873, DISTANT 1903a, LIU 1981, HUA 2000, KERZHNER 2001; this paper), **Taiwan** (ESAKI 1926, BLÖTE 1931, KERZHNER 2001, RÉDEI et al. 2009; this paper), **Afghanistan** (KERZHNER 2001, no details; this paper), **Pakistan** (Khyber Pakhtunkhwa, Punjab) (AHMAD & ABBAS 1987; this paper), **India** (Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Madhya Pradesh, Meghalaya, Tamil Nadu, Uttarakhand, West Bengal) (DISTANT 1879a, 1903a; MAXWELL-LEROY 1909; SCHMIDT 1931; MANNA et al. 1985; ZAMAL & CHOPRA 1990; CHAKRABARTY et al. 1994; SAHA & BAL 2007; STEHLÍK 2007a; CHANDRA et al. 2012; CHANDRA & KUSHWAHA 2013; SINGH & BANYAL 2013; this paper), **Bhutan** (new record), **Nepal** (STEHLÍK 2004; this paper), **Sri Lanka** (WALKER 1873, KIRBY 1891; this paper), **Bangladesh** (WALKER 1873), **Myanmar** (DISTANT 1879b, 1903a; this paper), **Vietnam** (new record), **Laos** (STEHLÍK 2005a; this paper), **Cambodia** (new record), **Thailand** (DISTANT 1903b, STEHLÍK & JINDRA

2003; this paper), **Malaysia** (Peninsular Malaysia: Federal Territory of Kuala Lumpur, Kedah, Pahang, Penang, Selangor; Kalimantan: Sabah, Sarawak) (WALKER 1873, BREDDIN 1900; DISTANT 1903b; this paper), **Singapore** (new record), **Brunei** (new record), **Indonesia** (Bali, Java, Kalimantan, Mentawai Islands: Nias, Sumatra) (BURMEISTER 1834, 1835; STÅL 1855, as *Ph. bimaculata*, 1870; WALKER 1873; LETHIERRY 1888; BREDDIN 1901b; DISTANT 1903a; BLÖTE 1931; SCHMIDT 1931), **Philippines** (Basilan, Luzon, Mindanao, Negros, Palawan, Tawi Tawi Island) (BURMEISTER 1834, STÅL 1870, WALKER 1873, TAEUBER 1927; this paper).

Distributional records from Australia and Australian Region by BREDDIN (1900, 1901a), CASSIS & GROSS (2002), and VOIGT (2006) belong to *Ph. gutta famelica* (see e.g., STEHLÍK 2007a). The records of *Ph. gutta* from Sulawesi (BREDDIN 1901a), Timor (Blöte 1931), and Halmahera (BREDDIN 1900) apparently belong to *Ph. gutta famelica* as well. The record of *Ph. gutta famelica* from China: Sichuan by VOIGT (2006) represents a misidentification of *Ph. gutta gutta*.

Physopelta (Neophysopelta) gutta famelica Stål, 1863

Physopelta famelica Stål, 1863: 391 (description, distribution). SYNTYPE(S): ♂, Indonesia, Maluku Islands, Seram Island (NHRS, G. Lindberg, pers. comm.). Downgraded to subspecies of *Ph. gutta* by HUSSEY (1929).

Physopelta famelica: STÅL (1870): 100 (key to species, variability, catalogue, distribution); WALKER (1873): 18, 19 (key, variability, catalogue, distribution); LETHIERRY & SEVERIN (1894): 241 (catalogue, distribution); KIRKALDY (1905): 343 (distribution); DISTANT (1914): 341 (distribution); TAEUBER (1927): 176, 177 (differences from *Ph. lisae* and *Ph. roseni*, respectively); KUMAR (1968): 259–260 (morphology, genitalia, figures); MALIPATIL & KUMAR (1975): 113, 117, 122–124 (description of larval instars, figures, biology, distribution).

Physopelta gutta (partim): BREDDIN (1900): 161 (distribution; not distinguishing from *Ph. g. gutta*); BREDDIN (1901a): 19, 140 (distribution); BLÖTE (1931): 100 (record from Timor); TILLYARD (1926): 147 (short diagnosis, listed from Australia).

Physopelta gutta famelica: HUSSEY (1929): 31 (downgraded as subspecies of *Ph. gutta*, catalogue, distribution); BLÖTE (1931): 100 (distribution); BLÖTE (1938): 307 (distribution); STEHLÍK (1965a): 287 (taxonomy, distribution); KERZNER (2001): 246 (distribution); CASSIS & GROSS (2002): 626–627 (catalogue, distribution – mixed with *gutta famelica*); STEHLÍK (2005b): 1720–1721 (distribution); STEHLÍK (2007a): 117–118 (identification of *gutta* and *famelica*, distribution); RÉDEI et al. (2009): 15 (distribution).

Physopelta (Physopelta) gutta famelica: VOIGT (2006): 224 (key, distribution – mixed with *gutta gutta*).

Material examined. INDONESIA: SULAWESI: SULAWESI TENDAH: near Morowali, Ranu River Area, Lowland rain forest, 2 ♀♀, 27.i.–20.iv.1980, no collector (BMNH). SULAWESI UTARA: Gng. Ambang F.R. near Kotambagu, iii.1985, 2 ♀♀, R. Ent. Soc. London, Project Wallace (BMNH). – **LESSER SUNDA ISLANDS:** ALOR ISLAND: 5 km of Kalabahi, 1.–8.iii.2006, 2 ♀♀, S. Jákł lgt. (ZJPC). – **TIMOR ISLAND:** Timor West, Buracan env., 60 km SE of Kupang, 10.–21.ii.2006, 1 ♂ 1 ♀, S. Jákł lgt. (ZJPC). – **TANIMBAR ISLANDS:** YAMDNA ISLAND: Mams' village, 21 km of Soumlaki, 27.xi.–11.xii.2005, 1 ♀, J. Horák lgt. (MMBC), ditto, xii.2006, 2 ♂♂, S. Jákł lgt. (ZJPC); Lorulun village, 20 km NE of Saumlaki, 10.i.–5.ii.2007, 1 ♂ 1 ♀, S. Jákł lgt. (ZJPC). – **PAPUA:** Guega, W of Baliem Valley, 1,300 m a.s.l., 15.xi.1958, 1 ♂, J. L. Gressitt lgt. (BMNH); Jayapura area, W. Sentani, Cyclops Mts., 150–250 m a.s.l., 25.vi.1959, 7 ♂♂ 5 ♀♀, J. L. Gressitt & T. Maa lgt. (BMNH); Jayapura-Kotanica; 25.–28.ii.1959, 1 ♀, T. C. Maa lgt. (BMNH); Mabire [= Nabire] env., xi.2003, 1 ♂ 2 ♀♀, local collector (ZJPC); River Tor (mouth), 4 km E of Hol Maffin [= Maffin], 1.vi.1959, on M.V. light, 1 ♂; 2.vii.1959, at light, 1 ♀, T. C. Maa lgt. (BMNH); Hol Maffin [= Maffin], E of Sarmi, 18.vii.1959, 4 ♂♂ 3 ♀♀, T. C. Maa lgt. (BMNH); Sentani, ±50 m a.s.l., 22.vi.1959, on M.V. light trap, 2 ♂♂ 1 ♀, Gressitt & Maa lgt. (BMNH); Waris, south of Jayapura, 450–500 m a.s.l., 1.–7.viii.1959, 3 ♂♂ 1 ♀, T. C. Maa lgt. (BMNH). **BIAK ISLAND:** Mniher, 00°43'29"S 135°46'31"E, 16.–22. xii.2006, 1 ♂, S. Bilý lgt. (NMPC). – **PAPUA NEW GUINEA:** **CENTRAL PROVINCE:** Owen Stanley Range, Goilala: Tapini, 975 m a.s.l., 16.–25.xi.1957, 1 ♂, W. W. Brandt lgt. (BMNH); Owen Stanley Range, Goilala: Coloipa, 16.–30.i.1958, 1 ♂, W. W. Brandt lgt. (BMNH). – **EASTERN HIGHLANDS PROVINCE:** Kainatu,

25.–30.ix.1959, 1 ♀, T. C. Maa lgt. (BMNH). – **EAST NEW BRITAIN PROVINCE:** Nakanai Mts., Ti, 1 ♀, 28.vii.1956, E. J. Ford Jr. lgt. (BMNH); Gasele Peninsula: Bainings: St. Paul, 350 m a.s.l., 5.ix.1955, 2 ♀♀, 7.ix.1955, 3 ♂♂ 1 ♀, J. L. Gressitt lgt. (BMNH). – **MILNE BAY PROVINCE:** Woodlark I. (Murua), Kulumadou Hill, 28.–30.i.1957; 1 ♂ 1 ♀; 3.ii.1957, 1 ♂ 2 ♀♀; 10.ii.1957, 4 ♂♂ 1 ♀; 16.ii.1957, 1 ♀; 25.ii.1957, 4 ♂♂; 16.iii.1957, 1 ♀; 7.–13.iv.1957; 3 ♂♂ 2 ♀♀, all W. W. Brandt lgt. (BMNH). – **MOROBE PROVINCE:** Bulolo, 732 m a.s.l., 31.ix.1956, 1 ♀, E. J. Ford lgt. (BMNH); Huon Peninsula, Boana, 4.–5.ix.1956, Boana Mission, 2 ♀♀, E. J. Ford Jr. lgt. (BMNH); Salawaket Range, Tuwep, 1,356 m a.s.l., 8.ix.1956, on light trap, 1 ♂ 1 ♀, E. J. Ford Jr. lgt. (BMNH); Salawaket Range, Sepalakambang, 1,920 m a.s.l., 15.x.1956, 1 ♀, E. J. Ford Jr. lgt. (BMNH). – **MADANG PROVINCE:** Baiteta, many data in 1996, many specimens, O. Missa lgt. (ISNB). – **WEST SEPIK PROVINCE:** Torricelli Mts., Hobitei, 750 m a.s.l., 5.–15.iii.1959, 1 ♂, W. W. Brandt lgt. (BMNH); Eliptamin Valley, 1,200–1,350 m a.s.l., 19.–30.vi.1959, 1 ♂, W. W. Brandt lgt. (BMNH); Feramin, 150–200 m a.s.l., 15.–18.vi.1959, 1 ♂, W. W. Brandt lgt. (BMNH). – **AUSTRALIA: QUEENSLAND:** N Queensland, Julatten, 15.–22.x.1979, 1 ♂, E. Gowing-Scopes lgt., P. Kment det. (BMNH); N Queensland, Karama Range, Darlingston, rain forest, 2–3000 ft [= 610–914 m a.s.l.], ii.1958, 2 ♀♀, V. Kardwell lgt. (AMNH); Queensland, Mt. Maroon, S Rathionwines, 27.i.1973, 7 ♂♂ 3 ♀♀, M. Baehr lgt. (ZSMC); S Queensland, Broadwater Lagoon, ca. 35 km SS Dalby, 16.–17.xii.1998, 1 ♂, M. Baehr lgt. (ZSMC).

Distribution. **Indonesia** (Sulawesi; Lesser Sunda Islands: Alor, Timor; Maluku Islands: Buru, Halmahera, Seram; Tanimbar Islands: Yamdena; Aru Island; West Papua; Papua (including Biak Island)) (Stål 1863; Walker 1873; Breddin 1900, 1901a, both as *Ph. gutta*; Distant 1914; Stehlík 2005b; this paper), ‘**New Guinea**’ (Stål 1870, no detail), **Papua New Guinea** (incl. New Britain Island, Woodlark Island) (Montrouzier 1855, Walker 1873, Kirkaldy 1905; this paper), **Australia** (New South Wales, Northern Territory, Queensland, Victoria) (Stål 1870, Blöte 1931, Malipatil & Kumar 1975, Cassis & Gross 2002). The record from China: Sichuan by Voigt (2006) represents a misidentification of *Ph. gutta gutta*.

The record from Solomon Islands (Malaita Island) (Stehlík 1965a) is an error, actually belonging to one so far undescribed species.

Comment. *Physopelta woodlarkiana* (Montrouzier, 1855) was considered as conspecific with *Ph. gutta famelica* since Lethierry & Severin (1894). Because the identity of *Ph. woodlarkiana* was somewhat doubtful (cf. Hussey 1929), most authors used the junior name *Ph. gutta famelica* as valid. *Physopelta woodlarkiana* in fact represents a distinct species and it is reinstated in the present paper (see below).

Physopelta (Neophysopelta) indra Kirkaldy & Edwards, 1902

Physopelta indra Kirkaldy & Edwards, 1902: 165 (diagnosis, differences from *Ph. quadriguttata*, distribution).

SYNTYPES: ♂♀, India, Puducherry, Mayyazhi (former Mahé) District (depository unknown).

Note. There are no syntypes of this species in BMNH. There are 1 ♂ 2 ♀♀ from the type locality deposited in MNHN (see Material examined), moreover the paper by Kirkaldy and Edwards was based on specimens from collection of A. M. Montandon, but we found no evidence the specimens are the syntypes.

Physopelta indra: Distant (1903a): 98 (synonymized with *Ph. quadriguttata*).

Physopelta quadriguttata (partim): Bergroth (1913): 167 (catalogue, synonym of *Ph. quadriguttata*).

Physopelta indra: Tauber (1927): 176 and 177 (as distinct species; differences from *Ph. lisae* and *Ph. roseni*);

Hussey (1929): 31–32 (catalogue, distribution); Stehlík (2007b): 134 (distribution).

Additional material examined. **INDIA:** South India, T. V. Campbell Coll., B.M. 1930–599, no date, 1 ♂, no collector (BMNH). – **KARNATAKA:** Ablathi, 12°17'N 17°06'E, ca. 800 m a.s.l., x.1984, 1 ♀, W. Lorenz lgt. (ZSMC); Bangalore [= Bengaluru], Atkinson Coll., 92–6, no date, 1 ♂, no collector (BMNH); Chikkaballapura, no date, 1 ♂, T. V. Campbell lgt. (BMNH); 20 km SE Segar, 14°06.37'N 75 08.93'E, 12.v.2005, 1 ♀, M. Halada lgt. (ZJPC). – **PUDUCHERRY: MAYYAZHI DISTRICT:** Mahé [= Mayyazhi], 1902, 1 ♂ 2 ♀♀, M. Maindron lgt. (MNHN). – **TAMIL NADU:** S. India, Alagar [= Azhagar]

Kovil, Madura Dt., B.M.-C.M. Expedn. to S. India, 1936, Brit. Mus. 1936-512, 20.iii.1936, 1 ♀, no collector (BMNH); Mons [= Mt.] Kodikanel [= Kodaikanal], 1898, 1 ♂, coll. Noualhier (MNHN); Tenmalai, Travancore, 12.–15.x.1937, 1 ♂, B.M.-C.M. Exp. to South India (BMNH). – **MYANMAR**: KACHIN: N.E.Burma, Waingman [= Waingmaw], Brit. Mus. 1935-630, 15.iii.1934, 1 ♂, R. Malaise lgt. (BMNH). – **SRI LANKA**: Dambula env., 300 m a.s.l., 19.iv.–9.v.1991, 2 ♂♂ 2 ♀♀, J. Kolibáč lgt. (ZSMC); Trincomalee, xi.1906, 1 ♀, no collector (BMNH).

Distribution. **India** (Karnataka; Kerala; Puducherry: Mayyazhi District; Tamil Nadu) (KIRKALDY & EDWARDS 1902; this paper), **Sri Lanka** (new record), **Myanmar** (new record), **Laos** (STEHLÍK 2007b).

HUSSEY (1929) listed distribution of this species as Burma, referring to the original description, which was an evident mistake.

Physopelta (Neophysopelta) kotheae Stehlik & Jindra, 2008

Physopelta kotheae Stehlik & Jindra, 2008a: 622, 625–627 (description, figures). HOLOTYPE: ♂, Indonesia, Sumatra, Sumatera Barat Province, Bukittinggi, hotel Bukit Tinggi View, 00°15'30"S 100°21'13"E (ZSMC).

Distribution. **Indonesia** (Sumatra, Java) (STEHLÍK & JINDRA 2008a).

Physopelta (Neophysopelta) lisae Taeuber, 1927

Physopelta lisae Taeuber, 1927: 175–177 (description, distribution). HOLOTYPE: ♂, Philippines, North Luzon, Mt. Banahao, 2,000 ft [= 610 m a.s.l.] (BMNH).

Physopelta lisae: HUSSEY (1929): 32 (catalogue, distribution).

Type material examined. HOLOTYPE: ♂ (BMNH): ‘Type [p, white round label with red margin] // N. Luzon 2000' / Mt. Banahao / leg. G. Böttcher [p] / revers: 8.6.14 [hw, white label] // HOLOTYPE / PHYSOPELTA / LISAE, 1927 / TAEUBER [hw, red label] // Taeuber Coll. / B.M. 1949-474. [p, white label] // PHYSOPELTA / LISAE sp. n. [hw, white label]. The specimen is pinned through right corium; both antennomeres 4, left fore and middle leg missing, disk of pronotum partly damaged by a hole.

Additional material examined. **PHILIPPINES**: **SAMAR**: EAST SAMAR PROVINCE: Borongan, 3 ♂♂ 1 ♀, W. Schulze lgt. (2 ♂♂ 1 ♀ BMNH: coll. Taeuber; 1 ♂ NHMB).

Distribution. **Philippines**: Luzon (TAEUBER 1927), Samar (new record).

Physopelta (Neophysopelta) melanopyga melanopyga Blöte, 1938

Physopelta melanopyga Blöte, 1938: 307–308 (description, distribution). HOLOTYPE: ♂, Indonesia, Maluku Islands, Buru, Station 5 (RMNH, confirmed by Y. van Nierop, pers. comm.).

Physopelta melanopyga melanopyga: STEHLÍK & JINDRA (2008a): 628 (identification of *Ph. melanopyga melanopyga* and *Ph. melanopyga rufifemur*).

Distribution. **Indonesia**: Maluku Islands: Buru (BLÖTE 1938).

Physopelta (Neophysopelta) melanopyga rufifemur Stehlik & Jindra, 2008

Physopelta melanopyga rufifemur Stehlik & Jindra, 2008a: 626–629 (description, figures). HOLOTYPE: ♀, Indonesia, Maluku Islands, Seram, Solea 12 km SE of Wahai (EHIA).

Distribution. **Indonesia**: Maluku Islands: Seram (STEHLÍK & JINDRA 2008a).

Physopelta nigripes sp. nov.

(Fig 42)

Type locality. Philippines, no details available.

Type material. HOLOTYPE: ♂, 'Ins. Philipp, Semper' (NHRS). The holotype is pinned through scutellum, left antennomere 4 and hind leg missing. PARATYPE: ♀, the same data as holotype (NHRS).

Description. Colouration (Fig 42). The following body parts are black: head, antennae (except more than basal half of antennomere 4), first labial segment, callar lobe (except anterior and lateral margin), pronotal lobe (except lateral margin), scutellum, clavus (except base), irregularly delimited middle spot spreading from inner margin of corium to its lateral margin, apical corial spot (not reaching apex of corium), most of membrane, thoracic sterna, femora, tibiae, tarsi, sternites II and VII, dorsal and ventral laterotergite VII, crescent-shape lateral spots on bases of abdominal sternites IV–VI, and pygophore. Labial segments II–IV, anterior margin of callar lobe (arcuately), lateral margins of both callar and pronotal lobe, pronotal epipleuron, corium (except central and apical spot), apex of corium, sternites III–VI, ventral and dorsal laterotergites (except laterotergite VII), coxae, and trochanters red. Membrane basally widely whitish-yellow, medially with black spot, and with whitish spot near apex of corium (more distinct in the male holotype than in the female paratype); black colouration on posterior margin of membrane merging into grey.

Pilosity. Head and sterna with prominent silvery pubescence.

Punctuation. Callar lobe with regular, distinct, dense black punctures; clavus covered with punctures except its base. Inner side of costal margin of corium with rows of concolorous punctures; corium otherwise without punctures except a single row of black punctures along cubital vein.

Structure. Body smaller, narrow, parallel-sided (Fig 42). Antennomeres shorter in female than in male. Callar lobe strongly gibbose in male, only slightly gibbose in female. Posterior pronotal lobe with median keel (most distinct anteriorly), in male flat, in female slightly raising towards posterior margin. Male profemora ventrally with prominent, broadly separated teeth and small denticles along its entire length. (Fore legs missing in the female paratype). Mesofemora in male ventrally with a row of denticles, in female unarmed. Protibiae with larger teeth and a row of small denticles along most of its length (except ca. basal third). Ventral wall of pygophore markedly convex medially in lateral view.

Measurements (in mm): Male (holotype). Body length 15.39; head: width (including eyes) 2.16, interocular width 1.30; lengths of antennomeres: 1 – 3.08, 2 – 3.08, 3 – 1.89, 4 – 3.29; pronotum: length 3.46, width 4.16; scutellum: length 2.00, width 2.45; corium: length 7.51, width 1.89.

Female (paratype). Body length: 14.74; head: width (including eyes) 2.16, interocular width 1.30; lengths of antennomeres: 1 – 2.65, 2 – 2.43, 3 – 1.57, 4 – absent; pronotum: length 3.40, width 3.83; scutellum: length 2.21, width 2.11; corium: length 7.24, width 1.89.

Differential diagnosis. *Physopelta nigripes* sp. nov. is most similar to *Ph. melanopyga* (both sharing black sternite VII), but it is easy to distinguish (besides other characters) from that species by having femora, tibiae, and tarsi black (in *Ph. m. melanopyga* tibiae and tarsi are red, in *Ph. melanopyga rufifemur* legs are completely red – see STEHLÍK & JINDRA 2008a).

Etymology. The species epithet is noun in apposition, composed of the Latin adjective *niger*, -a, -um (= black) and the Latin noun *pes*, -(d)is (= leg).

Distribution. Philippines (precise locality unknown).

Physopelta (*Neophysopelta*) *parviceps* Blöte, 1931

Physopelta parviceps Blöte, 1931: 100 (description, figure, distribution). HOLOTYPE: ♂, Japan (RMNH, confirmed by Y. van Nierop, pers. comm.).

Physopelta albofasciata (misidentification): MATSUMURA (1905): 26 (distribution).

Physopelta cincticollis (supposed misidentification): SCOTT (1874): 291 (distribution); SCOTT (1880): 306 (distribution); ESAKI (1926): 157 (distribution); ESAKI (1952): 230 (redescription, habitus, distribution); MIYAMOTO (1965): 232 (distribution); MIYAMOTO (1970): 265 (distribution); ISHIHARA et al. (1974): 72 (distribution); MANNA et al. (1985): 621–630 (chromosomes, figures, distribution); MIYAMOTO & YASUNAGA (1989): 179 (checklist: Japan); TOMOKUNI (1989): 190 (distribution); TOMOKUNI (1993): 59, 197 (redescription, habitus, biology); KOHNO et al. (2002): 393 (distribution).

Physopelta parviceps: STEHLÍK & KERZHNER (1999): 122 (identification of *parviceps* and *cincticollis*); KERZHNER (2001): 246 (catalogue, distribution); RÉDEI et al. (2009): 13, 15–17, 48 (redescription, key, figures, distribution).

Physopelta (*Physopelta*) *parviceps*: VOIGT (2006): 224–225 (key, distribution).

Material examined. JAPAN: AMAMI ISLAND: Hatsuno, 2.vi.1973, 2 ♀♀, 11.vi.1973, 1 ♂ 1 ♀, H. Miyazaki lgt. (ZJPC). – HONSHU: HYOGO PREFECTURE: Mt. Minomo, 1 ♂, coll. N. Banks (AMNH). OSAKA PREFECTURE: Mt. Iwasaki, 11.vii.1981, 1 ♂, H. Miyazaki lgt. (ZJPC). TOKYO PREFECTURE: env. of Tokio, 1906, 1 ♀, E. Callois lgt. (MNHN); – KYUSHU: Kiushu, 23.viii.1940, 1 ♂, no collector (BMNH). FUKUOKA PREFECTURE: Hikosan (Buzen), 29.viii.1950, 1 ♂ 1 ♀, K. Yasumatsu lgt. (MNHN). – TAIWAN: HUALIEN COUNTY: Huairen, Fuyen, south of Kuanfu Shueshan Mts., 250 m a.s.l., 15.v.2001, 2 ♀♀, K. Schönlitzer lgt. (ZSMC) – NANTOU Co.: Puly Yüchin, Sun Moon Lake, 29.v.–13.vi.1993, 1 ♂ 2 ♀♀, J. Dalihod lgt. (ZJPC); Road No. 14, NE Puli, Reyenshi, Reg. Meifeng, 24°06'N 121°10'E, 2,200 m, 1 ♀, 9.–11.xi.2002, 1 ♀, W. Schlacht lgt. (ZSMC). – NEW TAIPEI COUNTY: Shiueshan, Fushan Botanical Garden, 24°46'N 121°35'E, 17.–22.vi.2000, 1 ♂ 1 ♀, W. Schlacht lgt. (ZSMC). – PINGTUNG COUNTY: Shuangliu, 175 m a.s.l., 16.–18.v.2001, 1 ♀, K. Schönlitzer lgt. (ZSMC).

Distribution. Japan (Honshu, Kyushu, Shikoku, Ryukyus, Tsushima) (as *Ph. cincticollis*: SCOTT 1874, 1880; MATSUMURA 1905; MIYAMOTO 1970; ISHIHARA et al. 1974; MANNA et al. 1985; MIYAMOTO & YASUNAGA 1989; TOMOKUNI 1989; KOHNO et al. 2002; as *Ph. parviceps*: BLÖTE 1931; STEHLÍK & KERZHNER 1999; this paper), Taiwan (as *Ph. cincticollis*: ESAKI 1926, MIYAMOTO 1965; as *Ph. parviceps*: STEHLÍK & KERZHNER 1999; RÉDEI et al. 2009; this paper).

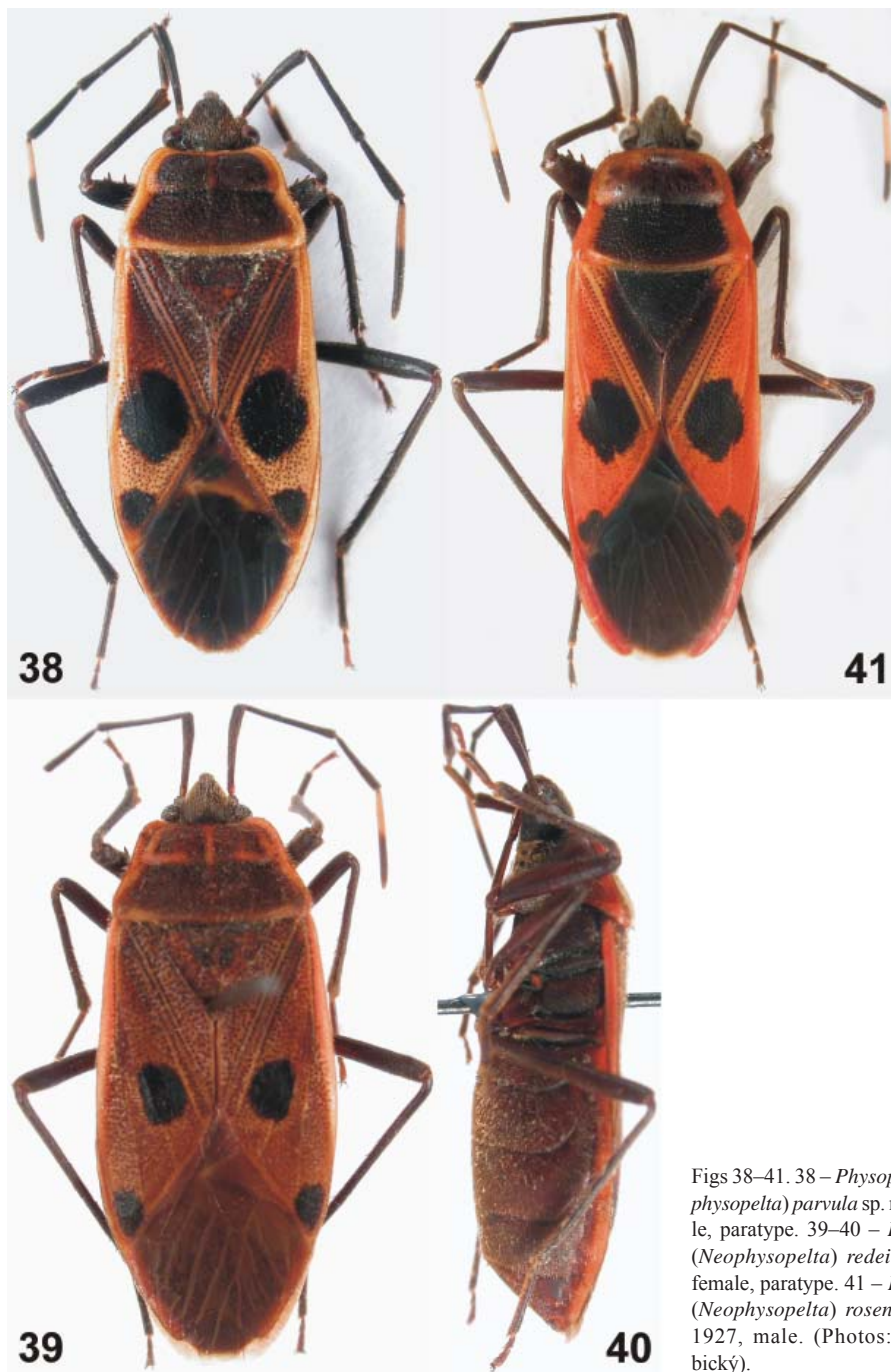
According to STEHLÍK & KERZHNER (1999) and KERZHNER (2001), old records of *Ph. albofasciata* and *Ph. cincticollis* from Japan and Taiwan refer to *Ph. parviceps*; that opinion was accepted also by RÉDEI et al. (2009). However, as the occurrence of *Ph. cincticollis* in Japan and Taiwan is confirmed in this paper, the older records require verification.

Physopelta (*Neophysopelta*) *parvula* sp. nov.

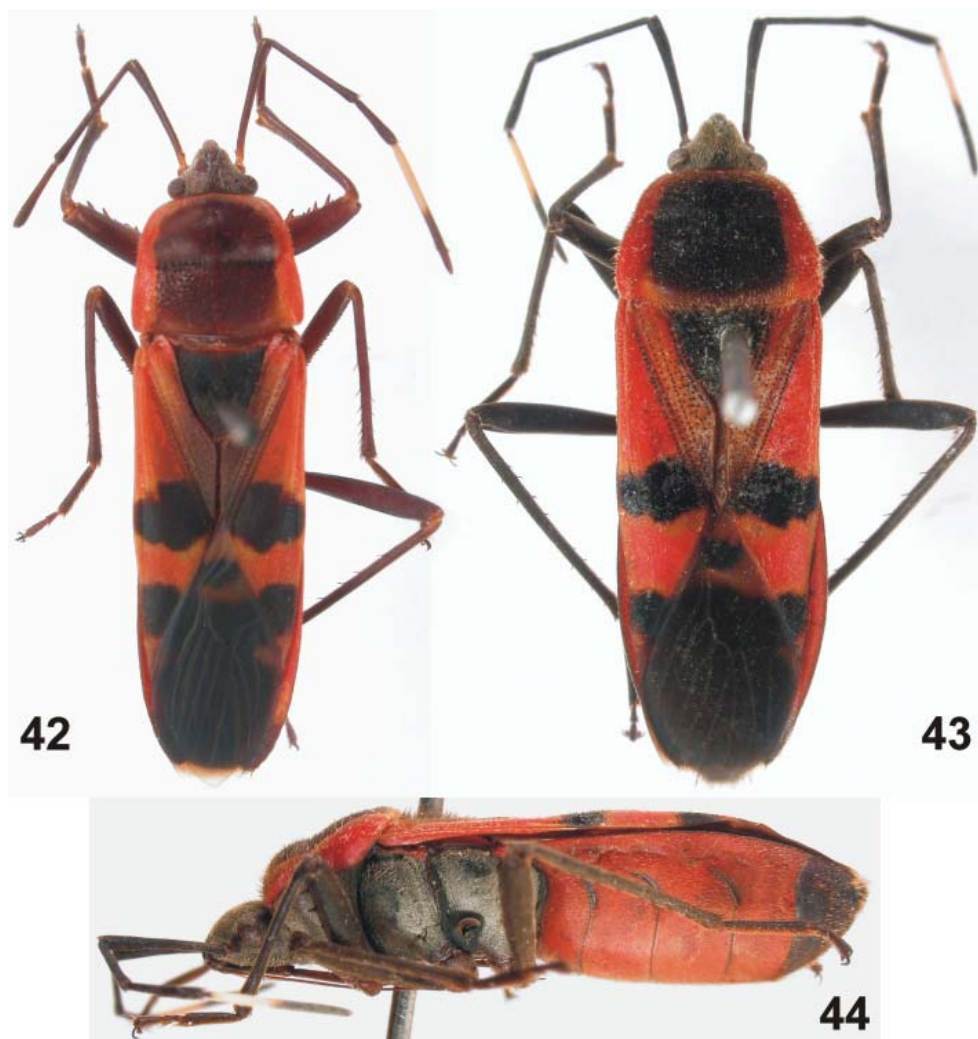
(Fig. 38)

Type locality. Vietnam, Thua Thien Province, Bach Ma National Park (16°12'N 107°52'E).

Type material. HOLOTYPE: 1 ♂, VIETNAM: THUA THIEN PROVINCE: 'Coll. I.R.Sc. N.B. / Bach-Ma N. P. / 16°12'N 107°52'E / 12.–17.vii.2011, Night Collecting, / leg. Constant & J. Basseel / I.G. 31.933' [p, yellow label] // '♂' [p, small white label] // 'Holo- / typus' [p, red label with black frame submarginally] // '*Physopelta* / *parvula* / sp. n. [hw, underlined] / det. J.L.Stehlik [p] 2012 [hw]' [red label with black frame] (ISNB). Holotype is glued on white card, left antennomeres 2–4, left protarsus, and right metatarsus missing. PARATYPES: VIETNAM: QUANG TRI PROVINCE:



Figs 38–41. 38 – *Physopelta* (*Neophysopelta*) *parvula* sp. nov., female, paratype. 39–40 – *Physopelta* (*Neophysopelta*) *redeii* sp. nov., female, paratype. 41 – *Physopelta* (*Neophysopelta*) *roseni* Taeuber, 1927, male. (Photos: L. Dembický).



Figs 42–44. 42 – *Physopelta* (*Neophysopelta*) *nigripes* sp. nov., male, holotype. 43–44 – *Physopelta* (*Neophysopelta*) *sulawesiensis* sp. nov., female, holotype. (Photos: L. Dembický).

1 ♂, Da Krong Nat. R., 16°37'N 108°47'E, 5.–10.vii.2011, light trap, J. Constant & J. Brasseel lgt., I.G. 31.933 (IRSB). VINH PHUC PROVINCE: 1 ♂ 1 ♀, Tam Dao N.P., 25.–28.viii.2010, light trap, J. Constant & Limbourg lgt., I.G. 31.668' (1 ♂ in MMBC, 1 ♀ in IRSB).

Description. Colouration (Fig. 38). Following body parts are black: antennae (except basal half of antennomere 4), head dorsally and ventrally, pronotum (except anterior, lateral, and

posterior margins), scutellum, large round central spot and large triangular apical spot on corium, most of membrane (except base), labium, ventral surface of thorax and abdomen (except ventral laterotergites), and legs. Basal half of antennomere 4 whitish except very base which is narrowly black. Anterior, lateral, and narrowly also posterior margin of pronotum, pronotal epipleuron, costal margin of corium, corial surface between central and apical spots, and ventral and dorsal laterotergites, orange. Clavus and corium anteriorly of the central spot darkened. Basal spot on membrane grey.

Pilosity. Entire body covered with dense, black, semierect setae.

Punctuation. Pronotal lobe, scutellum, clavus, and corium with distinct black punctures (Fig. 38).

Structure. Body smaller, elongate-oval. Profemora apically on ventral surface with two large and one small teeth, and a series of small, slightly curved denticles along its entire length.

Measurements (in mm). Males ($n = 3$). Body length: 10.68 (10.53–10.75); head width (including eyes) 1.80 (1.78–1.84), interocular width 1.10 (1.08–1.11); lengths of antennomeres: 1 – 1.69 (1.67–1.73), 2 – 1.91 (1.89–1.94), 3 – 1.37 (1.35–1.40), 4 – 2.27 (2.27–2.27); pronotum: length 2.16 (2.11–2.21), width 3.42 (3.40–3.46); scutellum: length 1.67 (1.67–1.67), width 2.00 (1.94–2.11); corium: length 5.45 (5.18–5.62), width 1.78 (1.67–1.94).

Female ($n = 1$). Body length: 11.50; head width (including eyes) 1.94, interocular width 1.19; lengths of antennomeres: 1 – 1.89, 2 – 2.05, 3 – 1.51, 4 – 2.38; pronotum: length 2.32, width 3.73; scutellum: length 1.78, width 2.27; corium: length 5.79, width 1.94.

Differential diagnosis. *Physopelta parvula* sp. nov. strongly resembles *Ph. cincticollis*, but differs in having its callar lobe without a longitudinal median pale line (in *Ph. cincticollis* the callar lobe is medially divided by a pale line) and smaller size. For comparison, measurements of males and females of *Ph. cincticollis* are given here (in mm):

Male ($n = 5$). Body length: 10.43 (9.94–10.80); head width (including eyes) 1.84 (1.78–1.92), interocular width 1.12 (1.08–1.19); lengths of antennomeres: 1 – 1.72 (1.62–1.84), 2 – 1.91 (1.89–1.94), 3 – 1.35 (1.24–1.46), 4 – 2.23 (2.16–2.32); pronotum: length 2.15 (2.00–2.21), width 2.94 (2.28–3.40); scutellum: length 1.77 (1.67–1.89), width 2.19 (1.94–2.59); corium: length 5.57 (5.08–6.16), width 1.88 (1.78–2.00).

Female ($n = 5$). Body length: 12.00 (11.45–12.53); head width (including eyes) 2.00 (1.92–2.05), interocular width 1.16 (1.08–1.30); lengths of antennomeres: 1 – 1.96 (1.94–2.05), 2 – 2.11 (2.00–2.16), 3 – 1.51 (1.46–1.57), 4 – 2.31 (2.11–2.59); pronotum: length 2.41 (2.32–2.54), width 3.99 (3.89–4.10); scutellum: length 1.93 (1.84–2.05), width 2.36 (2.21–2.54); corium: length 6.47 (6.37–6.64), width 2.23 (2.05–2.38).

Etymology. The species epithet is the Latin adjective *parvulus*, *-a*, *-um*, meaning little or petty.

Bionomics. The type specimens were collected in primary forests, specifically a subtropical moist evergreen low mountain forest in Tam Dao National Park, a tropical lowland forest on limestone in Da Krong National Park, and a moist evergreen tropical forest in Bach Ma National Park (J. Constant, pers. comm). Some of the specimens were collected at light.

Distribution. Northern and central Vietnam (this paper).

***Physopelta* (*Neophysopelta*) *quadriguttata* Bergroth, 1894**

Physopelta quadriguttata Bergroth, 1894: 160–161 (description, distribution). SYNTYPES: ♀♀, India, Sikkim (MZHF?).

Physopelta quadriguttata: KIRKALDY & EDWARDS (1902): 165 (differences from *Ph. indra*); DISTANT (1903a): 98 (redescription, distribution; including *Ph. indra*); BERGROTH (1913): 167 (catalogue); ESAKI (1926): 157 (distribution); TAEUBER (1927): 176 and 177 (differences from *Ph. lisae* and *Ph. roseni*); HUSSEY (1929): 32 (catalogue, distribution); BLÖTE (1931): 100 (distribution); LIU (1981): 223–224, pl. 28 (key, redescription, figure); MANNA et al. (1985): 621–630 (chromosomes, figures, distribution); Hu & Gui in ZHANG (1995): 111 (redescription, habitus, distribution, biology); HUA (2000): 187 (check-list, host plant, distribution); KERZHNER (2001): 246 (catalogue, distribution); STEHLÍK & JINDRA (2003): 7 (distribution); STEHLÍK (2004): 3 (distribution); MIYAMOTO et al. (2005): 11–12 (habitus, distribution); STEHLÍK (2005a): 144–145 (distribution); STEHLÍK (2007a): 127 (habitus, variability); RÉDEI et al. (2009): 13–14, 17, 48 (redescription, key, figures, distribution); VOTÝPKA et al. (2010): 246 (distribution); CHANDRA & KUSHWAHA (2012): 253 (distribution); ZHU et al. (2012): 195–198 (ecology, distribution).

Physopelta (*Physopelta*) *quadriguttata*: VOIGT (2006): 224 (key, distribution).

Material examined. CHINA: HAINAN: Jianfengling Mts., Tiachi Lake env., Bishu villa, 18°44'40"N 108°50'41"E, 950 m a.s.l., at light, 9.–11.v.2011, 1 ♂, M. Fikáček, V. Kubeček & L. Li lgt. (NMPC); Limushan Mts., first administr. Centre, 19°10'30"N 109°44'33"E, 630 m a.s.l., at light, 4.–6.v.2011, 1 ♀, M. Fikáček, V. Kubeček & L. Li lgt. (NMPC). – SICHUAN: Baoxing, 100 km N of Yaan, 12.–17.vii.1995, 1 ♀, Z. Jindra lgt. (ZJPC); 70 km NW Chengdu, Qingohenghou Shan Mts., 1,500 m a.s.l., 6.–13.viii.2010, 3 ♂♂ 2 ♀♀, S. Murzin lgt. (NMPC); Qingchenghou Shan Mts., 70 km NW Chengdu, 1500 m a.s.l., 6.–13.viii.2010, 3 ♂♂ 2 ♀♀, S. Murzin lgt. (NMPC). – YUNNAN: Xima, Rk 12, 14°49'N 97°44'E, 2,080 m a.s.l., 11.vi.2001, 1 ♂, Deuve, Mantilleri, Rougerie & Tian lgt. (MNHN). – TAIWAN: CHIAYI COUNTY: Fenchihu, 1,400 m a.s.l., 3.v.1977, 1 ♂, S. Klapperich lgt. (EHIA). – HUALIEN COUNTY: S corner, Coastal Range SE of Fuli, 23°09'N 121°17'E, 500 m a.s.l., 12.–16.xi.2008, 36 ♂♂ 20 ♀♀, L. Dembický lgt. (MMBC); Hueisun, Experimental Forest Station, 700 m a.s.l., 3.viii.2002, 1 ♂, K. Schönlitzer lgt. (ZSMC). – NANTOU COUNTY: Meifeng, 24°05'25"N 121°10'21"E, 2,200 m a.s.l., 10.–11.v.2001, 1 ♂, K. Schönlitzer lgt. (ZSMC); ditto, 2,100 m a.s.l., 10.–11.ix.2002, 3 ♂♂ 6 ♀♀, K. Schönlitzer lgt. (ZSMC). – PINGTUNG COUNTY: Pintung, Halen, Pettawushan, trail of 1,500 m a.s.l., 1.v.1992, 3 ♂♂, A. Smetana lgt. (MHNG). – TAITUNG COUNTY: 14 km W of Chihshang, 23°11'09"N 121°04'21", 900 m a.s.l., 16.xi.2008, 20 ♂♂ 42 ♀♀, L. Dembický lgt. (MMBC, NMPC, BMNH). – VIETNAM: LAM DONG PROVINCE: Da Lat, 1,500 m a.s.l., 14.x.1988, 1 ♂ 1 ♀, 15.x.1988, 5 ♂♂ 3 ♀♀, T. Vászrhelyi lgt. (HNHM). – LAO CAI PROVINCE: 17 km Dang Khao, 29.xi.1931, 1 ♀, Topál & Matskasi lgt. (HNHM); Sa Pa, v.1990, 3 ♂♂ 2 ♀♀, Duong Tat Tu & J. Picka lgt. (NMPC); Tonkin, Chapa [= Sa Pa], v.1916, 1 ♂ 1 ♀, R. V. de Salvaza lgt. (BMNH). – NGHE AN PROVINCE: Nghe An, 19°42.798'N 104°46.015'E, 800 m a.s.l., 8.–9.xi.1999, 1 ♂ 1 ♀, Kasai lgt. (HNHM). – SON LA PROVINCE: Moe Chau [= Moc Chau], 800 m a.s.l., on light: 24.x.1986, 1 ♂, 25.x.1986, 1 ♀, 26.x.1986, 1 ♂, T. Vászrhelyi lgt. (HNHM). – VINH PHU PROVINCE: Tam Dao, 8 km N of Hanoi, xi.1986, 1 ♂, P. Bilek lgt. (ZJPC); Tam Dao, 900 m a.s.l., 17.–21.iii.1990, 1 ♀, 17.–21.v.1990, 1 ♀, J. Horák lgt. (NMPC); J. Horák lgt. (NMPC); 18.v.2007, 1 ♂, V. Socha lgt. (NMPC). – YEN BAI PROVINCE: Luc Yen, 300 m a.s.l., 18.xi.1971, 1 ♀, Topál & Matskasi lgt. (HNHM). – LAOS: ATTAPEU PROVINCE: Annam Highlands Mts., Dong Ampan NBCA, Nong Fa (crater lake) env., 15°05.9'N 107°25.6'E, ca. 1,160 m a.s.l., 30.iv.–4.v.2010, 3 ♀♀, J. Hájek lgt. (NMPC). – HOA PHAN PROVINCE: Ban Saluei, Phu Phan Mt., 20°13'N 103°59'E, 1,300–2,000 m a.s.l., 6.–18.iv.2005, 1 ♀, J. Bezděk lgt., Z. Jindra det. (NMPC); 30 km S of Xam Neua, Phou Pan Mt., 1,500 m a.s.l., 6.–17.v.2004, 1 ♀, P. Kresl & F. Kantner lgt. (ZJPC); Phu Phan Mt., 20°12'N 104°01'E, 1,500–1,900 m a.s.l., 17.v.–3.vi.2007, 7 ♂♂ 5 ♀♀, M. Brancucci & V. Kubán lgt. (MMBC, NMPC); Ban Saluei → Phou Pane Mt., 20°12'–13.5'N 103°59.5'–104°01'E, 1340–1870 m a.s.l., 15.iv.–15.v.2008, Lao collectors lgt. (NMPC). – THAILAND: MAE HONG SON PROVINCE: Soppong, 19°27'N 98°20'E, 1,500 m a.s.l., 15.–17.xi.1996, 2 ♂♂ 2 ♀♀, S. Bečvář lgt. (MMBC).

Distribution. China (Anhui, Fujian, Guangdong, Guangxi, Henan, Hubei, Hunan, Jiangxi, Sichuan, Yunnan, Xizang, Zhejiang, Hainan) (LIU 1981, Hu & Gui in ZHANG 1995, KERZHNER 2001, VOTÝPKA et al. 2010; this paper), Taiwan (ESAKI 1926, KERZHNER 2001, RÉDEI et al. 2009; this paper), Japan (Ryukyus) (MIYAMOTO et al. 2005), India (Madhya Pradesh, Nagaland,

Sikkim, West Bengal) (BERGROTH 1894, DISTANT 1903a, BLÖTE 1931, MANNA et al. 1985, CHANDRA & KUSHWAHA 2012), **Nepal** (STEHLÍK 2004), **Thailand** (STEHLÍK & JINDRA 2003; this paper), **Laos** (STEHLÍK 2005a; this paper), **Vietnam** (new record).

A record from Puducherry: Mayyazhi District (India) by DISTANT (1903a) belonging to *Ph. indra*, was erroneously considered as a junior synonym of *Ph. quadriguttata* in that paper.

***Physopelta (Neophysopelta) redeii* sp. nov.**

(Figs 39–40)

Type locality. Thailand, Nan Province, Doi Phu Kha National Park.

Type material. HOLOTYPE: ♂, ‘Thailand Doi Phuka / N.P. at lighth, 3.xi.2004 / A.Orosz, M.Földváy / & L. Papp’ [p white label] // ‘Holo- / typus’ [p, red label with black frame submarginally] // ‘*Physopelta / redeii* / sp. n. [hw, underlined] / J.L. Stehlik det. [p] 2008 [hw]’ [red label with black frame] (HNHM). The holotype is pinned on a black-enameled pin with head; left antennomere 4, left metatarsus, and right mesotarsus missing. PARATYPES: 2 ♀♀, the same data as holotype (1 ♀ HNHM, 1 ♀ MMBC).

Description. Colouration (Figs 39–40). Head, antennae (except ca. basal half of antennomere 4), callar lobe (except lateral margins), pronotal lobe, central and apical spot on corium, membrane, labium, thoracic sterna, legs, and abdominal sternites black. Lateral margins of pronotum, callar lobe laterally, posteriorly, and medially, posterior pronotal margin, scutellum, clavus, corium, pronotal epipleuron, and ventral and dorsal laterotergites, orange. Basal half of antennomere 4 whitish. Black central spot on corium smaller, situated between cubitus and media; posterior spot oval, not prolonged to apex of corium.

Pilosity. Body dorsally, sternites, and tibiae covered with silvery pubescence. Tibiae in both sexes with semierect black spines.

Punctuation. Callar lobe laterally emarginated with black punctures; entire disc of pronotal lobe with dense, very distinct black punctures; punctures on scutellum less distinct, developed on entire surface of clavus and on corium (except its costal margin).

Structure. Pronotum sexually dimorphic: in male callar lobe strongly gibbose with lateral margins not insinuated medially; in female callar lobe weakly gibbose with lateral margins slightly insinuated medially and distinctly widening posteriorly (Fig. 39). Labium reaching mesocoxae. Male profemora ventrally with longitudinal furrow developed along its entire length, on ventral margin of the furrow with 8 remote teeth, on dorsal margin apically with three small denticles, one large tooth, and close to it another very large, curved, and apically indented tooth. Male protibiae in apical two-thirds with distinct denticles on ventral surface. Meso- and metafemora in male ventrally with a row of small denticles along their entire length. Females with teeth on profemora reduced compared to male, ventral margin of longitudinal furrow only with very small denticles, on dorsal margin with two large and somewhat remote straight teeth, the more apical one being larger. Protibiae, meso- and metafemora of females ventrally without denticles.

Measurements (in mm). Male (holotype). Body length 15.28; head: width (including eyes) 2.21, interocular width 1.30; lengths of antennomeres: 1 – 2.48, 2 – 2.70, 3 – 1.84, 4 – 2.81; pronotum: length 3.40, width 5.13; scutellum: length 2.16, width 3.02; corium: length 7.49, width 2.97.

Females (n = 2). Body length 15.07 / 15.12; head: width (including eyes) 2.27 / 2.32, interocular width 1.40 / 1.30; lengths of antennomeres: 1 – 2.32 / 2.32, 2 – 2.59 / 2.70), 3 – 1.67 / 1.84, 4 – missing / 2.46; pronotum: length 2.86 / 2.70, width 5.24 / 4.86; scutellum: length 2.43 / 2.43, width 2.97 / 3.02; corium: length 7.40 / 8.21, width 2.92 / 2.97.

Differential diagnosis. *Physopelta redeii* sp. nov. most resembles *Ph. kotheae* distributed in Sumatra and Java. However, *Ph. kotheae* is smaller (♂♂ 12.80–14.84 mm, ♀♀ 13.55–14.63 mm) than the new species, its antennomeres are shorter, lateral margin of pronotum is narrower, callar lobe is distinctly gibbose in both sexes, meso- and metafemora are ventrally provided with a series of denticles in both sexes, lateral margins of pronotum and costal margins of corium are whitish, black central spot on corium is larger (laterally reaching nearly to costal margin), approaching the apical black spot, and body is dorsally covered by erect black hairs. In contrast, *Ph. redeii* sp. nov. is larger (♂ 15.28 mm, ♀♀ 15.07–15.12 mm), its antennomeres are longer, lateral margin of pronotum is wider, callar lobe is sexually dimorphic (only slightly gibbose in female), meso- and metafemora are provided ventrally with a series of denticles only in males but unarmed in females, lateral margins of pronotum and costal margins of corium are orange, black central spot on corium is smaller, more remote from the apical black spot, and body is dorsally covered by silvery pubescence. In colouration the new species resembles *Jindraia dimorphica*, but differs from the latter species by the characters given in the key to genera (see above).

Etymology. I name the new species in honour of Dávid Rédei (Hungarian Natural History Museum, Budapest), a young heteropterist and specialist of the family Reduviidae.

Distribution. Northern Thailand (this paper).

Physopelta (Neophysopelta) roseni Taeuber, 1927

(Fig. 41)

Physopelta roseni Taeuber, 1927: 177–178 (description, distribution). HOLOTYPE: ♂, Philippines, North Luzon, Baguio, 4,600 ft [= 1402 m a.s.l.] (BMNH).

Physopelta roseni: HUSSEY (1929): 32 (catalogue, distribution).

Type material examined. HOLOTYPE: ♂ (BMNH): ‘Type [p, white round label with red margin] // Nord-Luzon / Bagulo 4600’ / leg. G. Böttcher [p, white label] // HOLOTYPE / PHYSOPELTA / ROSENI / TAEUBER 1927 [hw, red label] // Taeuber Coll. / B.M. 1949-474 [p, white label] // PHYSOPELTA / ROSENI sp. n. [p, white label]’. The specimen is pinned through right corium, complete. ALLOTYPE: ♀ (BMNH), ‘Type [p, white round label with red margin] // Nord-Luzon / Bagulo 4600’ / leg. G. Böttcher [p, white label] // ALLOTYPE / PHYSOPELTA / ROSENI / TAEUBER 1927 [hw, red label] // Taeuber Coll. / B.M. 1949-474 [p, white label]’. The specimen is pinned through right corium, complete. PARATYPE: ♀ (BMNH), ‘Paratype [p, white round label with yellow margin] // N. Luzon 4000’ / Balaban / leg. G. Böttcher [p, white label] // Taeuber Coll. / B.M. 1949-474 [p, white label] // PARATYPE / PHYSOPELTA / ROSENI / TAEUBER 1927 [hw, red label]’. The specimen pinned through scutellum with spread wings; left hemelytron detached, glued on separate piece of card; left antenna, left hind leg, and right antennomere 4 missing.

Additional material examined. PHILIPPINES: LUZON: ABRA/KALINGA PROVINCE: N. Luzon, Kalinga – Apayas / Abra prov. boundary, Cordillera Centr., around pass at 17°30'N 121°00'E, 1600±100 m a.s.l., 26.–28. iii.2000, 18 ♂♂ 8 ♀♀, L. Dembický lgt. (MMBC, 1 ♂ 1 ♀ BMNH, 1 ♂ 1 ♀ NMPC). LAGUNA PROVINCE: Los Banos, Mt. Maquilang, 50 m a.s.l., 6.vii.1948, 1 ♀, B. Balesterong lgt. (MMBC).

Distribution. Philippines (Luzon) (TAEUBER 1927).

***Physopelta (Neophysopelta) sita* (Kirby, 1891)**

Dindymus sita Kirby, 1891: 104–105, pl. IV: fig. 18 (description, figure, distribution). SYNTYPES: Sri Lanka, Pundaloya (BMNH).

Dindymus sita: LETHIERRY & SEVERIN (1894): 247 (catalogue); DISTANT (1903a): 113 (redescription); DISTANT (1910): 97 (insisting on the generic placement in *Dindymus*).

Physopelta sita: BREDDIN (1909): 296 (new combination, distribution); BERGROTH (1913): 167 (catalogue); HUSSEY (1929): 33 (catalogue, distribution).

Type material examined. SYNTYPES: ♂ (BMNH), ‘Type [p, white round label with red circle submarginally] // avers: Dindymus / Sita Kb. / type [hw] / revers: Ceylon. / Green Coll. / 90-115. [p, white label] // 160 [hw, greyish label]’. The specimen is pinned through scutellum, right antenna and all legs on right side missing. – ♂ (BMNH), ‘avers: Dindymus / Sita / Kb. cotype [hw] / revers: Ceylon. / Green Coll. / 90-115. [p, white label] // 110 [hw, greyish label] // Pundaloya / Ceylon. [p, white label]’. The specimen is pinned through scutellum, left antennomere 4, left middle leg, right antennomeres 3 and 4, right protarsomeres 2 and 3, and entire mesotarsus missing.

Additional material examined. SRI LANKA: Dambula, 300 m a.s.l., 19.iv.–9.v.1991, 9 ♂♂ 14 ♀♀, J. Kolibáč lgt. (ZSMC); Diyatalawa, xii.1900, 1 ♂, no collector, P. Kment det. (BMNH); Henaratgoda, 14.ii.1902, 1 ♂, Dr. Uzel lgt. (NMPC); Kandy, 30.iii.1902, 1 ♂ 1 ♀, Dr. Uzel lgt. (NMPC); ditto, 31.i.1978, 2 ♀♀, Plössl lgt. (EHIA); ditto, 600 m a.s.l., 1.–18.iv.1991, 1 ♂, J. Kolibáč (ZSMC); Maskeliya, no date, 1 ♂, no collector, P. Kment det. (BMNH); Peradeniya, x.1900, 1 ♀, no collector, P. Kment det. (BMNH); ditto, 22.xi.1901, 1 ♂, 30.xii.1901, 1 ♀, 13.i.1902, 1 ♂, ii.1902, 1 ♀, 26.iii.1902, 1 ♂, all Dr. Uzel lgt. (NMPC); Trincomalee, xi.1906, 2 ♀♀, no collector, P. Kment det. (BMNH); Uda Walawe, Sugarcane Research Institute, in sugarcane field, 17.iv.1968, 1 ♀, C.I.E. A4578, no collector, M. S. K. Ghauri det, P. Kment revid. (BMNH).

Distribution. Sri Lanka (KIRBY 1891, BREDDIN 1909).

***Physopelta (Neophysopelta) slanbuschii* (Fabricius, 1787)**

Cimex Slanbuschii Fabricius, 1787: 299–300 (description, distribution). SYNTYPES: 5 spec., China (ZMUC; see ZIMSEN 1964).

Cimex Slanbuschii: GMELIN (1790): 2172 (diagnosis); ZIMSEN (1964): 327 (types).

Lygaeus schlanbuschii (incorrect subsequent spelling): FABRICIUS (1794): 155–156 (new combination, redescription, distribution);

Lygaeus Schlanbuschii (incorrect subsequent spelling): FABRICIUS (1803): 222 (diagnosis, distribution).

Pyrrhocoris Schlangenbuschii (incorrect subsequent spelling): BURMEISTER (1835): 286 (new combination, diagnosis, distribution).

Dysdercus schlanbuschii: UHLER (1861): 229 (new combination, distribution).

Physopelta Schlangbuschi (incorrect subsequent spelling): STÅL (1861): 195 (list of species);

Physopelta Schlanbuschii (incorrect subsequent spelling): STÅL (1863): 391 (catalogue, distribution); STÅL (1868): 80 (catalogue, distribution); STÅL (1870): 100 (catalogue, distribution); WALKER (1873): 18, 20–21 (key, variability, catalogue, distribution); DISTANT (1879a): 127 (distribution); LETHIERRY & SEVERIN (1894): 242 (catalogue, distribution); DISTANT (1903a): 99 (redescription, distribution); MATSUMURA (1905): 27 (distribution); MAXWELL-LEFROY (1909): 325 (distribution).

Physopelta schlanbuschi (incorrect subsequent spelling): MANNA et al. (1985): 621–630 (chromosomes, figures, distribution); GHOSH et al. (1989): 207 (catalogue, distribution); CHAKRABARTY et al. (1994): 35 (differential diagnosis, distribution); SINGH & BANYAL (2013): 1056 (distribution).

Physopelta slanbuschi (incorrect subsequent spelling): SEN et al. (1998): 331, 333–334, 339–340 (checklist, key, diagnosis, distribution).

Physopelta slanbuschii: KIRKALDY & EDWARDS (1902): 165 (catalogue, distribution); HUSSEY (1929): 33 (catalogue, distribution); BLÖTE (1931): 100 (distribution); SCHMIDT (1931): 46 (distribution); LIU (1981): 222, 224, pl. 28 (key, redescription, figure); ZAMAL & CHOPRA (1990): 7, 10–11 (redescription, figures, distribution); Hu & Gui in ZHANG (1995): 111–112 (redescription, habitus, distribution, biology); STEHLÍK (2004): 4 (distribution); STEHLÍK

& JINDRA (2003): 8 (distribution); STEHLÍK (2005a): 145 (distribution); RÉDEI et al. (2009): 12, 14, 18 (key, figure, distribution); ZHU et al. (2012): 195–198 (ecology, distribution).

Physopelta slanbuschii (incorrect subsequent spelling): HUA (2000): 187 (check-list, host plants, distribution).

Physopelta (Physopelta) slanbuschii: VOIGT (2006): 224 (key, distribution).

Neophysopelta schlanbuschi (incorrect subsequent spelling): AHMAD & ABBAS (1987): 135–136, 141–142 (new combination, redescription, figures, host plant, distribution).

Neophysopelta schlanbuschii (incorrect subsequent spelling): PERVEEN & AHMAD (1991): 161–162, 164 (key, differential diagnosis).

Neophysopelta neoschlanbuschii Perveen & Ahmad, 1991: 162–164 (key, description, figures, differential diagnosis, distribution). HOLOTYPE: ♂, India, Puducherry, Karaikal Territory, Karumbagarans [= Kurumbagaram] (USNM).

New synonym.

Material examined. **BHUTAN:** Boutan, no date, 1 ♀, no collector (BMNH). – **INDIA:** **PUDUCHERRY:** **KARIKAL TERRITORY:** Kurumbagaram, x.1945, 2 ♂♂ 1 ♀, iv.1946, 2 ♀♀, iv.1947, 1 ♀, P. S. Nathan lgt. (NMPC). – **TAMIL NADU:** Coimbatore [= Koimbatour], xii.1945, 2 ♀♀, P. S. Nathan lgt. (NMPC). – **NEPAL:** **NARAYANI ZONE:** Chitwan Roy. Nat. Park., Sauraha village, 27.35N 84.30E, 166 m a.s.l., at light, 1 ♀, D. Král lgt., P. Kment det. (NMPC). – **MYANMAR:** **KACHIN:** Myitkyina, 1945, 5 ♂♂ 1 ♀, D. N. Marks lgt. (AMNH). – **SAGAING:** Alaundaw Kathapa NP, 1.5 km SW Log Cabin Camp, Pagoda Road, 20°18.902'N 94°28.060', 400 m a.s.l., semi-evergreen forest near Pagoda Stream, sifting moist leaf litter, 6.v.2003, 1 ♀, H. Schillhammer lgt., P. Kment det. (NHMW). – **VIETNAM:** **HA NAM PROVINCE:** Tonkin, Rég. d'Hanoi, Chiné, prés Phu-Ly [= Phu Ly], 1909, 3 ♀♀, L. Dupont lgt., P. Kment det. (MNHN). – **HOA BINH PROVINCE:** Tonkin, Hoabinh, x.1916, 1 ♂, R. V. de Salvaza lgt. (BMNH). – **NINH BINH PROVINCE:** Cue Phuong, 23.–25.v.1986, 1 ♀ (with black metafemora), V. Švihla lgt. (NMPC). – **SONG BÉ PROVINCE:** Ca-Na env., 700–900 m a.s.l., 1923, 1 ♀, Palane lgt. (MNHN). – **LAOS:** **ATTAPEU PROVINCE:** Annam Highlands Mts., Dong Ampan NBCA, Nong Fa (crater lake) env., 15°05.9'N 107°25.6'E, ca. 1,160 m a.s.l., 30.iv.–4.v.2010, 2 ♀♀, J. Hájek lgt. (NMPC). – **DONG NAI PROVINCE:** Dong Nai Biosphere Res., I.G. 32.161, 11°18'N 107°06'E, 25.vi.–6.vii.2012, day collecting, 1 ♀, J. Constant & J. Bresseel lgt. (ISNB). – **KHAMMOUAN PROVINCE:** Ban Khoun Ngeun, 18°07'N 104°29'E, 250 m a.s.l., 4.–16.xi + 25.–30.xi.2000, 1 ♀, E. Jendek & P. Pacholátko lgt., P. Kment det. (NHMW). – **SEXONG PROVINCE:** ca. 51 km N Sekong, Ho Chi Minh trail, 15°48.1'N 106°39.4'E, ca. 580 m a.s.l., 13.–15.v.2010, 1 ♀, J. Hájek lgt. (NMPC). – **VIENTIANE PROVINCE:** Lao Pako env., 55 km NE of Vientiane, 200 m a.s.l., 1.–4.v.2005, 1 ♂, J. Bezděk lgt., Z. Jindra det. (NMPC). – **CAMBODIA:** **BUTTANGBANG PROVINCE:** Ptek Toa (Tonle Sap Lake), on light trap, 7.vii.2005, 1 ♂ 1 ♀, I. Var lgt. (ISNB). – **PREAH VIHEAR PROVINCE:** Phnom Kulen, light trap, 24.v.2003, 1 ♀, J. Constant & K. Smets lgt. (ISNB). – **SIEM REAP PROVINCE:** Prek, Toal (Tonle Sap Lake), light trap, 27.v.2003, 6 ♂♂ 3 ♀♀, K. Smets & Grootaert lgt. (ISNB); Siem Reap, light trap, 22.v.2003, 2 ♂♂ 4 ♀♀, J. Constant & K. Smets lgt. (ISNB); ditto, 23.v.2003, 2 ♂♂, K. Smets & J. Constant lgt. (ISNB); ditto, on light trap, 25.v.2006, 1 ♂ 4 ♀♀, J. Constant & K. Smets lgt. (ISNB); 8 km north of Sre Noi road to Along Vaeng, 29.v.2003, 2 ♀♀, J. Constant & K. Smets lgt. (ISNB); Angkor Thorn, day catch, 23.v.2003, 1 ♂, J. Constant & Grootaert lgt. (ISNB); Forest S of Angkor Wat, light trap, 26.iv.2005, 1 ♀, K. Smets & I. Var lgt. (ISNB). – **THAILAND:** **MAE HONG SON PROVINCE:** Northern – Pai, 1.–12.v.2001, 1 ♂, R. Kocina lgt., Z. Jindra det. (NMPC). – **NAKHON SI THAMMARAT PROVINCE:** Khao Luang, Banhan Sak Kah, 9.v.1922, 1 ♀, H. M. Pendelbury lgt., P. Kment det. (BMNH). – **MALAYSIA:** **PERAK:** Perak, no date, 1 ♂, Coll. Distant, P. Kment det. (BMNH).

Distribution. **Japan** (Ryukyus) (MATSUMURA 1905), **China** (Guangdong, Guangxi, Yunnan, Hainan) (FABRICIUS 1787, 1794; BURMEISTER 1835; UHLER 1861; STÅL 1863, 1870; WALKER 1873; DISTANT 1903a; LIU 1981; Hu & Gui in ZHANG 1995; HUA 2000; KERZHNER 2001; RÉDEI et al. 2009), **Pakistan** (Islamabad Capital Territory, Khyber Pakhtunkhwa, Punjab) (AHMAD & ABBAS 1987), **India** (Arunachal Pradesh, Assam, Bihar, Delhi, Himachal Pradesh, Jharkhand, Karnataka, Meghalaya, Orissa, Tamil Nadu, Puducherry: Karaikal Territory, Uttarakhand, Uttar Pradesh, West Bengal) (DISTANT 1879a, 1903a; MAXWELL-LEFROY 1909; BLÖTE 1931; SCHMIDT 1931; MANNA et al. 1985; AHMAD & ABBAS 1987; GHOSH et al. 1989; ZAMAL & CHOPRA

1990; PERVEEN & AHMAD 1991, as *Neophysopelta neoschlanbuschii*; CHAKRABARTY et al. 1994; SEN et al. 1998; SINGH & BANYAL 2013; this paper), **Bhutan** (new record), **Nepal** (STEHLÍK 2004; this paper), **Bangladesh** (AHMAD & ABBAS 1987), **Myanmar** (KIRKALDY & EDWARDS 1902, DISTANT 1903a), **Vietnam** (new record), **Laos** (BLÖTE 1931, STEHLÍK 2005a; this paper), **Cambodia** (VOIGT 2006; this paper), **Thailand** (STEHLÍK & JINDRA 2003; this paper), **Malaysia** (Malayan Peninsula: Pahang, Penang) (WALKER 1873; this paper).

The records from Taiwan (KERZHNER 2001) were not confirmed recently (RÉDEI et al. 2009).

Comment. PERVEEN & AHMAD (1991) distinguished *Neophysopelta neoschlanbuschii* from *Ph. slanbuschii* based on the following characters: ‘Size of black discal spot on corium larger, pronotal width distinctly less than $2\times$ its length; in male ventroposterior margin of pygophore slightly sinuate, lateral lobes of paramere comparatively broader, in female spermathecal duct with more number of coils’, whereas in *Ph. slanbuschii*: ‘Size of black discal spot on corium smaller, pronotal width slightly less than $2\times$ its length; in male ventroposterior margin of pygophore truncate, lateral lobe of paramere narrower, in female spermathecal duct with less number of coils’. I had possibility to examine several specimens of *Ph. slanbuschii* evidently belonging to the same series (NMPC, see Material examined) as the holotype and two male paratypes of *N. neoschlanbuschii*. The specimens represent *Ph. slanbuschii* without doubt. It is obvious that diagnostic characters listed by PERVEEN & AHMAD (1991) for *Neophysopelta neoschlanbuschii* fit to the considerable intraspecific variability of *Ph. slanbuschii*, particularly the size of the central spot on the corium. Therefore, *Neophysopelta neoschlanbuschii* Perveen & Ahmad, 1991 is here considered a junior synonym of *Ph. slanbuschii*.

Physopelta (Neophysopelta) sulawesiensis sp. nov.

(Figs 43–44)

Type locality. Indonesia, Sulawesi, Sulawesi Utara Province, Dumoga-Bone National Park.

Type material. HOLOTYPE: ♀, ‘Indonesia: / Sulawesi Utara / Dumoga-Bone N.P. / January 1985’ [p, white label] // ‘Ent. Soc. Lond. / Project Wallace B.M. 1985-10’ [p, white label] // ‘♀’ [p, white label] // ‘Holo- / typus’ [p, red label with black rectangle] // ‘Physopelta / sulawesiensis / sp. n. [hw, underlined] / det. J.L. Stehlik [p] 2012 [hw, red label]’ (BMNH). The holotype is complete, pinned on black-enameled pin without head. PARATYPES: **INDONESIA:** **SULAWESI:** SULAWESI TENGAH: Nr. Morowali, Ranu River area, lowland forest, 27.i.–20.iv.1980, at light, 1 ♂ 1 ♀, M. J. D. Brendell lgt. (BMNH); Mt. Tambusisi, 4,000 ft [= 1219 m a.s.l.], 1°39’S 121°21’E, 3.–13.iv.1980, at light, 1 ♀, M. J. D. Brendell lgt. (MMBC).

Description. Colouration (Figs 43–44). Head dorsally and ventrally, antennae (except basal half of antennomere 4), pronotum (except anterior and lateral margins), scutellum, wide middle transverse band with indistinct margins on corium at posterior apex of clavus, apices of corium, membrane, labium, prosternal collar, pleura I–III (including supracoxal lobes), posterior pleural flanges I–III, middle and hind legs, and entire sternite II, black. Anterior and lateral margins of pronotum, clavus, corium (except middle transverse band and apices), hypocostal lamina, and pronotal epipleuron, red. Basal half of antennomere 4 whitish. Fore legs in females entirely red, in males red, but dorsal side of profemora black; abdominal sternites III–VII in males red, in females III–VI red with S-shaped black spots in intersegmental membranes, and sternite VII completely black.

Pilosity more prominent in females than in males. Entire dorsal surface of body (except membrane) covered with silvery, rather long pubescence, especially on posterior margin of pronotum and on scutellum (Figs 43–44); pubescence on ventral surface of head more prominent than on its dorsal surface; sternum and sternites II densely covered with silvery hairs, mostly covering its black background; silver pubescence on remaining sternites sparser, not covering the red background.

Punctuation. Pronotal lobe and scutellum with dense concolorous punctuation; clavus with disperse prominent black punctuation anteriorly, and two rows of black punctures along outer margin; corium with two rows of black punctures along claval margin; middle transverse band of corium sparsely punctured.

Structure. Body large, parallel-sided. Male fore femora strongly incrassate, with larger and smaller denticles ventrally along their entire length in both sexes. Labium surpassing metacoxae. Sternite II in both sexes swollen.

Measurements (in mm). Male ($n = 1$). Body length 14.85; head: width (including eyes) 2.16, interocular width 1.30; lengths of antennomeres: 1 – 2.65, 2 – 2.81, 3 – 1.62, 4 – 3.24; pronotum: length 3.73, width 4.48; scutellum: length 2.43, width 2.48; corium: length 7.99, width 2.16.

Females ($n = 3$). Body length 15.48 (14.42–16.04); head: width (including eyes) 2.31 (2.29–2.32), interocular width 1.38 (1.35–1.40); lengths of antennomeres: 1 – 2.68 (2.59–2.81), 2 – 2.88 (2.81–2.97), 3 – 1.51 (1.46–1.57), 4 – 3.20 (3.08–3.29); pronotum: length 3.55 (3.46–3.56), width 4.70 (4.64–4.75); scutellum: length 2.65 (2.38–2.81), width 2.59 (2.48–2.70); corium: length 8.77 (8.42–9.02), width 2.30 (2.21–2.38).

Differential diagnosis. *Physopelta sulawesiensis* sp. nov. is recognized by its large size, prominent pubescence, and the characteristic sexual dimorphism in colouration of the abdominal sternites: sternites III–VII red in males; but sternites III–VI red with black S-shaped markings in intersegmental sulci, sternite VII black in females.

Etymology. The species epithet is an adjective, *sulawesiensis*, *-is*, *-e*, referring to Sulawesi Island, from which the new species is described.

Distribution. Indonesia (Sulawesi) (this paper).

Physopelta (Neophysopelta) trimaculata Stehlík & Jindra, 2008

Physopelta trimaculata Stehlík & Jindra, 2008a: 622, 627, 629–630 (description, figures, habitat). HOLOTYPE: ♂, India, Maharashtra, Mahabaleswar env., 70 km SSW of Pune, 1400 m a.s.l. (NMPC).

Distribution. India (Maharashtra) (STEHLÍK & JINDRA 2008a).

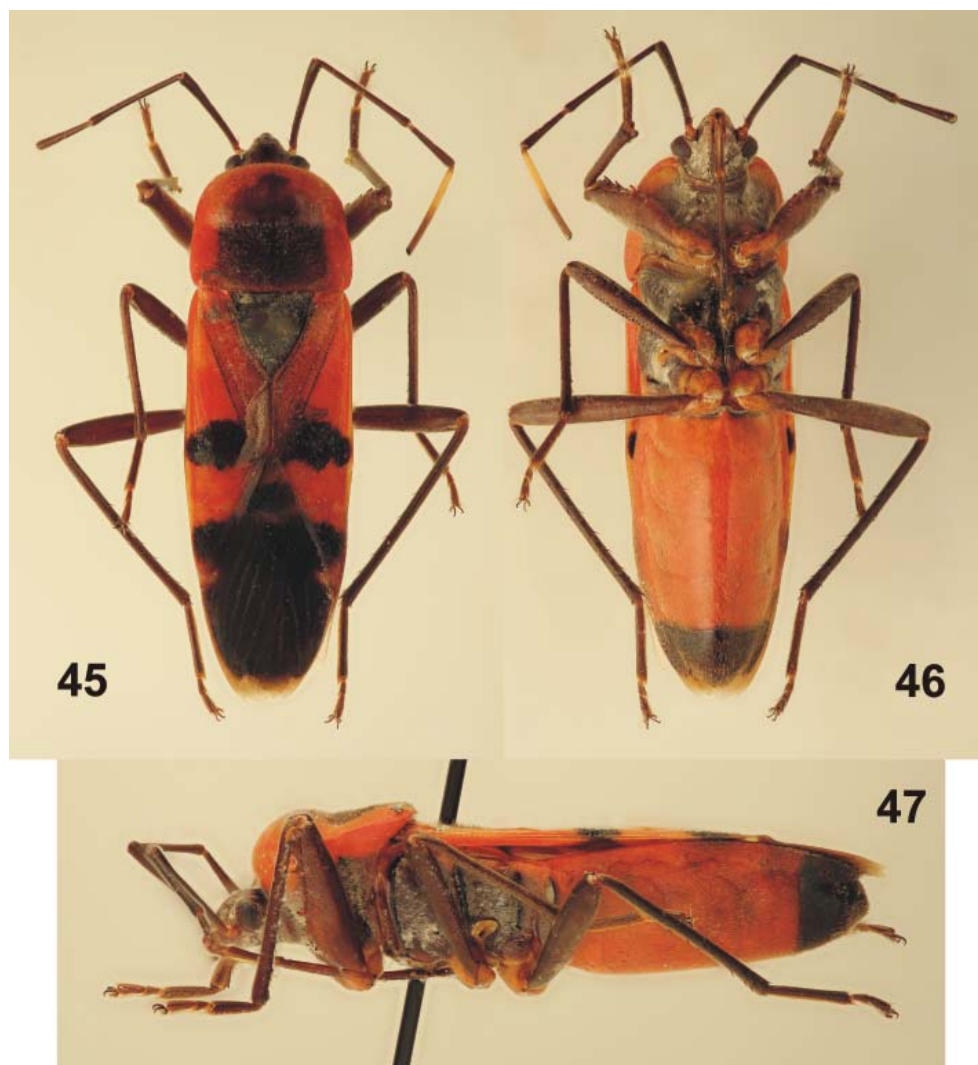
Comment. For differences with *Ph. confusa* Zamal & Chopra, 1990 see comment under that species.

Physopelta (Neophysopelta) woodlarkiana (Montrouzier, 1855) comb. nov.

(Figs 45–47)

Lygaeus Woodlarkianus Montrouzier, 1855: 105 (description, distribution). NEOTYPE: ♂, Papua New Guinea, Woodlark Island, Kulumadu Hill (BPBM, here designated).

Lygaeus Woodlarkianus: LETHIERRY & SEVERIN (1894): 241 (catalogue, as supposed synonym of *Ph. famelica*); KIRKALDY (1905): 343 (listed as supposed synonym of *Ph. famelica*); HUSSEY (1929): 31, 33 (catalogue, as supposed synonym of *Ph. famelica*).



Figs 45–47. *Physopelta* (*Neophysopelta*) *woodlarkiana* (Montrouzier, 1855), male, neotype. (Photos: P. Kment).

Type materil. NEOTYPUS: ♂, 'NEW GUINEA: PAPUA / Woodlark I. (Murua) / Kulumadu Hill / Jan. 28–30, 1957 [p, white label] // W. W. Brandt / Collector [p, white label] // ♂ [p, white label] // NEOTYPUS [p] / *LYGAEUS* / *WOODLARKIANUS* / Montrouzier, 1855 / des. J. L. STEHLÍK 2013 [p, red label]' (BPBM). The neotype is pinned on a black enameled pin with the head; the specimen is complete, only left metatarsomere 3 missing.

Additional material examined. PAPUA NEW GUINEA: WOODLARK ISLAND (= Murua), Kulumadu Hill, 4.–9.iii.1957, 1 ♂ 1 ♀, 9.–12.iii.1957, 2 ♀♀, W. W. Brandt lgt. (BPBM, 1 ♀ MMBC).

Redescription. Colouration (Figs 45–47). Head dorsally and ventrally, labium, antennae (except ca. basal half of antennomere 4), all femora, tibiae, and tarsi, callar lobe posteromedially and entire median part of pronotal lobe, scutellum, middle transverse band on corium, anteapical spot on corium, membrane (except of base and apex), thoracic sternum including supracoxal lobes I–III, entire sternite VII, pygophore and female terminalia, black. Middle transverse band on corium medially wide, narrowing toward margins. Membrane basally with two grey stripes emarginating a round black spot; apex of membrane pale. Callar lobe anteriorly and laterally, lateral margins laterally, clavus, remaining portions of corium, all coxae and trochanters, abdominal venter (except sternite VII), red. Intersegmental sulci of abdomen concolorous. Basal half of antennomere 4 whitish.

Structure. Callar lobe of male very strongly gibbose (Figs 45, 47), in female less gibbose. Lateral margins of callar lobe narrow, those of pronotal lobe very wide, both strongly rounded, pronotal margin medially straight in males, slightly concave in females. Median portion of pronotal lobe flat, medially with trace of longitudinal keel. Scutellum slightly cordiform. Male profemora incrassate in basal third (Figs 46–47), then regularly narrowing towards apex; ventral surface with a single row along entire length of profemur formed by 3–4 large teeth intermixed with denticles (position somewhat variable between the two males examined); longitudinal furrow on ventral surface short, reaching only midlength of profemur. Female profemur considerably more slender, with teeth shorter, restricted to apical portion of segment, nearly without small denticles. Protibia of male with small denticles ventrally and also with prominent teeth in apical portion; protibiae of female unarmed.

Punctuation. Median portion of posterior pronotal lobe with very distinct punctures; punctures on scutellum somewhat weaker than those on posterior pronotal lobe; clavus with a row of black punctures along both anterior and posterior margin and scattered punctures between them; corium with a row of black punctures on inner margin from base to middle transverse band; middle transverse band with very fine punctures.

Pubescence. Silvery pubescence on head, sternum (dense), and sternites (sparse); pronotum with sparse pubescence; pubescence on black median portion of pronotum black.

Measurements (in mm). Males ($n = 2$; neotype first). Body length 13.99 / 14.20; head: width (including eyes) 2.32 / 2.24, interocular width 1.24 / 1.27; length of antennomeres: 1 – 2.86 / 2.70, 2 – 3.08 / missing, 3 – 1.84 / missing, 4 – 2.70 / missing; pronotum: length 3.78 / 3.56, width 4.43 / 4.43; scutellum: length 2.38 / 2.32, width 2.43 / 2.43; corium: length 7.45 / 6.91, width 2.16 / 2.16.

Females ($n = 3$). Body length 14.06 (13.93–14.20); head: width (including eyes) 2.24 (2.21–2.29), interocular width 1.30 (1.30–1.30); length of antennomeres: 1 – 2.45 (2.27–2.65), 2 – 2.65 (2.54–2.81), 3 – 1.62 (1.62–1.62), 4 – 3.24 ($n = 1$); pronotum: length 3.35 (3.24–3.51), width 4.71 (4.32–5.43); scutellum: length 2.21 (2.16–2.27), width 2.48 (2.43–2.54); corium: length 8.13 (7.78–8.53), width 2.23 (2.16–2.27).

Differential diagnosis. *Physopelta woodlarkiana* differs from the sympatric *Ph. gutta famelica* by the black abdominal sternite VII (Fig. 47) (reddish in *Ph. gutta famelica*). *Physopelta woodlarkiana* differs from the remaining species of *Neophysopelta* with its black sternite VII (*Ph. melanopyga*, *Ph. nigripes* sp. nov., *Ph. sulawesiensis* sp. nov.) by the strongly incrassate basal portion of profemur with longitudinal furrow developed only in its apical portion. From

Ph. melanopyga it further differs by ventrites III–VI being red (Fig. 47) (in *Ph. melanopyga* ventrites III–VI have black spots laterally). In *Ph. woodlarkiana* the femora are black in both sexes, whereas in *Ph. sulawesiensis* sp. nov. the femora are red in both sexes except for the black dorsal side of the profemora in males.

Comment. LETHIERRY & SEVERIN (1894: 241) listed ‘?woodlarkiana’ as a supposed synonym of *Ph. famelica*, followed by KIRKALDY (1905). HUSSEY (1929) listed *Lygaeus woodlarkianus* in synonymy with *Ph. gutta famelica*, but remarked: ‘This species?’. MONTROUZIER (1855) provided only a brief description of the species; however, he explicitly mentioned that the abdomen of *Lygaeus woodlarkianus* is red with a black apex, a character which does not fit *Ph. gutta famelica*. Recent examination of material from the type locality (Woodlark Island) revealed the presence of two species, *Ph. gutta famelica* and another *Physopelta* (*Neophysopelta*) species with colouration pattern perfectly fitting the original description by MONTROUZIER (1855).

I tried to locate the type material of *Lygaeus woodlarkianus*. Part of Montrouzier’s collection was destroyed; the surviving Heteroptera specimens arrived via B. P. Perroud sen. and Perroud jr. to H. Schouteden (HORN et al. 1990: 269) and are currently deposited in ISNB (J. Constant, pers. comm.). However, no type specimen of *L. woodlarkianus* is currently present in ISNB (J. Constant, pers. comm.), and the type material is therefore considered lost. Because the identity of *L. woodlarkianus* cannot be ascertained from the original description without doubt, I hereby designate a neotype to clarify the identity of the species.

Distribution. Endemic of the Woodlark Island north of Papua New Guinea.

Subgenus *Physopeltoides* subgen. nov.

Type species. *Physopelta* (*Physopeltoides*) *dentipes* sp. nov., here designated.

Diagnosis. Body smaller (males 11.18–12.26 mm, females 11.39–12.47 mm). Antennomere 1 short, much shorter than both antennomere 2 and length of pronotum. Sexual dimorphism not expressed. Callar lobe distinctly gibbose in both sexes (Figs 60–61). Profemora of both sexes strongly incrassate (Figs 51, 60–61), ventral surface with longitudinal furrow, row of small denticles on each side of furrow, and two larger teeth antepically on dorsal surface (Figs 50–51). Tibiae ventrally unarmed in both sexes. Ventral sides of meso- and metafemora with small denticles along their entire length. Stridulatory organs lacking, procoxa ventrally without tubercle (Figs 48–49). Peritreme of metathoracic scent gland oriented longitudinally, crescent-shaped, projecting both anteriorly and posteriorly of ostiole (as on Figs 68–69). Paramere with apex short and narrow, outer margin basally with small angulate process (Figs 55–59).

Differential diagnosis. *Physopeltoides* subgen. nov. and *Neophysopelta* share the following characters, suggesting a possible sister relationship of both taxa: i) antennomere 1 shorter than antennomere 2; ii) profemora incrassate; iii) meso- and metafemora ventrally with longitudinal furrow of small denticles. However, in *Physopeltoides* subgen. nov. the characters ii) and iii) occur in both sexes, whereas in *Neophysopelta* these are developed only in males. *Afrophysopelta* subgen. nov. differs from *Physopeltoides* subgen. nov. In its profemora not incrassate and meso- and metafemora ventrally unarmed. On the other hand, *Afrophysopelta* subgen. nov. and *Physopeltoides* subgen. nov. share the same shape of peritreme and paramere.

Etymology. The name of the subgenus is derived from the nominotypical subgenus *Physopelta* using the Greek suffix *-oides*, meaning ‘resembling, similar to □; the gender is masculine.

***Physopelta (Physopeltoides) dentipes* sp. nov.**

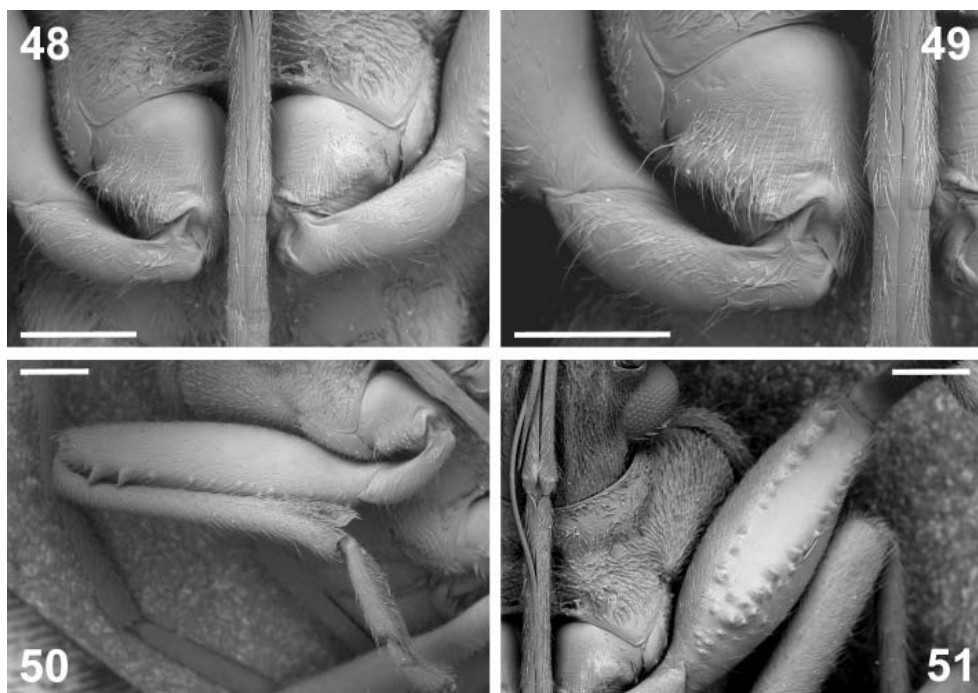
(Figs 48–61)

Physopelta melanopectera Distant, 1904 (*partim*): 61–62 (description, distribution).

Type locality. Uganda, Kasese province, Ibanda, 4,700 ft [= 1433 m a.s.l.].

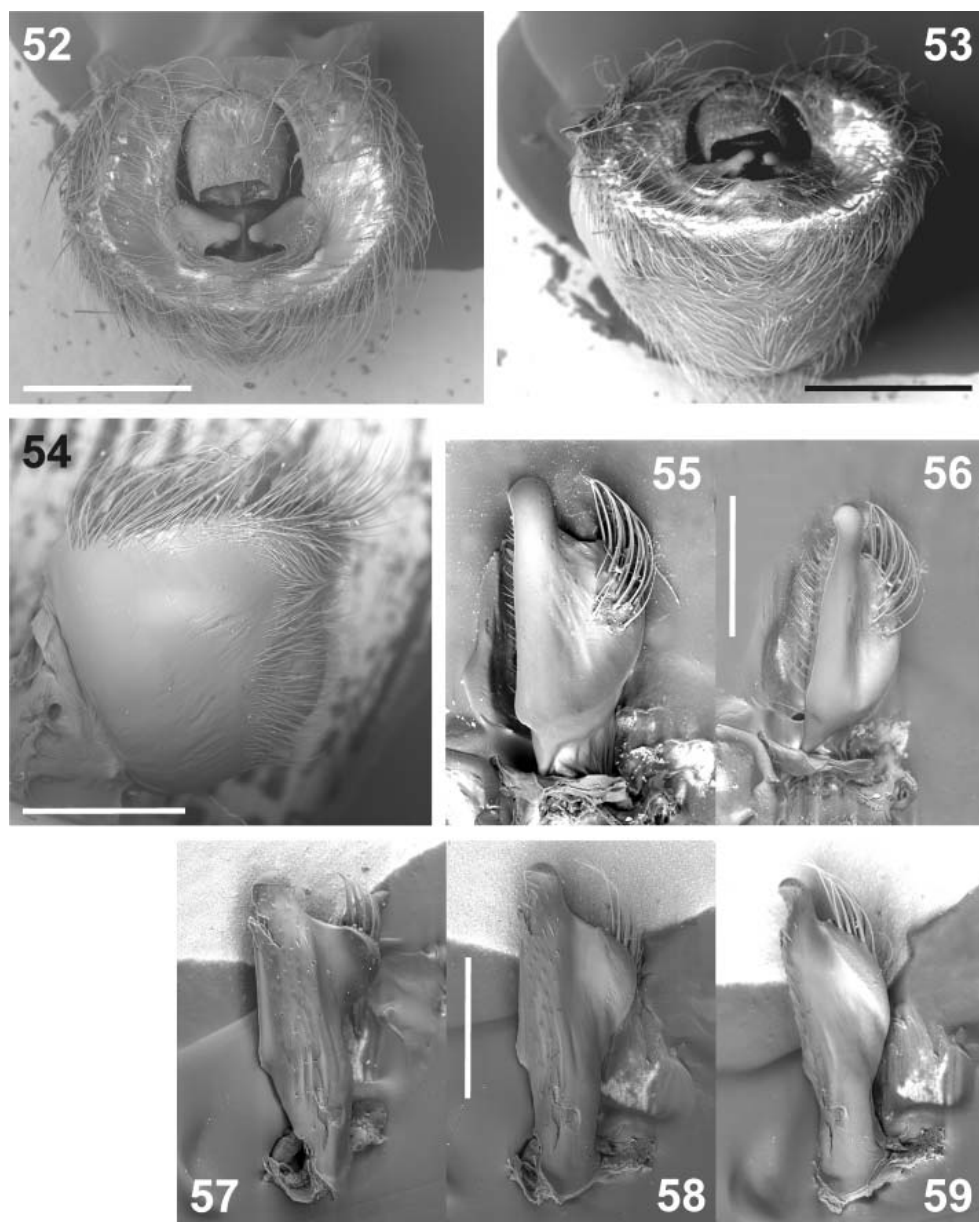
Type material. HOLOTYPE: ♂, ‘UGANDA: / Ruwenzori Range / Ibanda, 4,700ft. / 4-12.ix.1952. / D. S. Fletscher. [p, white label] // Ruwenzori Exped. / B.M. 1952-566. [p, white label] // ♂ [p, white label] // Holo- / typus [p, red label with black frame submarginally] // *Physopelta* / *dentipes* / sp. nov. [hw] / det. J. L. Stehlík [p] 2008 [hw, red label] (BMNH). The specimen is pinned through right hemelytron, left hind leg and right antennomere 4 missing.

PARATYPES: **CAMEROON:** Cameroons, 1903-355, Escalera [lgt.], 1 ♀, paralectotypus of *Ph. melanopectera* Distant, 1904 (misidentification) (BMNH). – **CENTRAL PROVINCE:** Youndé-N’Kolbisson, 9.viii.1967, 1 ♂, at light, L. Matile lgt. (MNHN); ditto, N’Kolbisson, xi.[19]64, 6 ♂♂ 2 ♀♀, B. de Miré lgt. (MNHN, NMPC); ditto, 17.ix.[19]67, 1 ♂, B. de Miré lgt. (MNHN); ditto, N’Kolbisson, 28.x.[19]69, 1 ♂ 1 ♀, no collector (MNHN). – **SOUTH-WEST PROVINCE:** 1.5–2.5 km Bakingili, 04°05.43’N 09°02.13’E, 200 m a.s.l., 23.–25.xi.2009, 1 ♀, R. Sehnal lgt. (ZJPC); ANR Ifora, Nyasoso, 860 m a.s.l., at light, 30.x.2007, 1 ♂ 1 ♀, H. Perrin lgt. (MNHN). – **WEST PROVINCE:** Faumbot, xi.[19]66, 1 ♀, B. de Miré (MNHN). – **CENTRAL AFRICAN REPUBLIC: LOMBAYE PROVINCE:** La Maboké, 1.ix.1967, 1 ♂, L. Matile lgt. (MNHN); ditto, 17.iii.[19]68, 1 ♂, P. Teochi lgt. (MNHN); ditto, 14.x.1992, 1 ♂, no collector (MNHN); 35 km E Nola, 03°31’N 16°17’E, 16.xii.2008, 1 ♀, J. Halada lgt. (ZJPC); 55 km NWW Mbai-ki, 04°03’N 17°40’E, 510 m a.s.l., 16.vi.2009, 1 ♂, J. Halada lgt. (ZJPC). – **MAMBARÉ-KADEI PROVINCE:** 90 km N Carnot, 05°30’N 15°54’E, 820 m a.s.l., 23.iii.2010, 1 ♂, J. Halada lgt. (ZJPC). – **NANA-MAMBARÉ PROVINCE:** 60 km W Bouard, 05°45’N 15°13’E, 660 m a.s.l., 23.iii.2010, 1 ♀, J. Halada lgt. (ZJPC). – **DEMOCRATIC REPUBLIC OF THE CONGO** (former Congo Belge and Zaire): **BAS-UELÉ:** Dakwa, 9.vii.1933, 1 ♀, J. V. Leroy lgt. (MRAC); Dingila, i.–iv.1933, 1 ♂, H. J. Bredoy lgt. (MRAC). – **HAUT-LOMAMI:** P.N.U. [= Park National Upemba], Gorge de la Pelenge, 1,150 m a.s.l., 6.–10.vi.1949, 2 ♀♀, Miss. G. F. de Witte (MRAC). – **ITURI:** Kilo, i.1940, 1 ♂, RR. FF. Maristes lgt. (MRAC); Mongbwalu (Kilo), 1937, 3 ♂♂ 2 ♀♀, Mme Scheitz lgt. (MRAC); ditto, vii.1938, 3 ♂♂ 1 ♀, Mme Scheitz lgt. (MRAC); ditto, 20.v.1939, 2 ♂♂ 2 ♀♀, Mme Scheitz lgt. (MRAC); Stanleyville [= Simba] and Kilo, 1 ♂, L. Burgeon lgt. (MRAC); Kasenye, viii.1935, 1 ♀, H. J. Bredo lgt. (MRAC); ditto, ix.1935, 1 ♂, H. J. Bredo lgt. (MRAC); d’Okondo à Birune, 20.ix.1929, 1 ♂, A. Collart lgt. (MRAC). – **KINSHASA:** Leopoldville [= Kinshasa], 1926, 1 ♂, J. Miller lgt. (ISNB); ditto, 30.v.1955, 1 ♂, P. Jobels lgt. (MRAC); ditto, 6.ix.1955, 1 ♂, P. Jobels lgt. (MRAC). – **KONGO CENTRAL:** Kiniati-Zobe, fin [= end of] xii.1915, 1 ♀, R. Mayné lgt. (MRAC); Ganda Sundi, 1 ♀, no collector (MRAC); Kitobola, 1911, 1 ♂, Rovere lgt. (MRAC). – **NORD-KIVU:** Goma Paste, 2.ii.1953, 1 ♂, J. Verbeke lgt. (ISNB); Masisi-Kisheryo, 1935, 1 ♀, H. Herman lgt. (MRAC); Kivu, Lulunga, fin [= end of] ix.1952, 2 ♀♀, L. Burgeon lgt. (MRAC); Semliki: Mutwanga, vii.1932, 1 ♂, Dr. Van Hoof lgt. (MRAC); Kavuma a Kabunga km 82 (Mingazi), ii.–iii.1951, 2 ♂♂, H. Bomans lgt. (MRAC); ditto, viii.1951, 1 ♂, H. Bomans lgt. (MRAC); P.N.A. [= Park National Albert], Massif [= Mts.] Ruwenzori, Kalonge, 2,060 m a.s.l., riv.[er] Katauleko, aff. [= near] Butahu, 9.xii.1957, VS 225, 1 ♂, P. Vanschuytbroek lgt. (MRAC). – **SUD-KIVU:** Rwankwi, 31.v.1951, 5 ♀♀, xi.1951, 2 ♀♀, ii.1952, 1 ♀, iii.1952, 1 ♂, all J. V. Leroy lgt. (ISNB); ditto, N Lac Kivu, Rwankwi, xi.1947, 1 ♂, J. V. Leroy lgt. (MRAC); ditto, 15.–30.iv.1948, 1 ♂ 11 ♀♀, J. W. Leroy lgt. (MRAC, 1 ♂ 1 ♀ NMPC); ditto, iii.1951, 6 ♂♂ 3 ♀♀, J. W. Leroy lgt. (MRAC, 1 ♂ NMPC); ditto, xi.1951, 4 ♂♂ 8 ♀♀, J. W. Leroy lgt. (MRAC, 1 ♀ NMPC); ditto, ii.1952, 1 ♀, J. W. Leroy lgt. (ISNB); ditto, iii.1952, 1 ♂, J. W. Leroy lgt. (ISNB); Mont Kahuzi km 82, ix.[19]81–ii.[19]82, 1 ♂, H. Bomans lgt. (BMNH); Mulungu (Tshibinda), 195[?], 1 ♂, J. Hecq lgt. (MRAC); Costermansville [= Bukavu], 1951, 1 ♂ 1 ♀, H. Bomans lgt. (MRAC); Terr. Mwenga, Kitulu, 650 m a.s.l., iv.[no year given], 1 ♂, N. Lepeup lgt. (MRAC); Kavimvira (Uvira), ii.–iii.1955, 1 ♂, G. Marlier lgt. (MRAC). – **GABON:** Belinga, 15.ii.[19]63, 2 ♀♀, 23.ii.[19]63, 1 ♂, 1.iii.[19]63, 1 ♀, 12.iii.[19]63, 5 ♂♂ 6 ♀♀, 12.iv.[19]63, 1 ♀, 12.vii.[19]63, 2 ♂♂ 1 ♀, all H. Coiffait lgt. (MNHN, NMPC); Belinga, Mt. Vadi, 13.iii.[19]63, 1 ♂, 13.vi.[19]63, 2 ♂♂, H. Coiffait lgt. (MNHN); Makokou, 26.iii.[19]63, 1 ♂, H. Coiffait lgt. (MNHN); Komo, Contreforts des Mts. de Cristal [= foothills of Cristal Mts.], 400 m a.s.l., 1.–15.x.1969, 5 ♂♂,

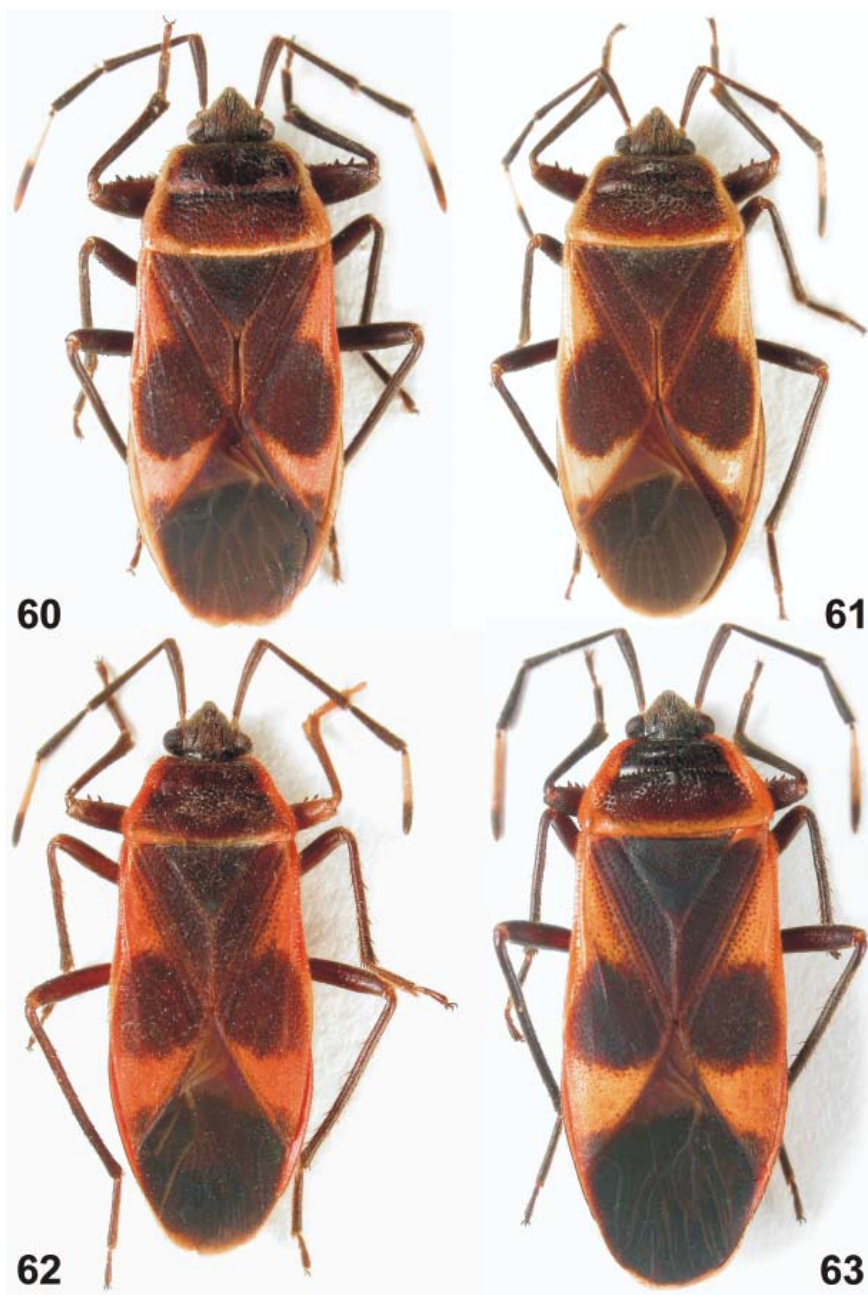


Figs 48–51. *Physopelta (Physopeltoides) dentipes* sp. nov., male, paratype. 48 – fore coxae and trochanters (magnification 60 \times), 49 – detail of procoxa and protochanter (90 \times), 50 – fore leg, anterior view (35 \times), 51 – ventral surface of profemur (40 \times). Scale bars: 0.5 mm. (SEM micrographs: P. Kment).

A. Villiers lgt. (MNHN). – **GUINEA: NÉZKORÉ PROVINCE:** [Mt.] Nimba, vii.–xii.[19]51, 1 ♂ 1 ♀, Lamotte & Rey lgt. (MNHN); Mt. Nimba, 5.x.1956, 2 ♂♂, Lamotte lgt. (MNHN); Mt. Nimba, Ziéla, U.V. [light trap], 4 mai, xii.[19]56–v.[19]57 [sic!], 1 ♀, Lamotte, Amiet & Vanderploetsen lgt. (MNHN). – **IVORY COAST:** [Mt.] Nimba, 1.–4.viii.[19]52, 1 ♀, P. Real lgt. (ISNB). – **MALAWI:** Nyasaland, Mlanje [= Mulanje Mt.], 19.i.1913, 2 ♂♂, S. A. Neave lgt. (BMNH); Bvumbwe, light trap, 5.i.1973, 1 ♂, J. A. Whellan lgt. (BMNH). – **NIGERIA: CROSS RIVER STATE:** Calabar, 2.xi.[19]55, 2 ♂♂, Exped. Mus. G. Frey Nigeria-Kamerun 1955–1956, Bechyně lgt. (BMNH). – **TARABA STATE:** Gashaca Gunti NP, Kwano env., 07°20'N 11°35'E, 560 m a.s.l., 25.iv.–3.v.2011, 2 ♂♂ 4 ♀♀, Kremitovský lgt. (ZJPC); Gashaca Gunti NP, 25 km SW Serti env., 07°20'N 11°13'E, 400 m a.s.l., 9.–13.v.2011, 2 ♀♀, J. Halada lgt. (ZJPC); Gashaca Gunti NP, Gashaca env., 20 km SE of Serti, 07°22'N 11°29'E, 380 m a.s.l., 25.iv.–5.v.2011, 4 ♂♂ 6 ♀♀, Kremitovský lgt. (MMBC); Gashaca Gunti NP, 30 km SE of Serti env., 07°21'N 11°32'E, 380–500 m a.s.l., 24. iv.–8.v.2011, 2 ♂♂ 3 ♀♀, J. Halada lgt. (MMBC). – **RWANDA:** Ile Wahu [= Ile Iwawa], Lake Kivu, 15.–18.iii.1953, 2 ♀♀, J. Verbeke lgt. (ISNB); Kisenyi, près emb. river [= before confluence of river] Sebeya, 4.iv.1955, 2 ♂♂ 1 ♀, J. Verbeke lgt. (ISNB). – **SIERRA LEONE:** Kenema, ix.–x.1947, 1 ♀, don A. Allaer (MRAC). – **UGANDA: KABAROLE AND KASESE PROVINCES:** E Ruwenzori, 5,000–7,000 ft [= 1524–2134 m a.s.l.], 17.i.1906, 1 ♀, 22.i.1926, 1 ♀, both Hon. G. Legge & A. F. R. Wollaston lgt. (BMNH). – **KASESE PROVINCE:** Ruwenzori Range, Ibanda, 4,700 ft [= 1433 m a.s.l.], 20.–21.viii.1952, 1 ♂, 4.–12.ix.1952, 4 ♂♂ 4 ♀♀, all D. S. Fletscher lgt. (BMNH); NE of Kasese, 23.xi.2001, 2 ♂♂ 2 ♀♀, M. Snížek lgt. (NHMW). – **MUCANO PROVINCE:** Kawanda, 15.v.1958, 1 ♀, J. R. Odhiambo lgt. (MMBC); ditto, 7.vi.1958, 1 ♂, T. R. Odhiambo lgt. (MMBC); ditto, 7.ix.1958, 1 ♂, T. R. Odhiambo lgt. (BMNH). – **ZAMBIA: NORTH-WEST PROVINCE:** 15 km E of Solwezi, I.G.



Figs 52–59. *Physopelta (Physopeltoides) dentipes* sp. nov., male. 52–54 – pygophore: 52 – dorsal view (magnification 75 \times), 53 – postero-dorsal view (75 \times), 54 – lateral view (70 \times). 55–59 – paramere (different orientations; 230 \times). Scale bars: 0.2 mm. (SEM micrographs: P. Kment).



Figs 60–63. 60–61 – *Physopelta* (*Physopeltoides*) *dentipes* sp. nov. 60 – male, paratype; 61 – female, paratype. 62–63 – *Physopelta* (*Afrophysopelta*) *melanoptera* Distant, 1904. 62 – male; 63 – female. (Photo: L. Dembický).

31.175, 17.x.2008, 1 ♀, M. Snižek lgt. (ISNB); 5 km of Chisasa W of Solwezi, 24.x.2008, 2 ♂♂, M. Snižek lgt. (ISNB); 50 km E of Mwinilunga, I.G. 31.175, 28.x.2008, 2 ♂♂ 1 ♀, M. Snižek lgt. (ISNB); 82 km SSW Solwezi, 3.xii.2004, 1 ♀, M. Snižek & V. Tichý lgt. (NHMW). – **ZIMBABWE: MANICALANG PROVINCE:** Mt. Selinda env., 35 km of Chipinge, 14.xii.1998, 1 ♂, F. Kantner lgt. (ZJPC).

Description. Colouration (Figs 60–61). Head, antennomeres 1–3, apical third of antennomere 4, pronotum except lateral and posterior margins, scutellum, clavus, large elongate central spot on corium, apex of corium, membrane, legs, and ventral side of body (except ventral laterotergites), black. Lateral and posterior margin of pronotum, corium except the central spot and apex, hypocostal lamina, pronotal epipleuron, ventral and dorsal laterotergites, red. Head and pronotum shiny; scutellum, clavus, and central spot on corium dull. Antennomere 4 in basal two-thirds white.

Pilosity. Body covered with short adpressed to semierect setae, dorsum of head, callar lobe, and base of scutellum with sparse longer erect setae.

Punctuation. Pronotum, scutellum, clavus, and black spots on corium with prominent, dense punctures.

Structure. Pronotum with median carina along its entire length; lateral margins nearly straight. Labium reaching between or slightly surpassing metacoxae.

Measurements (mm). Males (n = 5). Body length 11.74 (11.18–12.26); head: width (including eyes) 1.83 (1.78–1.86), interocular width 1.11 (1.03–1.19); lengths of antennomeres: 1–1.54 (1.51–1.62), 2–1.97 (1.75–2.11), 3–1.33 (1.24–1.40), 4–2.10 (1.89–2.32); pronotum: length 2.32 (2.16–2.48), width 3.87 (3.67–4.05); scutellum: length 1.75 (1.70–1.78), width 2.18 (2.11–2.38); corium: length 5.85 (5.51–6.05), width 2.06 (2.00–2.27).

Females (n = 5). Body length 11.79 (11.39–12.47); head: width (including eyes) 1.85 (1.78–1.89), interocular width 1.15 (1.13–1.21); lengths of antennomeres: 1–1.51 (1.46–1.57), 2–1.85 (1.73–1.89), 3–1.33 (1.30–1.35), 4–1.99 (1.84–2.21); pronotum: length 2.20 (2.05–2.38), width 3.88 (3.73–4.10); scutellum: length 1.80 (1.62–1.94), width 2.23 (2.16–2.27); corium: length 6.24 (6.16–6.43), width 2.18 (2.11–2.32).

Differential diagnosis. *Physopelta* (*Physopeltoides*) *dentipes* sp. nov. is very similar to *Ph. (Afrophysopelta) melanoptera* Distant, 1904 externally, and it was confused with the latter species until the present study. The black central spot on the corium of *Ph. dentipes* sp. nov. is more elongate towards the apex of the corium (see Figs 60–61 versus 62–63) and it is also slightly larger than *Ph. melanoptera* (see measurements under that species). However, both species clearly differ in the characters used for defining the two subgenera (see the key above).

Etymology. The species epithet is a noun in apposition, composed of the Latin nouns *dens*, *-tis* (= tooth) and *pes*, *-dis* (= leg), referring to the characteristic denticles on legs.

Bionomics. Unknown. According to label data, the species apparently prefers higher altitudes.

Distribution. **Cameroon** (Distant 1904, as *Ph. melanoptera*), **Central African Republic**, **Democratic Republic of the Congo** (Bas-Uélé, Haut-Lomami, Ituri, Kinshasa, Kongo Central, Nord-Kivu, Sud-Kivu), **Gabon**, **Guinea**, **Ivory Coast**, **Malawi**, **Nigeria**, **Rwanda**, **Sierra Leone**, **Uganda**, **Zambia**, **Zimbabwe** (this paper).

Subgenus *Afrophysopelta* subgen. nov.

Type species. *Physopelta melanoptera* Distant, 1904, here designated.

Diagnosis. Body smaller (8.5–12.6 mm), red. Antennomere 1 short, much shorter than antennomere 2 or length of pronotum. Sexual dimorphism indistinct, callar lobe only weakly gibbose in both sexes (Figs 62–63). Profemora of both sexes not incrassate (Figs 62–63), their ventral surface with a longitudinal furrow, provided with a row of small denticles on each sides of the furrow, and two larger teeth antepically on dorsal surface (Figs 66–67). Meso- and metafemora lacking both denticles and longitudinal furrow. Tibiae unarmed in both sexes. Labium surpassing metacoxae. Stridulatory organs on fore leg lacking (Figs 64–65). Peritreme of metathoracic scent gland oriented longitudinally, crescent-shaped, projecting both anteriorly and posteriorly of ostiole (Figs 68–69). Paramere with apex short and narrow, outer margin basally with small angulate process (Figs 75–79).

Etymology. The name is composed by the prefix *Afro-*, derived from Africa, and the genus name *Physopelta*, referring to the area of distribution of the subgenus. Gender is feminine.

Species included. *Afrophysopelta* subgen. nov. includes 5 species, including one described in this paper. I am not aware of any undescribed species belonging to this taxon.

Physopelta (Afrophysopelta) analis (Signoret, 1858)

Pyrrhocoris analis Signoret, 1858 in FAIRMAIRE & SIGNORET (1858): 306 (description, distribution). LECTOTYPE (here designated): ♀, ‘Old Calabar’ [= Nigeria, Cross River State, Calabar] (NHMW).

Note. The species was described based on unknown number of specimens. We located two syntypes of the species, one in Signoret’s collection in NHMW, one in the General Collection of the MNHN, originating from the collection of Fairmaire. The lectotype is designated here to fix the identity of the species.

Odontopus analis Stål, 1858: 441 (description, distribution). SYNTYPES: 2 specimens, Old Calabar (NHRS, G. Lindberg, pers. comm.). Synonymized by STÅL (1863: 391).

Note. According the original description, the types were deposited in coll. Dohrn (STÅL 1858). The collections of A. Dohrn, C. A. Dohrn, and W. L. H. Dohrn were acquired by the Museum für Naturkunde in Stettin [= Szczecyn] (HORN et al. 1990: 96); the collections of this institution were partly destroyed during the World War II; the remaining part was transferred to the Museum and Institute of Zoology of the Polish Academy of Sciences, Warszawa (HORN et al. 1990: 458). However, there are two syntypes in Stål collection in NHRS.

Physopelta analis: STÅL (1863): 391 (catalogue, new synonym, distribution); STÅL (1866): 2–3 (catalogue, redescription, distribution); STÅL (1870): 101 (catalogue, distribution); WALKER (1873): 17 (key, catalogue, distribution); REUTER (1882): 28 (distribution); LETHIERRY & SEVERIN (1894): 241 (catalogue, distribution); HAGLUND (1895): 464 (distribution); KIRKALDY & EDWARDS (1902): 172 (distribution); DISTANT (1904): 62 (differences from *Ph. melanoptera*); GOLDING (1927): 97 (bionomics, distribution); HUSSEY (1929): 29 (catalogue, distribution); BLÖTE (1931): 99 (distribution); SCHMIDT (1931): 46–47 (variability, distribution); VILLIERS (1951): 40 (key); VILLIERS (1952a): 121 (diagnosis); VILLIERS (1952b): 1196 (distribution); SOUTHWOOD (1961): 115 (distribution, ecology); LESTON (1969): 225–227 (key, biology, ecology, host plant, distribution); GIBBS & LESTON (1970): 528, 536 (ecology, distribution); DUVIARD (1974): 26–32 (morphology of female internal genitalia, biology, ecology); MEDLER (1980): 119 (checklist); LINNAVUORI (1988): 13 (distribution); ROBERTSON (2004): 4–5 (key, catalogue, distribution); GÖLLNER-SCHIEDING (2012): 105 (distribution).

Type material examined. LECTOTYPE: ♀, **NIGERIA: CROSS RIVER STATE:** ‘Old Calabar [hw] // Coll. Signoret. [p] // analis [hw] / det. Signoret. [p] // ♀ [p, white label] // LECTOTYPUS / PYRRHOCORIS / ANALIS / Signoret, 1858 / des. J. L. STEHLÍK 2013 [p, red label]’. The specimen is pinned through scutellum on a black-enameled pin with head; both antennomeres 4, left hind leg, right protarsus, and right middle and hind leg are missing.

PARALECTOTYPE: ♂, **NIGERIA: CROSS RIVER STATE:** 'vieux Calabr [= old Calabar], 1898, coll. Noualhier // [green label] // ♂ [p] // PARALECTOTYPUS / *PYRRHOCORIS* / *ANALIS* / Signoret, 1858 / des. J. L. STEHLÍK 2013' (MNHN). The lectotype is pinned on a black-enameled pin, considerably damaged, missing both antennae and all the legs on its left side, right fore leg, mesotibia, and mesotarsus.

Additional material examined. **BENIN:** no details, 1 ♀, Schutz lgt. (ZMUH); Attogon, 6°42'N–2°9'E, friches près des cultures [= fallow lands near cultivated fields], 3.–4.vii.2000, 1 ♂, H. Perrin lgt. (MNHN); Bas-Dahomey, Plateau de Zaganado et de Kétou, et forêt [= and forest of] d'Adja-Duéré (saison sèche [= dry season]), i.1910, 1 ♀, P. Ducrops lgt., P. Kment det. (MNHN). – **CAMEROON: SOUTH-WEST PROVINCE:** Victoria [= Limbe], no data, 3 ♀♀, coll. Breddin (DEIC); ditto, i.[no year], 1 ♀, coll. Breddin (DEIC); ditto, vi.[no year], 1 ♂ 1 ♀, coll. Breddin (DEIC); ditto, no further data, 1 ♀, coll. Schouteden (MRAC); ditto, vii.1916–viii.1917, 1 ♀, Cdr. F. H. FitzRoy lgt., P. Kment det. (BMNH); Mukonje by Kumba, 23.–25.ii.1938, 1 ♂ 1 ♀, S. G. Eisentraut lgt. (ZMHB); Mukonje Farm by Mundame, on mungo, no date, 3 ♂♂ 7 ♀♀, R. Rohde lgt. (ZMUH). – **CENTRAL AFRICAN REPUBLIC: BANGUI PROVINCE:** Bangui env., x.1968, 1 ♀, R. Pujol lgt., P. Kment det. (MNHN); **HAUT-MBOMOU PROVINCE:** Haut-Oubangi, Bessou (Mission), amont de [= above] Fort de Possel, Mission Chari-Tchad, ix.1904, 1 ♀, Dr. J. Decorse lgt., P. Kment det. (MNHN). – **DEMOCRATIC REPUBLIC OF THE CONGO: EQUATEUR:** Lukolela, xi.1934, 1 ♂, Dr. Ledoux lgt. (MRAC); ditto, x.–xii.1941, 1 ♀, Breuiheid lgt. (MRAC); Eala, xi.1934, 1 ♂, J. Ghesquière lgt. (MRAC). – **HAUT KATANGA:** Lubumbashi, xii.[no year], 1 ♂, Dr. M. Bequaert lgt. (MMBC). – **KWANGO:** Ngowa, 16.xi.1938, 1 ♀, no collector (ISNB). – **NORD-UBANGI:** Libenge, Yumbi, 19.ix.1947, 1 ♂; ditto, Mission Mawuay, 15.x.1947, 1 ♀; ditto, 19.xi.1947, 1 ♂; ditto, Savane Liki-Bembe, 2 ♀♀, all Cremer & Neuman lgt. (ISNB); Libenge, i.1937, 3 ♂♂ 6 ♀♀; ii.1937, 1 ♂, v.1938, 1 ♂ 1 ♀, all C. Leontovitch lgt. (ISNB). – **SUD-UBANGI:** Budjala, i.v.1937, 1 ♂, C. Leontovitch lgt. (ISNB). – **EQUATORIAL GUINEA: BIKO ISLAND:** Santa Isabel [= Malabo], v.[no year], 1 ♀, coll. Schouteden (MRAC); Conception Coast, 14.xii.1926, 1 ♀, no collector (ZMUH). – **GABON:** Libreville env. (Ft. Sibangue), viii.1930, 1 ♀, G. Babault lgt. (MNHN). – **GHANA: ASHANTI REGION:** Tafo, light, 5.iv.1957, 1 ♂, 23.iv.1957, 2 ♂♂ 1 ♀, 29.iv.1957, 1 ♂, 15.v.1957, 1 ♀, V. F. Eastop lgt. (BMNH); Ashanti, Bompata, 3 ♀♀, A. E. Evans lgt. (BMNH). – **EASTERN REGION:** Exp. Station, border of primary forest, 20 km from Kade, 150 km of Accra, 1968, 1 ♂ 1 ♀, no collector (MMBC). – **IVORY COAST:** Adiopodoumé, 1973, 4 ♂♂ 2 ♀♀, no collector, P. Kment det. (MNHN); Assinie, 1898, 2 ♂♂ 2 ♀♀, Alluaud lgt., coll. Noualhier, P. Kment det. (MNHN); Bingerville, vi.1961, 1 ♀, J. Decelle lgt. (MMBC); Yakopa by Gagnoa, viii.1961, 1 ♂, no collector (MMBC); Lamto, piège lumineux [= light trap], ii.1968, 1 ♂, Cl. Girard lgt., P. Kment det. (MNHN). – **NIGERIA: CROSS RIVER STATE:** Calabar, no date, 2 ♀♀ 1 spec., no collector, P. Kment det. (BMNH). – **LAGOS STATE:** Lagos Dist., 16.ix.1968, 2 ♂♂ 2 ♀♀, W. E. S. Merrett lgt. (BMNH). – **RIVERS STATE:** Opobo, no further data, 1 ♀, S. Südhers lgt. (ZMHB). – **REPUBLIC OF THE CONGO:** Région d'Ouessou, Bassin N'Goko-Sanga, 1906, 1 ♀, Dr. J. Gravot lgt., P. Kment det. (MNHN). – **TOGO:** no further data, 20.xii.1909, 3 ♀♀, M. Otto lgt. (ZMUH).

Biology. According to LESTON (1969), it is a common species in food- and cocoa-farms in Ghana, widespread within the forest zone and occasionally very abundant. Most localities may be defined as farmbush, which includes the edges of farms, early fallow after food-farming operation, and the more mature regeneration stage usually styled secondary forest. However, it was also collected in the coastal shrub belt in Ghana (LESTON 1969). GOLDING (1927) reported adults of *Ph. analis* from Ibadan, Nigeria, feeding on fruits of *Mallotus oppositifolius* (Euphorbiaceae) in July–September, with larvae being observed in September. Also in Ghana, the species is often abundant on *Mallotus oppositifolius*, where the larvae and adults feed on the small green trilobed fruits, their warning coloration making them easily spotted. LESTON (1969) noted the common co-occurrence of *Ph. analis* with *Ph. melanoptera* and *Kmentia festiva*, all three species exploiting the same parts of the same host plant at the same time.

In Ghana, adults of *Ph. analis* have been captured in every month of the year, but numbers vary greatly (LESTON 1969, GIBBS & LESTON 1970). SOUTHWOOD (1961) recorded *Ph. analis* from an ultra-violet light trap at Tafo, Ghana, operated in March and April. According to LES-

TON (1969), adults mate in Ghana at least between early March and mid-April (and perhaps from January on); the new generation is responsible for the light-trap peak, suggesting large-scale movement of the new adults. Larvae are seldomly seen after the end of May (LESTON 1969, GIBBS & LESTON 1970). The adults probably survive until about next March. Although the species is probably mainly diurnal, night feeding was observed in mid-April. Arrivals to lights take place between 19.00 hour and midnight. The warning colouration pattern is efficient so far as large feeding aggregations occur (LESTON 1969). The flight activity and its relationship with development of internal female reproductive organs was studied in Ivory Coast by DUVIARD (1975).

Distribution. **Benin** (VILLIERS 1952b; this paper), **Cameroon** (HAGLUND 1895, BLÖTE 1931, SCHMIDT 1931, ROBERTSON 2004; this paper), **Central African Republic** (new record), **Democratic Republic of the Congo** (HUSSEY 1929, as Congo; this paper), **Gabon** (KIRKALDY & EDWARDS 1902, no details; ROBERTSON 2004; this paper), **Ghana** (REUTER 1882, SOUTHWOOD 1961, LESTON 1969, LINNAUORI 1988, ROBERTSON 2004; this paper), **Guinea** (STÅL 1870), **Ivory Coast** (DUVIARD 1975, ROBERTSON 2004; this paper), **Nigeria** (SIGNORET 1858, STÅL 1858, GOLDING 1927, MEDLER 1980, LINNAUORI 1988, SCHMIDT 1931, ROBERTSON 2004; this paper), **Republic of the Congo** (GÖLLNER-SCHIEDING 2012; this paper), **Togo** (VILLIERS 1952b; this paper).

Physopelta (Afrophysopelta) madecassa Villiers, 1951

Physopelta madecassa Villiers, 1951: 39–40 (key, description, distribution). HOLOTYPE: ♀, Madagascar, Imerimandroso sur la rive nord du lac Alaotra [= on river north of the Alaotra lake] (MNHN).

Physopelta madecassa: CACHAN (1952): 72–73, pl. V: fig. 1 (key, redescription, figures, distribution).

Type material examined. HOLOTYPE: ♀, 'MUSEUM PARIS / MADAGASCAR / IMERIMANDROSO / RIVE N. DU LAC ALAOTRA / R. DECARY 1921' [p, greyish label] // 'JUN' [p, white label] // 'TYPE' [p, red label] // 'Physopelta / madecassa / n. sp. [hw] / A. Villiers det. [p, white label]' (MNHN). The specimen is pinned through scutellum, left antenna, fore and middle leg, and two apical metatarsomeres missing.

PARATYPES: ♀, 'MUSEUM PARIS [p] / Iles Comores / Mayotte / (de Faymoreau) [hw] / CH: ALLUAUD 1900 [p, greyish label]' // 'PARATYPE' [p, red label] // 'Physopelta / madecassa / n. sp. [hw] / A. Villiers det. [p, white label]' (MNHN); ♀, 'Mayotte [hw, white label]' // 'PARATYPE' [p, red label] // 'Physopelta / madecassa / n. sp. [hw] / A. Villiers det. [p, white label]' (MNHN).

Distribution. **Comoros** (Mayotte) (VILLIERS 1951), **Madagascar** (Central and Northern) (VILLIERS 1951, CACHAN 1952).

Physopelta (Afrophysopelta) melanoptera Distant, 1904

(Figs 62–79)

Physopelta melanoptera Distant, 1904: 61–62 (partim; description, distribution). LECTOTYPE (here designated): ♂, Cameroons (BMNH).

Note. The species was described based on more than one specimen but the number of syntypes is unknown. Another female syntype deposited in BMNH actually belongs to *Ph. dentipes* sp. nov. (see above). The lectotype is designated here to fix the identity of the species.

Physopelta melanoptera: DISTANT (1909): 78 (distribution); BERGROTH (1913): 167 (catalogue); HUSSEY (1929): 32 (catalogue, distribution); SCHOUTEDEN (1929): 72 (distribution); VILLIERS (1951): 40 (key); VILLIERS (1952b): 1197 (distribution); VILLIERS (1967): 370 (distribution); LESTON (1969): 225–227 (key, biology, ecology, host plant, distribution); DUVIARD (1974): 26–32 (morphology of female internal genitalia, biology, ecology); MEDLER (1980): 119 (checklist); LINNAUORI (1988): 16 (distribution); ROBERTSON (2004): 4–5 (key, catalogue, distribution); STEHLÍK & JINDRA (2008b): 30 (distribution).

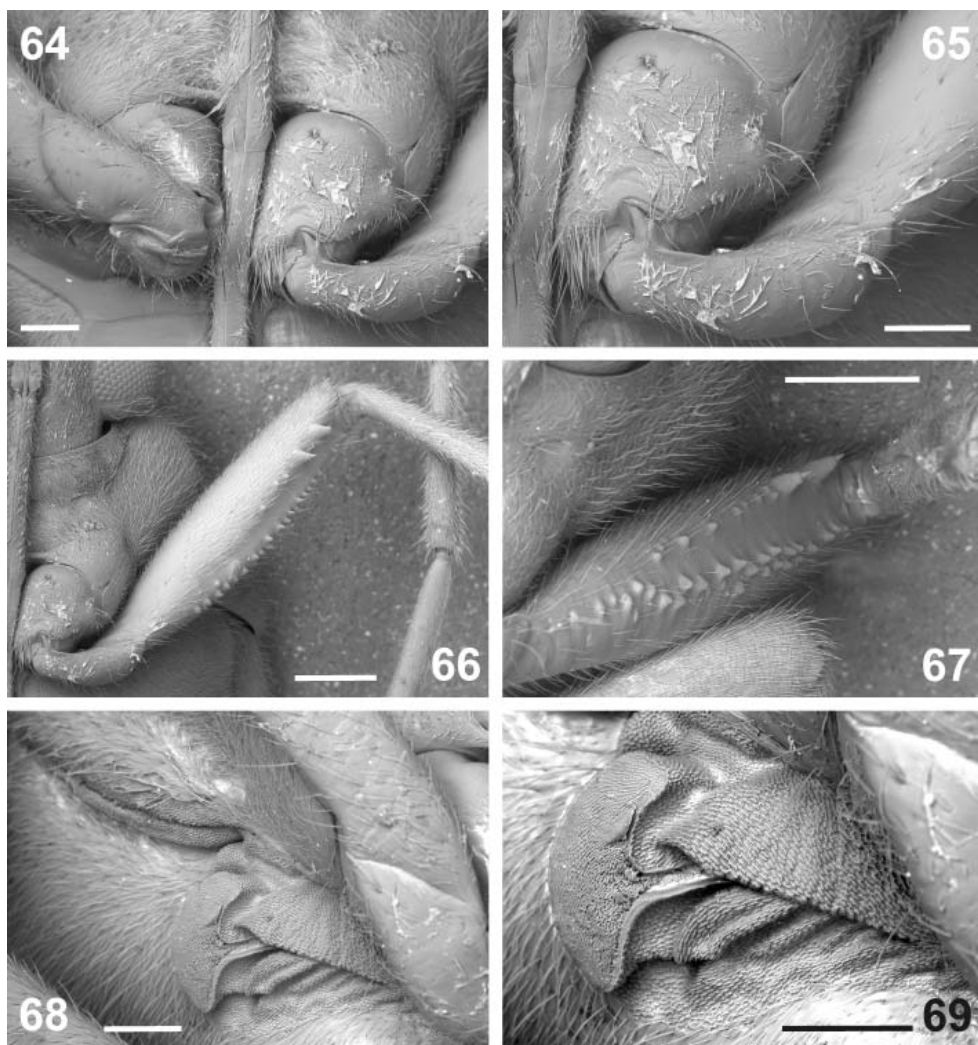
Type material examined. LECTOTYPE: ♂, 'Type [p, white circular label with red circle submarginally] // 'melanoptera / Dist.' [hw, white label] // 'Cameroons, / Escalera, / 1903-355' [p, white label] // '♂' [p, white label] // LECTOTYPE: PUS / *PHYSOPELTA* / *MELANOPTERA* / Distant, 1904 / des. J. L. STEHLÍK 2013 [p, red label] (BMNH). The lectotype is pinned through scutellum on black-enameled pin without head; well-preserved, only left antennomere 4 is missing.

Additional material examined. **ANGOLA: CUANZA NORTE:** (A26), Salazar, I.I.A.A. [= Vila Salazar, currently N'dalatando], at light, Southern African Exp., B.M. 1972-I, 9.–15.iii.1972, 3 ♂♂ 3 ♀♀, no collector (BMNH). – **LUANDA PROVINCE:** Luanda env., 22.iii.2002, 1 ♂, J. Brezinski lgt. (ZJPC). – **LUNDA NORTE PROVINCE:** Dundo, i.1949, 1 ♂, A. B. Machado lgt. (MMBC). – **BENIN:** Moyen-Benin, Plateau de Zagnando (saison des oranges et tornades [= season of oranges and tornados]), 1910, 5 ♀♀, P. Ducorps lgt. (MNHN); Pobé, forêt [= forest] (P.L.) 06°59'N 02°41'E, 28.–29.vi.2000, 2 ♂♂ 1 ♀, H. Perrin lgt. (MNHN); Cotonou, 06°24'N 02°31'W, 11.xi.1995, sweeping grasses, 1 ♂ 1 ♀, M. R. Wilson lgt. (NMWC). – **CAMEROON: CENTRAL PROVINCE:** Yaoundé env., 1 ♂, no collector (MNHN); ditto, Mt. Fábé, 6.viii.1967, 1 ♀, L. Matile lgt. (MNHN); ditto, N'Kolbisson, 18.v.1966, 1 ♀, 28.vi.1966, 1 ♂, both B. de Miré lgt. (MNHN). – **EAST PROVINCE:** Batouri district, 03°45'N 13°45'E, 1.v.–6.vi.1935, 2 ♀♀, F. G. Merfield lgt. (BMNH). Mieri (Batouri), 30.i.1976, 1 ♂, F. Paylaert lgt. (MRAC). – **LITTORAL PROVINCE:** Manengole, iv.1949, 1 ♂, R. Tesárek lgt. (NMPC). – **NORTH-WEST PROVINCE:** E of Big Babanki, 06°06'57"N 10°17'14"E, 5.–13.iii.2008, 1 ♀, R. Sehnal lgt. (ZJPC); ditto, 06°06'698N 100°15'938E, 5.–13.iii.2008, 1 ♂ 1 ♀, J. Horák lgt. (ZJPC); Babanki/Bambili, Kefem forest, 06°01'56"N 10°17'14"E, 1,890 m a.s.l., iii.2008, 2 ♀♀, R. Sehnal lgt. (ZJPC); Tubach, Big Babanki env., 06°06'57"N 100°16'23"E, iii.2008, 1 ♂, R. Sehnal lgt. (ZJPC); ditto, 06°06'20"N 10°13'07"E, 1,158 m a.s.l., iii.2008, 1 ♀, M. Heckel lgt. (MMBC); Big Babanki village env., 06°06'698"N 10°15'938"E, 1,200 m a.s.l., 5.–13.iii.2008, 1 ♀, P. Votruba lgt. (MMBC); Bamenda, Lac de Bambonloa [lake], v.1971, 1 ♀, J. F. Villiers lgt. (MNHN). – **WEST PROVINCE:** Foubot, 20.v.1971, 3 ♂♂ 9 ♀♀, J. F. Villiers lgt. (MNHN, NMPC); Galim, before Tshabai-Mbato, 1,200 m a.s.l., 14.viii.1971, 4 ♀♀, Miss. Zool. Cameroun, F. Puylaert, P. M. Elsen, R. Asselberg lgt. (MRAC). – **PROVINCE NOT IDENTIFIED:** Tchoma, Okula, test cacao, 21.vi.1965, 1 ♀, B. de Miré lgt. (MNHN). – **CENTRALAFRICAN REPUBLIC: BAMINGUI-BANOSAN PROVINCE:** 35 km N Ndélé, 08°29'N 20°57'E, 17.v.2009, 1 ♂, J. Halada lgt. (ZJPC). – **BANGUI PROVINCE:** Bangui, 15.viii.1969, 1 ♀, Pujol lgt., P. Kment det. (MNHN). – **KEMO-GRIBINGUI PROVINCE:** Fort-Sibut, Haut-Chari, collection le moult, no date, 1 ♂, coll. E. de Bergevin (MNHN); 80 km W Sibut, 05°41'N 18°17'E, 25.v.2009, 1 ♂, J. Halada lgt. (ZJPC); 30 km S Sibut, 08°25'N 19°08'E, 14.iii.2010, 1 ♂ 2 ♀♀, J. Halada lgt. (MMBC); 45 km N Sibut, 08°08'N 19°08'E, 530 m a.s.l., 13.iv.2010, 1 ♀, J. Halada lgt. (MMBC). – **LOMBAYE PROVINCE:** 80 km W Boda, 04°29'N 16°47'E, 490 m a.s.l., 21.xii.2008, 1 ♀, J. Halada lgt. (ZJPC); Boukoko, 15.ix.1966, 1 ♀, M. Boulard lgt. (MNHN); 10 km NE Mbaiki, 03°56'N 18°00'E, 400 m a.s.l., 5.xii.2008, 1 ♂ 2 ♀♀, J. Halada lgt. (ZJPC); Lamaboké, 8.iv.1955, 1 ♀, 13.vii.1955, 2 ♀♀, 14.xi.1955, 2 ♂♂, all R. Pujol lgt. (MNHN); ditto, 19.vi.1957, 1 ♀, P. Teocchi lgt. (MNHN); ditto, 15.ii.1965, 1 ♀, 13.vii.1965, 1 ♂ 2 ♀♀, 14.ix.1965, 1 ♂, both R. Pujol lgt. (MNHN); ditto, v.1964, 1 ♂, J. Carayon lgt. (MNHN); ditto, 7.ix.1965, 1 ♂, 10.iii.1966, 1 ♂, both R. Pujol lgt.; ditto, 30.ix.1967, 1 ♂, at light, L. Matile lgt. (MNHN); ditto, 16.xi.1967, 1 ♂, 16.ii.1968, 1 ♂, 17.iii.1968, 2 ♂♂ 1 ♀, all P. Teocchi lgt. (MNHN); ditto, x.1969, 1 ♂ 2 ♀♀, 1969, 9 ♂♂ 9 ♀♀, both R. Pujol lgt. (MNHN); ditto, 12.v.1970, 2 ♀♀, M. Boulard lgt. (MNHN); ditto, 14.x.1972, 11 ♂♂ 13 ♀♀, 2.iv.1973, 1 ♂, 5.viii.1973, 7 ♂♂ 6 ♀♀, vii.1973, 2 ♂♂ 1 ♀, all R. Pujol lgt.; ditto, 9.iii.1973, 3 ♂♂ 4 ♀♀, 2.iv.1973, 1 ♂, both P. Teocchi lgt. (MNHN, NMPC). – **OMBELLO-MPOKO PROVINCE:** Bangui, 3.xii.1951, 1 ♀, R. Mussard lgt. (MHNG); 70 km NN Bangui, 04°57'N 18°46'E, 445 m a.s.l., 24.–28.xi.2011, 1 ♀, J. Halada lgt. (MMBC); Oubangi-Chari, Bangui, i.–iii.1968, 1 ♂, Breuning lgt. (MRAC); Bangui, no further data, 2 ♀♀ (MNHN). – **OUHAM PROVINCE:** 50 km E Bossanoga, 06°28'N 18°02'E, 500 m a.s.l., 27.v.2009, 2 ♂♂ 1 ♀, J. Halada lgt. (ZJPC). – **SANGHA PROVINCE:** 45 km E Nola, 03°32'N 16°26'E, 340 m a.s.l., 8.vi.2009, 2 ♂♂ 1 ♀, J. Halada lgt. (ZJPC); 129 km S Nola, 02°42'N 16°06'E, 340 m a.s.l., 14.xii.2008, 2 ♂♂ 1 ♀, J. Halada lgt. (ZJPC); 90 km NE Nola, 04°07'N 16°37'E, 560 m a.s.l., 5.–9.xii.2010, 1 ♂, J. Halada lgt. (MMBC). – **CHAD: LOGONE ORIENTAL PROVINCE:** Bebedja, 4.ix.1964, 1 ♂ 1 ♀, J. P. Besson lgt. (MNHN). Mondou, Bebedja, 21.i.1978, 1 ♂, G. Ruella lgt. (MRAC). – **COMORES: GRANDE COMORE:** 4–5 km E of Nioumbadjou, Bandalamadji, 640 m a.s.l., 15.–18.iii.1980, 1 ♂, P. Viette lgt. (MNHN). – **DEMOCRATIC REPUBLIC OF THE CONGO** (former Congo Belge, Zaire, Congo Kinshasa): **BAS-UELE:** Mobwasa, x.1911, 1 ♂ 1 ♀, De Giorgi lgt. (MRAC); Dingila, i.–iv.1933, 1 ♂, H. J. Bredo lgt. (MRAC); ditto, 21.vi.1933, 1 ♀, J. Leroy lgt. (MRAC); ditto, viii.1933, 1 ♂, H. J. Bredo lgt. (MRAC). – **EQUATEUR:** Bamania, ii.–iii.1958, 2 ♀♀, 15.–30.iv.1961, 1 ♀, i.–vi.1965, 1 ♂, all Rév. P. Hulstaert lgt. (MRAC); Buia, 4.vi.1912, 1 ♀,

Dr. Christy lgt. (MRAC); Eala, i.1935, 1 ♀, J. Ghesquière lgt. (MRAC); Eala, Inganda, 8.viii.1930, 1 ♂, J. Vrydaght lgt. (MRAC); Mbandaka, 10.xi.1931, 1 ♀, Lt. Dorman lgt. (MRAC); Boso Kubu, 29.vi.1935, 1 ♀, G. Settembrino lgt. (ISNB); Lukolela, no date, 1 ♀, de Guide lgt. (MRAC); ditto, 21.i.1930, 1 ♀, H. J. Breda lgt. (MRAC); ditto, x.–xii.1941, 1 ♀, Breuhlheid lgt. (MRAC). – **HAUT-KATANGA**: Lubumbashi, i.56–i.57, 1 ♀, Ch. Seidel lgt. (MRAC). – **HAUT-UELE**: Mota, 1924, 1 ♀, L. Burgeon lgt. (MRAC); Rungu, 4.vii.1914, 1 ♀, Dr. Rodhain lgt. (MRAC); Bambesa, 15.x.1933, 1 ♂ 1 ♀, J. V. Leroy lgt. (MRAC); ditto, i.–ii.1934, 1 ♀, H. J. Bredo lgt. (MRAC); ditto, 28.–29.v.1937, 1 ♀, 6.vi.1937, 2 ♂♂ 1 ♀, 18.vi.1937, 1 ♂, 23.vi.1937, 1 ♂, 21.vii.1937, 1 ♂, 30.x.1937, 1 ♀, 2. xii.1937, 1 ♂ 3 ♀♀, all J. Vrydaght lgt. (MRAC); ditto, 9.v.1938, 1 ♂, P. Henrard lgt. (MRAC); ditto, 9.iii.1939, 1 ♀, J. Vrydaght lgt. (MRAC). – **ITURI**: Ishwa, 2.vi.1954, 1 ♂ 1 ♀, J. Hecq lgt. (MRAC); Malema, 6.vi.1912, 1 ♀, Dr. Christy lgt. (MRAC); Penge-Bamboli-Putnam, vi.1933, 1 ♀, no collector (MRAC); Nioka, vi.1953, 2 ♀♀, vii.–viii.1954, 1 ♀, ix.1954, 1 ♀, all J. Hecq lgt. (MRAC). – **KINSHASA**: Mayidi, 1942, 1 ♀, Rev. P. van Eylen lgt. (MRAC). – **KONGO CENTRAL**: Boma, xi.1955, 1 ♀, R. F. Anselmus lgt. (MRAC); Boma, Nzobe, 4.–12.i.1916, 1 ♂, R. Mayné lgt. (MRAC); Makaka N'Tete – Temvo, 20.–30.xi.1915, 1 ♂, R. Mayné lgt. (MRAC). – **LUALABA**: Ruwe, i.–ii.1960, 5 ♂♂ 4 ♀♀, Dr. V. Alluau lgt. (MRAC); 150–200 miles W of Kambove, 1.x.2007, 1 ♂ 2 ♀♀, 2.x.1907, 7 ♂♂ 11 ♀♀ 2 spec., 19.x.1907, 2 ♀♀, S. A. Neave lgt. (BMNH). – **MANIEMA**: Kasongo, iii.1960, 5 ♂♂ 4 ♀♀, P. L. G. Beniot lgt. (MRAC); Kindu, no date, 1 ♂, L. Burgeon lgt. (MRAC). – **MONGALA**: Terr. Lisala, Modjebo, 10.xi.1938, 20 ♂♂ 24 ♀♀, J. J. Dehyen leg. (MRAC); ditto, 9.xi.1939, 1 ♂ 3 ♀♀, Leontovitch lgt. (MRAC); Bumba, 1940, 1 ♂, R. P. Lootens lgt. (MRAC). – **NORD-KIVU**: N. Lac Kivu: Rwankwi, xi.1947, 1 ♀, J. V. Leroy lgt. (MRAC). – **NORD-UBANGI**: Libenge, viii.1937, 1 ♂, Leontovitch lgt. (ISNB); ditto, 4.ix.1947, 1 ♀, 21.x.1947, 7 ♂♂ 4 ♀♀, 24.x.1947, 1 ♂ 1 ♀, 27.x.1947, 2 ♂♂ 2 ♀♀, 13.xi.1947, 1 ♂ 3 ♀♀, 22.x.1944, 1 ♂, 8.i.1948, 3 ♀♀, all R. Cremer & M. Neumann lgt. (ISNB); Libenge, Mission Mawuya, 11.x.1947, 1 ♂ 1 ♀, 12.x.1947, 3 ♂♂ 3 ♀♀, 17.x.1947, 1 ♀, 24.x.1947, 14 ♂♂ 10 ♀♀, 20.ix.1947, 8 ♂♂ 8 ♀♀, 22.i.1948, 6 ♂♂ 6 ♀♀, all R. Cremer & M. Neumann lgt. (ISNB); Yumbi, 22.x.1947, 9 ♂♂ 7 ♀♀, R. Cremer & M. Neumann lgt. (ISNB); Bili, 14.iv.1954, 2 ♂♂ 1 ♀, Ch. Verbeke lgt. (ISNB). – **SUD-KIVU**: Terr. Mwengo, Kitutu, 650 m a.s.l., iv.1958, 1 ♂, N. Leleup lgt. (MRAC); Mont Kahuzi, km 82, ix.1951–ii.1952, 1 ♂, at light, H. Bomans lgt. (MRAC). – **TANGANYIKA**: Niunzu, 1935, 1 ♂, Dr. Saeger lgt. (MRAC); Kalemie, xi.1954, 1 ♀, at light, H. Bomans lgt. (MRAC); Katombe, ii.1935, 1 ♂, Ch. Seidel lgt. (MRAC). – **TSOPO**: Kisingani, Masoko, I.G. 31.915, 29.v.–2.vi.2011, 1 ♂, J. L. Wetsi Lofete lgt. (ISNB). – **ETHIOPIA**: **ILUBA PROVINCE**: 60 km E Tepi, 7.iv.2007, 2 ♂♂ 3 ♀♀, J. Halada lgt. (ZJPC). – **KAFFA PROVINCE**: 40 km W Bonga, 1850 m a.s.l., 9.iv.2004, 1 ♀, J. Halada lgt. (ZJPC). – **GABON**: Belinga, M'Vadi, 13.iii.1963, 2 ♀♀, H. Coiffait lgt. (MNHN); Belinga, Mission Biologique au Gabon, no date, 2 ♂♂ 2 ♀♀, P. Grassé lgt. (MNHN); Makakou-Coline, 13.x.1967, 1 ♂, Mission Biologique, G. Bernardi lgt. (MNHN). – **GHANA**: **ASHANTI REGION**: Kumasi, 28.v.1967, 3 ♂♂ 2 ♀♀, 25.v.1967, 1 ♂, both S. Endrödy-Younga lgt. (MHNG); ditto, Ashanti Reg., no date, 2 ♂♂ 2 ♀♀, A. E. Evans lgt. (BMNH). – **EASTERN REGION**: Kibi, 6°09'N 0°36'W, light trap, 19.xi.2003, 1 ♂ 1 ♀, H. Perrin lgt. (MNHN); Gold Coast, Koforidua, iv.1921, 1 ♂ 1 ♀, J. F. Corson lgt. (BMNH); Tafo, 23.iv.1957, 1 ♂ 1 ♀, V. F. Eastop lgt. (BMNH); ditto, Exp. Station, 20 km of Kade, border of primary forest, no date, 1 ♀, no collector (MMBC); ditto, Kade, 7.–12.xi.1967, 1 ♂ 1 ♀, A. Lelek lgt. (MMBC). – **GREATER ACCRA REGION**: Accra, 6.iv.1959, 1 ♂, Borchsenius lgt. (ZMAS); Accra, near airport, 10.xi.1995, 3 ♂♂ 3 ♀♀, at light, M. R. Wilson lgt. (NMWC). – **UPPER EAST REGION**: Bolgatanga, v.1965, 1 ♂ 1 ♀, G. Burton lgt. (BMNH). – **WESTERN REGION**: between Takoradi and Axim, 7.x.1944, 1 ♂, P. A. Buxton lgt. (BMNH). – **GUINEA**: **FARANACH PROVINCE**: Gueckedou, no date, 1 ♀, I. Korecká lgt. (MMBC). – **NZÉKORÉ PROVINCE**: Mt. Nimba, vii.–xii.1951, 3 ♂♂ 1 ♀, Lamotte & Rey lgt. (MNHN); Nimba, Ziéla, U.V., 30.–31.iii.1957, 1 ♀, Lamotte, Amiet & Vanderplaetsen lgt., P. Kment det. (MNHN). – **IVORY COAST**: Bibiana-ha, xi.–xii.1909, 2 ♂♂ 2 ♀♀, Dr. Spurrell lgt. (BMNH); Aburi, 2 ♂♂, W. H. Patterson lgt. (BMNH); ditto, 1 ♀, A. R. Gould lgt. (BMNH); Lamto (Taumodi), ii.1968, 11 ♂♂ 6 ♀♀, 1.–18.iv.1968, 2 ♀♀, 31.viii.1968, 1 ♂ 1 ♀, 8.xi.1968, 5 ♂♂ 12 ♀♀, ii.1969, 1 ♂ 2 ♀♀, 1.–18.iii.1969, 1 ♂, all Cl. Girard lgt. (MNHN); ditto, 17.v.1965, 1 ♀, 18.ii.1975, 2 ♂♂ 7 ♀♀, 25.ii.1975, 1 ♀, R. Vuattoux lgt. (MNHN, NMPC); Bingerville, i.1939, 1 ♂, L. Chopard lgt., P. Kment det. (MNHN); Bingerville, xi.1961, 4 ♀♀, ii.1962, 3 ♀♀, iii.1962, 1 ♀, iv.1962, 1 ♂, xi.1962, 5 ♂♂ 4 ♀♀, xii.1962, 1 ♂ 2 ♀♀, x.1963, 1 ♀, ii.1964, 1 ♀, v.1964, 1 ♀, all J. Decelle lgt. (MRAC); 50 km NW Abengourou, vii.1962, 2 ♂♂, viii.1962, 1 ♂ 1 ♀, J. Decelle lgt. (MRAC); Zopreghe-Koffikro (Daloa), vii.1961, 1 ♂ 1 ♀, J. Decelle lgt. (MRAC); Forkessédougou, 1 ♀, 10.–12.v.1954, J. Decelle lgt. (MRAC); Yakopa at Gagnoa, 1 ♂, J. Decelle lgt. (MRAC); Eremankono S Divo, viii.–ix.1962, 1 ♂, J. Decelle lgt. (MRAC). – **KENYA**: **KAKAMEGA PROVINCE**: Brit. E. Africa, Ilala, Maramas Dist., 14 km E of Mumias, 4,500 ft [= 1372 m a.s.l.], 18.–21.vii.1911, 1 ♀, S. A. Neave

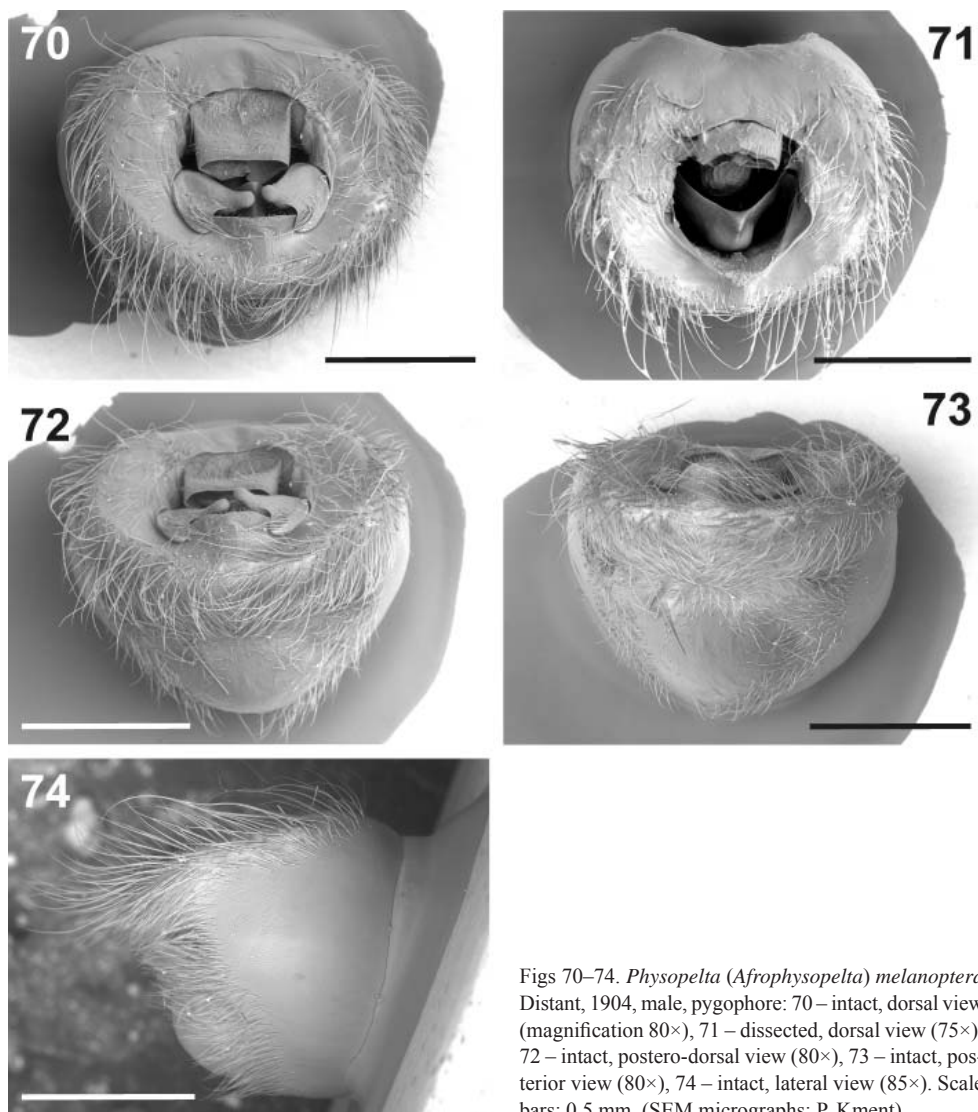
lgt. (BMNH). – **KWALE PROVINCE:** Côte d’Afrique or. angl. [= Coast of British East Africa], Tiwi, xi.1911, 1 ♂, Alluaud & Jeannel lgt. (MNH); Kwale distr., Diani Beach, vii.1951, 3 ♂♂ 3 ♀♀, N. L. H. Krause lgt. (BMNH); ditto, Neptune village hotel, 18.–27.ii.2001, 1 ♂ 3 ♀♀, A. Drumond & Nwarze (ISNB). – **LAMU PROVINCE:** E of Garsen, 11.iv.2004, 1 ♂, M. Snižek lgt. (NHMW). – **MOMBASA PROVINCE:** Mombasa, iii.1921, 1 ♂ 1 ♀, van Someren lgt. (BMNH). – **MALAWI:** Mlanje [= Mulanje Mt.], 13.vi.1912, 1 ♂, 2.xii.1912, 1 ♀, 13.xii.1912, 1 ♀, 13.vi.1913, 1 ♀, both S. A. Neave lgt. (BMNH); ditto, Ruvo Valley, 2,000 ft [= 610 m a.s.l.], 14.xii.1913, 1 ♂, S. A. Neave lgt. (BMNH). – **NIGERIA:** **CROSS RIVER STATE:** Calabar, 9.xi.1955, 1 ♂, Exped. Mus. G. Frey Nigeria-Kamerun, Bechyně lgt. (BMNH); Oban, 1911–400, no date, 1 ♂, P. A. Talbot lgt. (BMNH). – **KADUNA STATE:** Samaru, on mercury vapour light trap, 18.–25.v.1970, 1 ♀, 26.–31.v.1970, 1 ♀, 3.–10.vi.1970, 2 ♀♀, 26.vi.–6.vii.1970, 1 ♀, 7.–14.vii.1970, 1 ♀, 21.–29.vii.1970, 3 ♂♂, all P. H. Ward lgt. (BMNH). – **LAGOS STATE:** Agege, 17.iv.1914, 2 ♂♂ 1 ♀, Dr. W. A. Lamborn lgt. (BMNH); Lagos Dist., ii.1948, 1 ♂, 16.ix.1948, 1 ♂, W. E. S. Merett lgt. (BMNH). – **NIGER STATE:** Mokwa, I.A.R., Mile 1, mercury vapour light trap, 8.–17.viii.1970, 1 ♂, P. H. Ward lgt. (BMNH). – **OYO STATE:** Ibadan, on cotton, 1908, 1 ♂, no collector (BMNH). – **PLATEAU STATE:** Jos, 14.x.1955, 1 ♀, Exped. Mus. G. Frey Nigeria-Kamerun, Bechyně lgt. (BMNH). – **REPUBLIC OF THE CONGO:** Brazzaville, 15.i.1973, 1 ♂, J. F. Cornic lgt., P. Kment det. (MNH); Dimonika (Mayumbe), Mission A. Descarpentries et A. Villiers 1963–1964, i.1964, 8 ♂♂ 1 ♀, A. Descarpentries & A. Villiers lgt. (MNH); Mayombe, I.G. 31.516, iv.2010, 3 ♂♂ 13 ♀♀, E. Vingerhoedt lgt. (ISNB); Sibiti, Mission A. Descarpentries et A. Villiers 1963–1964, xi.1963, 1 ♂, A. Descarpentries & A. Villiers lgt., A. Villiers det. (MNH). – **SÃO TOMÉ AND PRINCIPE:** **PRINCIPE ISLAND:** Princes I., 1 ♂, T. A. Barns lgt. (BMNH). – **SENEGAL:** Niokolo Koba Nat. Park, 13°00’13”N 13°18’48”W, 1 ♀, M. Halada lgt. (ZJPC). – **SIERRA LEONE:** Njala, at light, 23.iii.1925, 1 ♀, 7.viii.1926, 1 ♂, E. Hargraves lgt. (BMNH). – **TANZANIA:** **MOROGORO PROVINCE:** Morogoro, 1.ii.1970, 2 ♀♀, E. E. Brown lgt. (BMNH). – **TANGA PROVINCE:** Muheza Distr., Tanga, Kwangumi For. Res., 4°57’S 38°44’E, 29.x.1995, UV 18-B 3, 1 ♀, McKamey lgt. (ISNB); Mlingano, 22.i.1956, 2 ♀♀, I. A. D. Robertson lgt. (BMNH); ditto, 22.i.1966, 1 ♀, C. Traf lgt. (BMNH). Tanga, iv.1912, 1 ♀, Alluaud & Jeannel lgt. (MNH). – **ZANZIBAR:** no further data, 4 ♀♀ (BMNH). – **UGANDA:** **BUNGIBUGYO PROVINCE:** 12 miles NE of Bungibugyo, 4,500 ft [= 1372 m a.s.l.], 0°45’N 30°10’E, 1 ♀, Cambridge East Africa Exped. (BMNH); Ruwenzori Range, Semliki forest, 2,850 ft [= 869 m a.s.l.], 2.viii.–3.ix.1952, 1 ♂ 1 ♀, D. S. Fletcher lgt. (BMNH); Bwamba, vii.–viii.1946, 1 ♂ 3 ♀♀, van Someren lgt. (BMNH); Bwamba, Hakitengya, 20.viii.1948, 1 ♂, W. H. R. Lumsden lgt. (BMNH); Budongo forest, Unyoro, 3,400 ft [= 1036 m a.s.l.], 11.–15.vii.1911, 1 ♂, S. A. Neave lgt. (BMNH). – **KABAROLE/KAMWENGE/KYENJOJO PROVINCES:** Daro or Durto Forest, Toro [kingdom], 4,000–4,500 ft [= 1219–1372 m a.s.l.], 25.–29.x.1911, 1 ♀, 4,800 ft [= 1463 m a.s.l.], 13.–23.xi.1911, 1 ♀, S. A. Neave lgt. (BMNH). – **KALANGALA PROVINCE:** Lake Victoria, Nkosi Island, S. Sesse, 25.–27.v.1928, 3 ♂♂ 2 ♀♀, Dr. G. D. Halle Carpenter lgt. (BMNH). – **KAPWENGE PROVINCE:** Mpanga forest, 4,000–4,500 ft [= 1219–1372 m a.s.l.], 25.–29.xi.1911, 1 ♀, S. A. Neave lgt. (BMNH). – **KASESE PROVINCE:** Ruwenzori range, Ibanda, 4.–12.ix.1952, 1 ♀, D. S. Fletscher lgt. (BMNH). – **MUCAN PROVINCE:** Mabira forest, Changwe, 3,500–3,800 ft [= 1067–1158 m a.s.l.], 16.–25.vii.1911, 1 ♂, S. A. Neave lgt. (BMNH). – **MUKONO PROVINCE:** Kawanda, 1.v.1958, 1 ♀, 4.v.1958, 1 ♂ 1 ♀, 5.v.1958, 1 ♀, 6.v.1958, 2 ♂♂ 4 ♀♀, 7.v.1958, 1 ♂, 22.v.1958, 1 ♀, 27.v.1958, 1 ♀, 7.vi.1958, 1 ♀, 7.ix.1958, 1 ♂, 7.xi.1958, 4 ♀♀, all T. R. Odhiambo lgt. (MMBC, BMNH). – **SIRONKO PROVINCE:** Siro[n]ko River near W foot of Mt. Elgon, 3,600 ft [= 1097 m a.s.l.], 12.–14.viii.1911, 12 ♂♂ 9 ♀♀, S. A. Neave lgt. (BMNH). – **ZAMBIA:** **COPPERBELT PROVINCE:** N’Changa, B.M. 1931–179, 1 ♀, C. T. Macnamara lgt. (BMNH). – **NORTH-CENTRAL PROVINCE:** Mkushi env., 16.–18.xii.2004, 1 ♂ 1 ♀, Snižek & Tichý lgt. (NHMW). – **NORTH-WESTERN PROVINCE:** NW Kasempe, E of NW Mutumbwa, I.G. 31.175, 5.xi.2008, 1 ♂ 3 ♀♀, M. Snižek lgt. (ISNB); 50 km E of Mwinilunga, I.G. 31.175, 28.x.2008, 1 ♂ 1 ♀, M. Snižek lgt. (ISNB); 150 km of Mwinilunga, I.G. 31.175, 2.xi.2008, 6 ♂♂ 15 ♀♀, M. Snižek lgt. (ISNB).

Comparative note. For better comparison with *Ph. dentipes* sp. nov. the following measurements are given (in mm): Males (n = 5). Body length 10.24 (8.91–11.23); head: width (including eyes) 1.62 (1.54–1.70), interocular width 0.93 (0.89–0.97); lengths of antennomeres: 1 – 1.56 (1.24–1.73), 2 – 1.83 (1.57–2.00), 3 – 1.24 (1.08–1.35), 4 – 1.96 (1.73–2.21); pronotum: length 1.72 (1.51–1.94), width 3.16 (2.65–3.56); scutellum: length 1.49 (1.19–1.65), width 1.74 (1.51–1.89); corium: length 5.29 (4.86–5.78), width 1.81 (1.51–2.00).



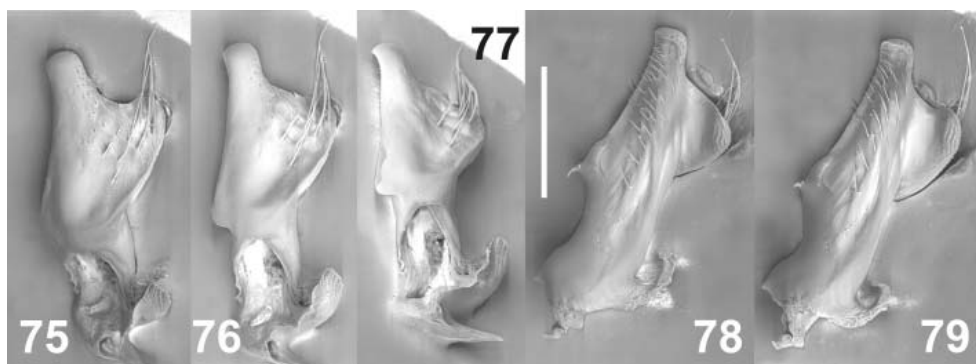
Figs 64–69. *Physopelta* (*Afrophysopelta*) *melanoptera* Distant, 1904, male. 64 – fore coxae and trochanters (magnification 75 \times); 65 – detail of procoxa and protrochanter (110 \times); 66–67 – profemur: 66 – anterior view (35 \times), 67 – ventral surface (70 \times); 68 – external scent efferent system (100 \times); 69 – peritreme and evaporatorium (170 \times). Scale bars: 0.2 mm (Figs 64, 66–68), 0.5 mm (Figs 65, 69). (SEM micrographs: P. Kment).

Females ($n = 5$). Body length 11.58 (9.99–12.58); head: width (including eyes) 1.74 (1.62–1.84), interocular width 0.98 (0.92–1.05); lengths of antennomeres: 1 – 1.66 (1.35–1.84), 2 – 1.94 (1.73–2.11), 3 – 1.28 (1.13–1.35), 4 – 2.14 (1.94–2.29); pronotum: length 1.98 (1.78–2.21), width 3.59 (3.19–3.94); scutellum: length 1.68 (1.46–1.84), width 2.00 (1.78–2.16); corium: length 6.32 (5.56–7.02), width 2.02 (1.73–2.16).



Figs 70–74. *Physopelta* (*Afrophysopelta*) *melanoptera* Distant, 1904, male, pygophore: 70 – intact, dorsal view (magnification 80×), 71 – dissected, dorsal view (75×), 72 – intact, postero-dorsal view (80×), 73 – intact, posterior view (80×), 74 – intact, lateral view (85×). Scale bars: 0.5 mm. (SEM micrographs: P. Kment).

Biology. According to LESTON (1969), this is a common species in food- and cocoa-farms in Ghana, widespread within the forest zone and occasionally very abundant. Most localities may be defined as farmbush, which includes the edges of farms, early fallow after food-farming operation, and the more mature regeneration stage usually styled secondary forest. However, it was also collected in the coastal shrub belt in Ghana (LESTON 1969). In Ghana, the species is often found on *Mallotus oppositifolius* (though not so abundant as *Ph. analis* and *K. festiva*, so another host plant was expected by Leston), where the larvae and adults



Figs 75–79. *Physopelta* (*Afrophysopelta*) *melanopectera* Distant, 1904, male, paramere (different orientations; 230×). Scale bar: 0.2 mm. (SEM micrographs: P. Kment).

feed on the fruits, their warning coloration making them easily spotted. LESTON (1969) noted the common co-occurrence of *Ph. melanopectera* with *Ph. analis* and *Kmentia festiva*, all the three species exploiting the same parts of the same host plant at the same time.

According to LESTON (1969), in Ghana the adults of *Ph. melanopectera* have been captured in every month of the year, but numbers vary greatly. There are probably other generations of this species, perhaps incipient ones, around October to December: the adults mate between February and April. The species is probably mainly diurnal. Arrivals to lights take place between 19.00 hours and midnight. The warning colouration pattern is efficient in so far as large feeding aggregations occur (LESTON 1969). The flight activity and its relationship with development of internal female reproductive organs was studied in Ivory Coast by DUVIARD (1975).

Distribution. **Angola** (new record), **Benin** (VILLIERS 1952b, LINNAVUORI 1988, ROBERTSON 2004; this paper), **Cameroon** (DISTANT 1904; ROBERTSON 2004; this paper), **Central African Republic** (LINNAVUORI 1988, ROBERTSON 2004; this paper), **Chad** (new record), **Comoros** (Grande Comore Island) (new record), **Democratic Republic of the Congo** (Bas-Uele, Equateur, Haut-Katanga, Haut-Uele, Ituri, Kinshasa, Kongo Central, Lualaba, Maniema, Mongala, Nord-Kivu, Nord-Ubangi, Sud-Kivu, Tanganyika (SCHOUTEDEN 1929; this paper); **Ethiopia** (new record), **Gabon** (new record), **Ghana** (LESTON 1969, ROBERTSON 2004; this paper), **Ivory Coast** (LINNAVUORI 1988, ROBERTSON 2004; this paper), **Kenya** (new record), **Malawi** (new record), **Nigeria** (MEDLER 1980, LINNAVUORI 1988; this paper), **Republic of the Congo** (VILLIERS 1967, ROBERTSON 2004; this paper), **São Tomé and Príncipe** (Príncipe Island) (new record), **Senegal** (new record), **Sierra Leone** (new record), **Tanzania** (Tanganyika, Zanzibar) (ROBERTSON 2004, no detail; this paper), **Togo** (LINNAVUORI 1988, ROBERTSON 2004); **Uganda** (DISTANT 1909, ROBERTSON 2004, no detail; this paper); **Zambia** (STEHLÍK & JINDRA 2008b; this paper).

LINNAVUORI (1988) recorded several localities of *Ph. melanopectera* from Nigeria; however, because of the common occurrence of *Ph. dentipes* sp. nov. in various regions of that state, the records require revision.

***Physopelta (Afrophysopelta) rufialata* Cachan, 1952**

Physopelta rufialata Cachan, 1952: 72–73, pl. V: fig. 2 (key, description, figures, distribution). SYNTYPES: ♂♀, Madagascar: Ambohitsitondroina, Maroantsetra (both east Madagascar), and Tananarive [= Antananarivo] (central Madagascar) (MNHN).

Type material examined. SYNTYPE: ♂, ‘Ambohitsitondroina [hw] / Inst. Scient. Madagascar [p] / III-49 Vadon [hw, white label] // ‘Maroantsetra’ [p, white label] // ‘Museum Paris’ [p, light blue label] // ‘TYPE’ [p, red label] // ‘Physopelta / rufialata / n. sp. / Cachan det.’ [hw, white label] (MNHN). Specimen pinned through pronotum, right antenna, mesotarsus, and hind leg, and left antennomere 4, middle leg, and metatarsus missing.

?SYNTYPE: ♀, ‘MUSEUM PARIS / MADAGASCAR / TANANARIVE / COLL: NOUALHIER 1898’ [p, greyish label] / ‘Physopelta’ [hw, white label] (MNHN). Specimen pinned through scutellum, only left antennomere 4 missing.

Distribution. Central and East Madagascar (CACHAN 1952).

***Physopelta (Afrophysopelta) flavofemoralis* sp. nov.**

(Fig. 80)

Type locality. Reunion Island, Bois Rouge.

Type material. HOLOTYPE: ♂ (BMNH), ‘RHe.63 [hw, vertical line at left margin] / REUNION [p] / Bois Rouge / 22.vii.1951 [p] / J.R.Williams [p] / Cane field [hw, white label] // COM. INST. ENT. / COLL. NO. 12284 [p, white label] // Pres. by / Com. Inst. Ent. / B.M.1952-305 [p, white label] // ♂ [p, white label] // Holo- / typus [p, red label with black frame submarginally] // *Physopelta / flavofemoralis / sp. n.* [hw, divided by black line] / det. J.L.Stehlik [p] 2009 [hw, red label]. Specimen pinned through scutellum, abdomen partly broken off from the body, both antennomeres 4 missing.

Description. Colouration (Fig. 80).

Head (darker), antennomere 1 and base of antennomere 2, labium, pronotum, femora, tibiae (except apices), scutellum (darker), clavus, corium up to the posterior part of central spot, abdominal dorsum and venter, red. Corium posteriorly white with orange tinge. Black central spot on corium elongate, anteriorly reaching apex of scutellum. Small, elongate, black spot in apical part of distal margin of corium.

Pilosity. Dorsal side of body (except callar lobe of pronotum and membrane), entire ventral side of the body, femora, and tibiae covered by semierect pubescence. Lateral margins of pronotum also with long, thin setae. Meso- and metatibiae ventrally with sparse, spine-like setae.

Punctuation. Pronotal lobe, scutellum, clavus, and corium up to apical part of the central spot deeply punctured, apical portion of corium without punctures.



Fig. 80. *Physopelta (Afrophysopelta) flavofemoralis* sp. nov., male, holotype. (Photo: L. Dembický).

Structure. Labium slightly surpassing hind coxae. Profemora with two strong teeth apically, and small denticles nearly along its entire length ventrally.

Pygophore. Ventral portion of ventral wall distinctly convex, dorsal portion of ventral wall projecting posteriorly (in lateral view), densely setose.

Measurements of the male holotype (mm). Body length 9.61; head: width (including eyes) 1.67, interocular width 1.03; lengths of antennomeres: 1 – 1.35, 2 – 1.62, 3 – 1.08 (antennomere 4 missing); pronotum: length 1.73, width 3.08; scutellum: length 1.35, width 1.84; corium: length 5.08, width 1.73.

Differential diagnosis. *Physopelta flavofemoralis* sp. nov. differs from the most similar congeners (*Ph. madecassa* and *Ph. melanoptera*) in its larger extent of the red colouration dorsally. *Physopelta melanoptera* and *Ph. madecassa* differ in having the head, antennomere 1 and base of the antennomere 2, labium, pronotum (except lateral and posterior margin), clavus, femora, tibiae, and abdominal sterna, all black. In *Ph. madecassa* also the sternites are black. *Physopelta rufialata* differs by absence of black spot on corium.

Etymology. The species epithet is the Latin adjective composed of *flavus*, *-a*, *-um* (= yellow) and *femoralis*, *-is*, *-e* (= of the femur, femoral), referring to the characteristic pale colouration of the femora.

Bionomics. The holotype was collected in a field of sugar cane (*Saccharum officinarum*).

Distribution. Endemic on Island of Reunion.

Species removed from *Physopelta*

Physopelta apicalis Walker, 1873

Physopelta apicalis Walker, 1873: 21 (original description). SYNTYPES: 4 spec. (a–d), ‘Hindustan’ (BMNH).

Type material examined. SYNTYPES: 1 ♂ (BMNH), ‘Type [p, white circular label, damaged] // averse: E. Ind. [hw] / reverse: 58 / 60 [hw, light-blue circular label, unreadable] // 11. PHYSOPELTA APICALIS. [p, white label] // ♂ [p, white label]’; 1 ♀ (BMNH), ‘averse: E. Ind. [hw] / reverse: 58 / 60 [hw, light-blue circular label] // Physopelta / apicalis / Waker’s Catal. [p, white label] // Physopelta / apicalis [hw, white label] // ♀ [p, white label]’; 1 ♀ (BMNH), ‘averse: E. Ind. [hw] / reverse: 58 / 60 [hw, light-blue circular label] // Physopelta / apicalis / Waker’s Catal. [p, white label] // ♀ [p, white label]’.

Comment. Examination of three syntypes of *Physopelta apicalis* Walker, 1873 deposited in BMNH revealed that this species shares a combination of characters placing it rather near the genus *Iphita* Stål, 1870, but also some unique characters (especially the forked process on procoxa) supporting its placement in a separate genus yet to be described (STEHLÍK & KMENT in press).

Kmentiini trib. nov.

Type genus. *Kmentia* gen. nov., here designated.

Diagnosis. Labium reaching between mesocoxae. Callar lobe weakly gibbose in both sexes. Ventral surface of profemora in both sexes with only a short longitudinal furrow limited to its apical third; basal two-thirds medially convex with numerous denticles on its entire surface (Figs 83, 97). Protibia in both sexes unarmed (Figs 95–96). Parameres horizontally positi-

oned, their apices approaching and standing opposite each other (Fig. 85), bent dorsally in their apical portion, apex hook-shaped, pointed dorsally (Figs 85, 87), distinctly surpassing ventral rim of pygophore (see in lateral view – Fig. 88).

Differential diagnosis. The tribe Kmentiini trib. nov. Belongs in the subfamily Physopeltinae, sharing its important synapomorphy – the intersegmental sulci between abdominal sternites deeply sinuated (S-shaped). It differs from the nominotypical tribe Physopeltini in the characters listed above, especially in the structure of profemora and male genitalia.

Genus included. The tribe is currently monotypical, including only *Kmentia* gen. nov.

Discussion. The West African *Physopelta festiva* (Fabricius, 1803) is excluded from *Physopelta* based on a number of differences in its external morphology and structure of genitalia. It is interesting that some of these characters resemble the New World subfamily Larginae, especially in the structure of the profemora (lacking the longitudinal furrow ventrally) and parameres. Although the parameres of all the remaining Physopeltinae are apically obtuse, directed skewed towards the center of the pygophore, and do not surpass the ventral rim; the parameres in *Physopelta festiva* are long, parallel, surpass the ventral rim, and have hook-shaped apices, which is characteristic for Larginae. In addition, the flat callar lobe of both sexes distinguishes *Ph. festiva* from all the remaining *Physopelta* species. Considering the differences between *Ph. festiva* and the remaining Physopeltinae taxa, I establish a new tribe, Kmentiini trib. nov., and a new genus, *Kmentia* gen. nov.

Kmentia gen. nov.

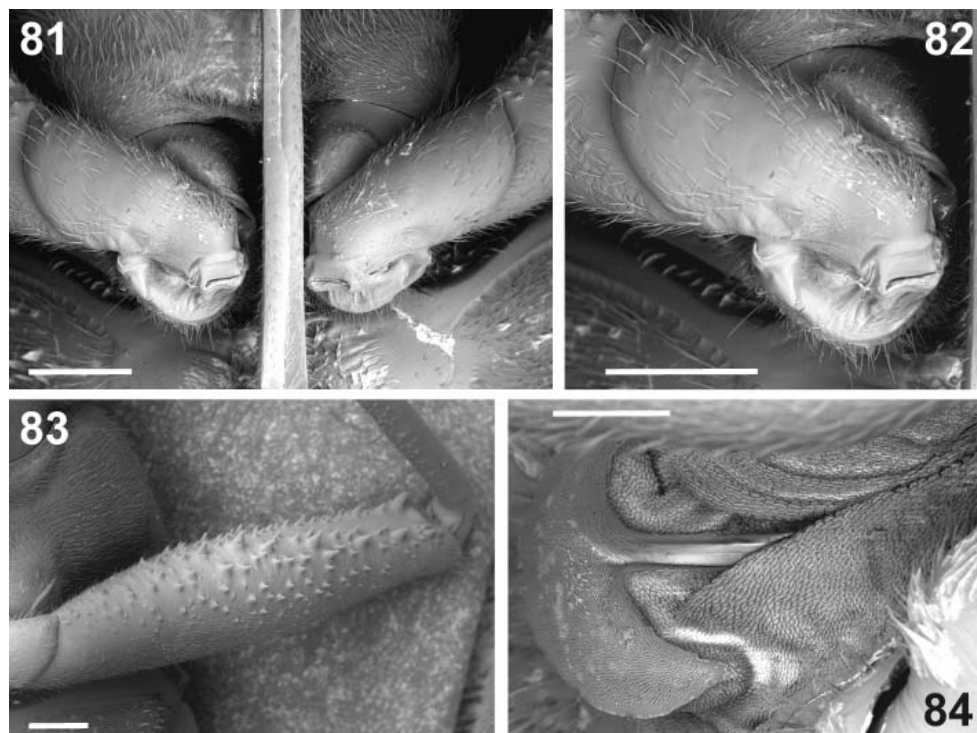
Type species. *Lygaeus festivus* Fabricius, 1803, here designated.

Description. Body large (♂♂ 15.50–19.60 mm, ♀♀ 16.00–18.90 mm). Antennae in both sexes long, always longer than pronotum, sometimes even longer than combined length of head and pronotum; antennomere 1 longer than antennomere 2 (Figs 93–94); there is great variability in length of antennae among specimens. As an example, the length of antennomeres of three large and three small males are given here: Large males (mm): 1 – 7.13, 6.59, 6.43; 2 – 6.32, 6.05, 5.56; 3 – 3.35, 3.19, 2.11; 4 – 3.89, 3.62, 3.59; small males (mm): 1 – 4.27, 4.86, 4.81; 2 – 3.89, 4.32, 4.37; 3 – 2.11, 2.32, 2.38; 4 – 3.19, 3.24, 3.08.

Callar lobe only slightly gibbose, without sexual differences (Figs 93–94). Labium reaching between mesocoxae. Profemora sexually dimorphic; in females more slender, with smaller number of small denticles; in small males profemora similar to those of females (Figs 93–94). Ventral surface of profemora with short longitudinal furrow limited to its apical third; basal two-thirds medially convex with numerous denticles on the entire surface (Figs 83, 97). Pro-tibiae ventrally unarmed (Figs 95–96). Peritreme of metathoracic scent glands longitudinal, crescent-shaped, projecting both anteriad and posteriad (Fig. 84).

Pygophore (Figs 85–88). Ventral rim slightly concave, rounded; lateral rim more elevated than ventral rim, strongly rounded, descending towards dorsal rim. Lateral rim infolding only slightly sloping into the genital chamber; anal tube wide, long, reaching middle of genital chamber (Fig. 86).

Parameres (Figs 89–92). Parameres horizontal, their apices approaching and standing opposite each other, their apical portions bent dorsally, apex hook-shaped, pointed (Figs 91–92), distinctly surpassing ventral rim of pygophore (see in lateral view – Fig. 88).



Figs 81–84. *Kmentia festiva* (Fabricius, 1803), male. 81 – fore coxae and trochanters (magnification 47×); 82 – detail of procoxa and protochanter (70×); 83 – ventral surface of profemur (32×); 84 – detail of peritreme (150×). Scale bars: 0.2 mm (Fig. 84), 0.5 mm (Figs 81–83). (SEM micrographs: P. Kment).

Female internal genitalia were described by DUVIARD (1975).

Differential diagnosis. *Kmentia* gen. nov. belongs to Physopeltinae because of the strongly S-shaped intersegmental sulci between the abdominal sternites. It differs in several characters from the other genera of the subfamily, warranting its placement in a tribe of its own – Kmentini trib. nov.: labium reaching between mesocoxae; callar lobe weakly gibbose in both sexes; ventral surface of profemora in both sexes with only short longitudinal furrow limited to its apical third, basal two-thirds medially convex with numerous denticles on the entire surface; protibia in both sexes unarmed; and structure of the male genitalia (parameres horizontally positioned, their apices approaching and standing opposite each other (Fig. 85), bent dorsally in their apical portion, apex hook-shaped, pointed dorsally (Figs 85, 87), distinctly surpassing ventral rim of pygophore (see in lateral view – Fig. 88).

Etymology. This new genus is named in honour of my friend and colleague Petr Kment (Department of Entomology, National Museum, Prague) with thanks for his help. Gender is feminine.

***Kmentia festiva* (Fabricius, 1803) comb. nov.**

(Figs 81–97)

Lygaeus festivus [sic!] Fabricius, 1803: 220 (description, distribution). SYNTYPE(s): Guinea (ZMUC: 1 spec., see ZIMSEN 1964).

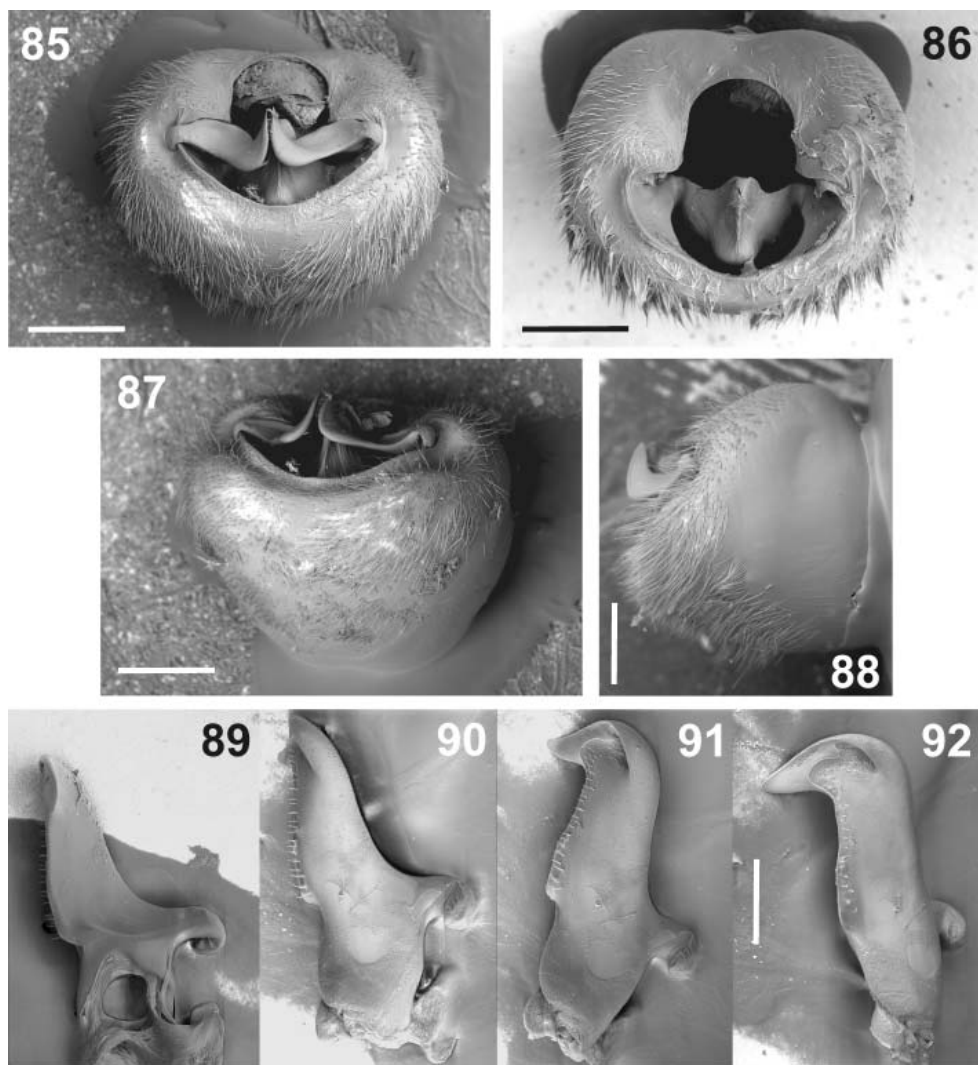
Lygaeus festivus: ZIMSEN (1964): 326 (types).

Pyrrhocoris festivus: BURMEISTER (1835): 285 (note, new combination).

Physopelta festiva: STÅL (1868): 79 (redescription, new combination, catalogue); STÅL (1870): 101 (catalogue, distribution); WALKER (1873): 17–18 (key, description of female, catalogue, distribution); LETHIERRY & SEVERIN (1894): 242 (catalogue, distribution); HAGLUND (1895): 463 (distribution); AULMANN (1912): 120 (short diagnose, figure, distribution); SCHOUTEDEN (1913): 246 (distribution); HUSSEY (1929): 30 (catalogue); GOLDING (1927): 97 (bionomics, distribution); BLÔTE (1931): 99 (distribution); MAYNÉ & GHESQUIÈRE (1934): 19 (bionomy, distribution); VILLIERS (1949): 81 (distribution); VILLIERS (1951): 40 (key); VILLIERS (1952a): 120–121 (diagnosis, figure, ecology); VILLIERS (1952b): 1196 (distribution); SOUTHWOOD (1961): 115 (distribution, ecology); VILLIERS (1967): 370 (distribution); LESTON (1969): 225–227 (key, biology, ecology, host plant, distribution); GIBBS & LESTON (1970): 528, 536 (ecology, distribution); DUVIARD (1974): 26–32 (morphology of female internal genitalia, biology, ecology); MEDLER (1980): 119 (checklist); LINNAVUORI (1988): 13 (distribution); ROBERTSON (2004): 4–5 (key, catalogue, distribution); STEHLÍK & JINDRA (2008b): 30 (distribution); VOTÝPKA et al. (2012): 492 (distribution, parasites).

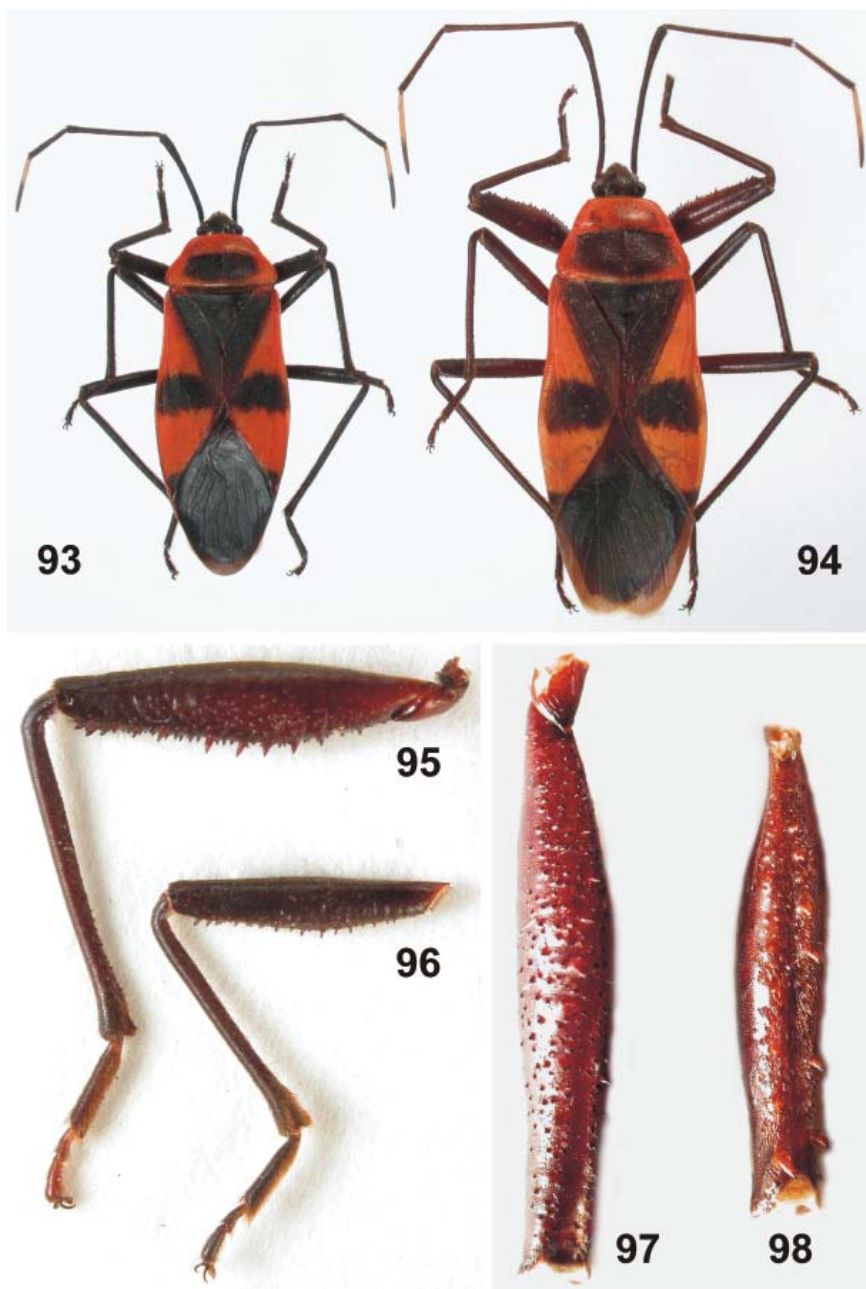
Material examined. ANGOLA: CABINDA: Landana, 1875, 1 ♂, P. Klein lgt., P. Kment det. (MNHN). – **CUANZA NORTE PROVINCE:** Pango – Quibaxe, no date, 1 ♂, J. Ebert lgt. (ZMUH); Salazar, I.I.A.A. [= Vila Salazar, currently N'dalatando], 9.–15. iii.1972, 1 ♂, Southern African Exp., P. Kment det. (BMNH). – **BENIN:** Agoué, 1879, 1 ♂ 1 ♀, Abbe Menager lgt., P. Kment det. (MNHN); Attogon, 06°42'N 02°09'E, light trap, cultures, 3.–4. vii.2000, 1 ♂ 1 ♀, H. Perrin lgt. (MNHN); Benin, no further data, 1 ♀ (ZMUH); Benin, no further data, 1 ♂ 1 ♀, F. Martiensén lgt. (ZMUH); Cotonou, 27. v.1914, 1 ♂, W. A. Lamborn lgt. (BMNH); Porto Novo env., 1908, 1 ♀, Waterlot lgt., P. Kment det. (MNHN); 52 km N of Save, 21. vi.2001, 1 ♂, F. Kantner lgt. (ZJPC); Zagnanado, no details, 1 ♂ 1 ♀, no collector (BMNH); Moyen-Dahomey, Plateau de Zagnanado (saison de oranges et des tornades [= season of oranges and tornados]), iv.1910, 10 ♂♂ 6 ♀♀, P. Ducorps lgt., P. Kment det. (MNHN). – **CAMEROON: CENTRAL PROVINCE:** Mont Fèbè, 19. x.1967, 1 ♂ 1 ♀, L. Tsacas lgt., P. Kment det. (MNHN); Station Yaoundé, iii.1897, 2 ♂♂ 5 ♀♀, v.1897, 2 ♂♂ 3 ♀♀, S. v. Carnop lgt. (ZMHB); ditto, no date, 6 ♂♂ 7 ♀♀, S. v. Carnop lgt. (ZMHB); south of Yaoundé, no date, 3 ♀♀, Schubert lgt. (ZMHB); Yaoundé, N'Kolbisson, ix.1963, 1 ♂, L. G. Segers lgt. (MRAC); ditto, vi.1966, 2 ♂♂, B. de Miré lgt. (MNHN); Yaoundé, st. de N'Kolbisson, 3. vii.1967, 1 ♂, B. de Miré lgt. (MNHN); N'Kolbisson, vi.1966, 1 ♂, vi.1971, 1 ♂, both B. de Miré lgt. (MNHN). – **EAST PROVINCE:** Doumé, no date, 3 ♂♂ 3 ♀♀, M. Cazal lgt., P. Kment det. (MNHN); Sangmelina, Fulasi, 3 ♂♂ 1 ♀, Evans lgt. (ZMHB); Batouri Distr., 03°45'N 13°45'E, 1.–17. iii.1935, 4 ♂♂ 1 ♀, 1.–30. iii.1935, 6 ♂♂ 4 ♀♀; 19. iv.–3. v.1935, 1 ♂ 2 ♀♀ 4 larvae, F. G. Merfield lgt. (BMNH); ditto, 750 m a.s.l., 1. v.–6. vi.1935, 3 ♂♂ 4 ♀♀ 15 larvae, F. G. Merfield lgt. (BMNH). – **NORTH PROVINCE:** Basse-Bénoué [= Benue valley], Ibi, 1904, 1 ♂, Cap. Lenfant lgt., P. Kment det. (MNHN). – **SOUTH-WEST PROVINCE:** Mukongo near Kumba, 15.–18. and 23.–25. ii.1888, 1 ♂, S. G. Eissentraut lgt. (ZMHB); Mukonje-Farm near Kumba am Mungo River, 2 ♂♂ 4 ♀♀, R. Rohde lgt. (ZMHB); Mundami, 1937, 3 ♀♀, R. Rohde lgt. (MRAC); Limbé [former Victoria], 11 ♂♂ 12 ♀♀, no collector (SMTD); ditto, no details, 1 ♂ 2 ♀♀ (DEIC); ditto, no date, 1 ♀, S. Preuss lgt. (ZMHB). – **PROVINCE NOT IDENTIFIED:** Dendeng, 16. iv.1914, 1 ♂, no collector, P. Kment det. (BMNH). – **CENTRALAFRICAN REPUBLIC:** **BANGUI PROVINCE:** Bangui, 1937, 1 ♂, Allin lgt., P. Kment det. (MNHN); Bangui env., x.1969, 2 ♂♂ 6 ♀♀, R. Pujol lgt., P. Kment det. (MNHN); Oubangui Chari, Bangui, i.–iii.1968, 2 ♂♂, coll. Breuning (MRAC). – **HAUT-MBOMOU PROVINCE:** Haut-Oubangui, Bessou (Mission), amont de [= above] Fort de Possel, Mission Chari-Tchad, 1904, 1 ♀, Dr. J. Decorse lgt., P. Kment det. (MNHN). – **KEMO-GRIBINGUI PROVINCE:** Dar-Banda merid., Fort Sibut, no date, 1 ♀, E. de Bergevin coll. (MNHN); Fort-Sibut, Haut-Chari, collection le moult [= ?], no date, 2 ♂♂ 1 ♀, coll. E. de Bergevin, P. Kment det. (MNHN). – **LOBAYE PROVINCE:** Boukoko, 16. ix.1965, 1 ♂, M. Boulard lgt. (MNHN); Oubanghi Chari, M'Baiki, Boukoko, 1945, 1 ♂, M. Guillemat lgt. (BMNH); Congo Moyen, Rég. de M'Baiki (Dr. Fidao), 1919, 1 ♀, Pitard lgt., P. Kment det. (MNHN); LaMaboké, 23. ix.1965, 1 ♂, R. Pujol lgt.; 14. x.1972, 1 ♀, no collector (MNHN). – **MBOMOU PROVINCE:** Talinga (Oubangui), no date, 1 ♂, G. Le Testu lgt. (MNHN). – **OMBELLA-MPOKO PROVINCE:** 70 km NE of Bangui, 04°51'N 18°46'E, 430 m a.s.l., 8. iv.2010, 1 ♀, J. Halada lgt. (ZJPC). – **SANGHA-MBARE PROVINCE:** Haute Sangha, no date, 2 ♂♂ 3 ♀♀ 1 spec., P. A. Ferrière lgt.; 1922, 1 ♀, Marcihacy lgt., P. Kment det. (MNHN); Haute Sangha (Carnot), ix.1908, 1 ♀, Dr. J. Kérandel lgt., P. Kment det. (MNHN); Komassa, no date, 1 ♀, M. Boulard lgt., A. Villiers det. (MNHN). – **DEMOCRATIC REPUBLIC OF THE CONGO:** **BAS-UELÉ:** Bambesa, 26. i.1933,

1 ♂, J. Vrydaght lgt. (ISNB); ditto, 15.x.1933, 1 ♂ 2 ♀♀, J. V. Leroy lgt. (MRAC); ditto, i.–ii.1934, 1 ♀, H. J. Breda lgt. (MRAC); ditto, 24.iv.1937, 1 ♂, 10.v.1937, 1 ♀, J. Vrydaght lgt. (MRAC); ditto, 3.vi.1937, 1 ♂ 1 ♀, J. Vrydaght lgt. (ISNB); ditto, 16.iv.1937, 1 ♂, 21.vii.1937, 1 ♀, J. Vrydaght lgt. (MRAC); ditto, 1.i.1937, 1 ♀, J. Vrydaght lgt. (MRAC); Angu, l.vi.1911, 1 ♂ 2 ♀♀, H. Schubitz lgt. (ZMUH); Dingila, 21.vi.1933, 1 ♀, 5.vii.1933, 1 ♂, J. V. Leroy lgt. (MRAC); ditto, 1.viii.1933, 1 ♂, 1.viii.1933, 1 ♂ 2 ♀♀, H. J. Breda lgt. (MRAC); Mobwasa, x.1911, 1 ♂ 1 ♀, De Giorgi lgt. (MRAC); Buta, 1911, 1 ♀, de Colonne lgt. (MRAC); ditto, 1926, 1 ♀, R. Fr. Joseph lgt. (MRAC); Bondo, 28.ii.1950, 1 ♂, R. P. Theunissen lgt. (MRAC); Tukpwo, viii.1938, 1 ♂, J. Vrydaght lgt. (MRAC). – **EQUATEUR**: Lukolela, 21.i.1930, 1 ♀, on cocoa, H. J. Breda lgt. (MRAC); Mbandaka, 10.xi.1931, 1 ♀, Lt. Dorman lgt. (MRAC); Eala, Inganda, 8.viii.1930, 3 ♂♂, J. Vrydaght lgt. (MRAC); ditto, i.1935, 1 ♀, J. Ghesquière lgt. (MRAC); Bamania, 1934, 1 ♂, R. P. Longinus lgt. (MRAC). – **HAUT-KATANGA**: Lufira River, 19.ix.1907, 3,500 ft [= 1069 m a.s.l.], 1 ♂, S. A. Neave lgt. (BMNH); Moera, Nianzu, 1935, 2 ♀♀, H. de Saeger lgt. (MRAC). – **HAUT-UELÉ**: Rungu, 4.vii.1914, 1 ♀, Rodhain lgt. (MRAC); Niangara, xi.1910, 2 ♂♂, Lang & Chapin lgt. (AMNH); Medje, viii.–ix.1910, 2 ♀♀, v.1914, 1 ♂, vi.1914, 1 ♀, Lang & Chapin lgt. (AMNH); Poko-Nala-Rungu, 1912, 1 ♂, Mne Hutereau lgt. (MRAC); Yebo Moto, 1926, 4 ♂♂ 4 ♀♀, L. Burgeon lgt. (MRAC). – **ITURI**: Penge-Bamboli-Putnam, vi.1933, 1 ♀, no collector (MRAC). – **KONGO CENTRAL**: Makaya Tete, 20.–30.xi.1915, 2 ♀♀, R. Mayné lgt. (MRAC); Zobe, 4.–12.i.1916, 1 ♂, R. Mayné lgt. (MRAC); Kaniati-Zobe, xii.1915, 5 ♂♂ 1 ♀, R. Mayné lgt. (MRAC); Kaika Zobe, x.1924, 2 ♂♂, A. Collart lgt. (MRAC); Tschela, 13.–27.ii.1916, 6 ♂♂ 3 ♀♀, 8.iii.1924, 3 ♀♀, 30.iii.1924, 1 ♀, A. Collart lgt. (MRAC); Temvo, 1935, 1 ♂, Van Alstein lgt. (MRAC); Mayumbe, vi.1936, 1 ♀, no collector (ISNB); ditto, xi.1938, 1 ♀, no collector (ISNB); Kungu, 25.xi.1923, 2 ♂♂, A. Collart lgt. (MRAC); Ganda Sundi, 10.–15.vii.1911, 1 ♂ 1 ♀, R. Mayné lgt. (MRAC); Luki, 15.i.1953, 1 ♂, Mne A. Van Alstein lgt. (MRAC); Lokandu, xii.1939, 1 ♀, Lt. Vissers lgt. (MRAC); Lukula, iv.1930, 1 ♂ 1 ♀, J. Slesckx lgt. (MRAC); Camp de Lukula, Kinshasa, 1911, 1 ♂ 1 ♀, Daniel lgt. (MRAC). – **LOMAMI**: Kaniama, 1931, 1 ♂, 1932, 1 ♀, R. Massart lgt. (MRAC). – **LUALABA**: 150–200 miles W of Kambove, 3,500–4,500 ft [= 1069–1372 m a.s.l.], 10.x.1909, 1 ♀, S. A. Neave lgt. (BMNH); Kolwezi, 1961–1962, 1 ♂, Dr. V. Allart lgt. (MRAC). – **LULUA**: River Kapelekese, ix.1933, 1 ♀, G. F. Overlaet lgt. (MRAC); Kapanga, xi.1932, 1 ♀, F. G. Overlaet lgt. (MRAC); ditto, v.1933, 1 ♂, F. G. Overlaet lgt. (MRAC). – **MONGALA**: Terr. Lisala, Modjebo, 10.xi.1938, 7 ♂♂ 6 ♀♀, J. J. Deheyn lgt. (MRAC); Lisala, 9.xi.1939, 3 ♀♀, Leontovitch lgt. (MRAC); Yambata, 10.xii.1912, 1 ♂, R. Mayné lgt. (MRAC); ditto, ii.–iii.1914, 1 ♀, De Georgi lgt. (MRAC); Gbadolite, 1 ♀, Royaux lgt. (MRAC); Molegbwe, 17.xii.1951, 1 ♀, R. P. Mostinckx lgt. (MRAC). – **NORD-KIVU**: Ituri forest, 26.iv.1930, 3,800 ft [= 1158 m a.s.l.], 1 ♀, Lord Howard de Walden Exped. (BMNH); Beni, Ituri forest, 1 larva, T. H. E. Jackson lgt. (BMNH); ditto, Beni, no date, 1 ♀, Lt. Borgerhoff lgt. (MRAC); Terr. Beni, M'Bau, 1,200 m a.s.l., viii.1963, 1 ♂ 1 ♀, R. P. M. Celis lgt. (MRAC). – **NORD-UBANGI**: Libenge, i.1937, 1 ♀, 24.iv.1937, 1 ♂ 1 ♀, Leontovitch lgt. (MRAC); ditto, 22.i.1947, 1 ♂ 2 ♀♀, 4.ix.1947, 2 ♀♀, 23.ix.1947, 1 ♂, 25.ix.1947, 1 ♂, 9.x.1947, 2 ♂♂, 12.x.1947, 1 ♂, 13.x.1947, 2 ♂♂, 14.x.1947, 1 ♂ 1 ♀, 21.x.1947, 1 ♂, 24.x.1947, 24 ♂♂ 2 ♀♀, 27.x.1947, 1 ♀, 4.xi.1947, 1 ♀, 13.xi.1947, 6 ♂♂ 5 ♀♀, 27.xi.1947, 1 ♂ 1 ♀, 8.i.1948, 6 ♂♂ 5 ♀♀, 15.i.1948, 1 ♀, R. Cramer & N. Neuman lgt. (ISNB); Libenge, Mission Mawuya, 22.i.1947, 1 ♂ 1 ♀, 11.x.1947, 6 ♂♂ 12 ♀♀, 15.x.1947, 3 ♂♂ 1 ♀, 24.x.1947, 3 ♀♀, 30.x.1947, 7 ♀♀, 7.xi.1947, 1 ♂ 1 ♀, 11.xi.1947, 6 ♂♂ 5 ♀♀, 8.xii.1947, 1 ♀, R. Cramer & N. Neuman lgt. (ISNB); Motenge Boma, 2.xii.1947, 1 ♀, R. Cramer & N. Neuman lgt. (ISNB); Bili, 2 ♂♂ 3 ♀♀, 14.iv.1954, Ch. Verbeke lgt. (ISNB). – **TANGANYIKA**: Bassin Lukuga, iv.–vii.1934, 2 ♀♀, De Saeger lgt. (MRAC). – **TSHOPO**: Kisingani, iv.1926, 1 ♀, Lt. Ghesquière lgt. (MRAC); ditto, vii.1930, 1 ♂, J. Colin lgt. (MRAC); Yangambi, no date, 1 ♂, on haut herbie [= on tall herbs/plants], Lonis lgt. (MRAC). – **GABON**: Bas-Ogoué, entre Lambaréné et la mer [= between Lambaréné and the sea]; 1901, 1 ♂ 2 ♀♀, E. Haug lgt., P. Kment det. (MNH); Crique-Tsini, 1914, 1 ♀, G. Favarel lgt. (MNH); Libreville, 1919, 1 ♀, Chalot lgt., coll. E. Fleutiaux, P. Kment det. (MNH). – **GHANA**: **ASHANTI REGION**: Ashanti, 7.v.1913, 2 ♀♀, A. E. Evans lgt. (BMNH); Kumasi, U.S.T. Campus, 18.vi.1970, 3 ♀♀, I. Acheampon lgt. (AMNH). – **CENTRAL REGION**: Abrafo, Kakum NP, N 05°20'29.33" E 01°22'57.58", 3.viii.2009, 1 ♂, J. Votýpka lgt. (NMPC). – **EASTERN REGION**: Tafo, 25.iv.1957, 1 ♂, 8.v.1957, 1 ♀, V. E. Eastop lgt. (BMNH); ditto, 4.–9.x.1947, 1 ♀, T. Schuh lgt. (AMNH). – **GREATER ACCRA REGION**: Akra [= Accra], 1 ♀, no collector (ZMHB). – **VOLTA REGION**: Hohoe env., Wli, 3.–6.vi.2006, 1 ♂ 1 ♀, J. Rolčik lgt. (MMBC). – **WESTERN REGION**: Takoradi, 29.ii.1966, 2 ♀♀, Kudler lgt. (NMPC); ditto, 14.xi.1966, 1 ♂, Kudler lgt. (ZJPC). – **REGION NOT IDENTIFIED**: Gold Coast, Abari, 1914–29, 1 ♂, W. H. Patterson lgt., P. Kment det. (BMNH). – **IVORY COAST**: Adiopodoumé, no date, 2 ♂♂, Ledoux lgt., P. Kment det. (MNH); Bassin de la Moy.assandra [= basin of middleassandra river], Guidéko, 1907, 1 ♀, v.–vi.1907, 1 ♂, A. Chevalier lgt., P. Kment det. (MNH); Beoumi, 300 miles N of Grand Bassam, 25.xi.1922–i.1923, 1 ♀, W. P. Lowe & H. R. Hardy lgt., 1 ♀ (BMNH); Bouaké, xi.1947, 1 ♂, no collector (ISNB); Haut [= upper]assandra, Pays Dyola entre Zonalé et Sanrou [= Dyola region between Zonalé and Sanrou] (F. Fleury), v.1910, 2 ♀♀, A. Chevalier lgt., P. Kment det. (MNH); Lamto, 5.–15.ii.1958, 1 ♂ 2 ♀♀, iv.1968,



Figs 85–92. *Kmentia festiva* (Fabricius, 1803), male. 85–88 – pygophore: 85 – intact, dorso-posterior view (magnification 50×), 86 – dissected, dorsal view (55×), 87 – intact, posterior view (50×), 88 – intact, lateral view (60×). 89–92 – paramere (different orientations; 150×). Scale bars: 0.2 mm (Figs 89–92), 0.5 mm (Figs 85–88). (SEM micrographs: P. Kment).

1 ♂, ix.1968, 1 ♀, i.1969, 1 ♀, Cl. Girard lgt., P. Kment det. (MNHN); Lamto, piège lumineux [= light trap], 27. ii.1968, 1 ♀, iv.1968, 1 ♂, 31.viii.1969, 1 ♀, Cl. Girard lgt., P. Kment det. (MNHN); Lamto (Taumodi), 10.iv.1964, 1 ♀, at light, no collector (MMBC); ditto, 17.v.1965, 1 ♀, R. Vuattoux lgt. (MNHN); ditto, iv.1968, 1 ♂, Cl. Girard lgt. (MNHN); N'zida, no date, 1 ♂, P. Lepesme lgt. (MNHN). Ivory Coast, no further data, 1 ♀ (DEIC). – **KENYA**: 'Kenya Colony', 1 ♀, Škulina lgt. (NMPC). – **MALAWI**: Mlanje [= Mulanje Mt.], iii.1913, 1 ♂, 3.iii.1913, 4 ♂♂ 2 ♀♀, 5.iii.1913, 1 ♂ 4 ♀♀, S. A. Neave lgt. (BMNH); Ruw Valley, 2,000 ft [= 610 m a.s.l.], 14.xii.1913, 5 ♂♂ 1 ♀, S. A. Neave lgt. (BMNH). – **MOZAMBIQUE**: NANPULA PROVINCE: Mutuali, 1 ♀, Castel Branco lgt. (BMNH). – **NIGER**: NIAMEY PROVINCE: Abutshi, on Niger River (formerly Royal Niger Company Station), 1 ♂, coll. Schouteden (MRAC).



Figs 93–98. *Kmentia festiva* (Fabricius, 1803). 93 – female; 94 – male; 95–96 – fore leg (95 – large male, 96 – small male); 97 – ventral surface of profemur. 98 – *Physopelta* (*Neophysopelta*) *gutta gutta* (Burmeister, 1834), ventral surface of profemur. (Photos: L. Dembický).

– **NIGERIA: NIGER STATE:** Minna, ix.1910, 1 ♀, J. W. Scott-Macfie lgt. (BMNH). – **KOGI STATE:** N. Nigeria, on Niger [river], Benua [= Benue], 21.ix.1910, 1911–284, 1 ♀, P. A. Talbot lgt. (BMNH). – **LAGOS STATE:** Lagos, no date, 1 ♂, coll. Distant, P. Kment det. (BMNH); Ondo, Lagos, 2.iv.1910, 1 ♀, A. B. S. Powell lgt. (BMNH). – **REPUBLIC OF THE CONGO:** Région d'Ouessou, Bassin N'Goko-Sanga, 1906, 1 ♂ 1 ♀, Dr. Grivot lgt., J. Lhoste & D. Pluot det. (MNHN); Sibiti, Mission A. Descarpentries et A. Villiers 1963–1964, xi.1963, 1 ♂, A. Descarpentries & A. Villiers lgt., A. Villiers det. (MNHN). – **SIERRA LEONE:** Bo, 1.ix.1912, 1 ♀, J. J. Simpson lgt., P. Kment det. (BMNH); Tikonko, 31.viii.1912, 1 ♀, J. J. Simpson lgt., P. Kment det. (BMNH). – **TANZANIA:** Tanzania, no further data, 1 ♂ (DEIC). – **TOGO:** Togo, no further data, 1 ♂ (DEIC); ditto, no further data, 20.xii.1900, 1 ♂ 1 ♀, M. Otto lgt. (ZMUH). – **UGANDA: BULISA/MASINDI PROVINCE:** Budongo Forest, Bunyoro, iv.–v.1954, 1 ♀, V. G. L. van Sommeren lgt., P. Kment det. (BMNH). – **BUNGIBUGYO PROVINCE:** Bwamba valley, vii.1945, 1 ♂ 1 ♀, v.1954, 1 ♀, van Someren lgt. (BMNH); Bwamba, vii.–viii.1946, 2 ♂♂ 1 ♀, van Someren lgt. (BMNH, NMPC). – **MASAKA PROVINCE:** Katera, Sango Bay, Masaka, xi.1956, 1 ♂, T. H. E. Jackson lgt. (BMNH); Katera Forest, Masaka, x.–xi.1953, 1 ♂, V. G. L. van Sommeren lgt., P. Kment det. (BMNH). – **MUCAN PROVINCE:** Mabira forest, Changwe, 3,500–3,800 ft [= 1067–1158 m a.s.l.], 16.–25.vii.1911, 1 larva, S. A. Neave lgt. (BMNH).

Biology. According to LESTON (1969), it is a common species of food- and cocoa-farms in Ghana, being widespread within the forest zone and occasionally very abundant. Most localities may be defined as farmbrush, which includes the edges of farms, early fallow after food-farming operation, and the more mature regeneration stage usually styled secondary forest. However, it was also collected in the coastal shrub belt and even dry coastal grassland in Ghana (LESTON 1969). According to MAYNÉ & GHESQUIÈRE (1934), the species is common at Mayumbe (Democratic Republic of Congo) in fields of sweet potatoes, less frequently in cotton fields. GOLDING (1927) reported adults feeding on fruits of *Mallotus oppositifolius* (Euphorbiaceae) at Ibadan, Nigeria, in October (larvae were not observed). The species is often abundant on the same host plant in Ghana too, where the larvae and adults feed on the small green fruits, their warning coloration making them easily spotted. However, according to MAYNÉ & GHESQUIÈRE (1934), the species is zoophytophagous (in original as □régime mixte□), attacking various Hemiptera. AULMANN (1912) collected it frequently together with species of the genus *Dysdercus* Guérin-Méneville, 1831 (Pyrrhocoridae). LESTON (1969) noted the common co-occurrence of *K. festiva* with *Ph. analis* and *Ph. melanoptera*, all three species exploiting the same parts of the same host plant at the same time. In Ghana, adults of *K. festiva* have been captured in every month of the year, but abundance varies greatly (LESTON 1969). SOUTHWOOD (1961) recorded *K. festiva* from an ultra-violet light trap at Tafo, Ghana, operated in March and April. According to LESTON (1969), adults mate in Ghana at least between early March and mid-April (and perhaps from January on); the new generation is responsible for the light trap peak: this suggest large-scale movement of the new adults (LESTON 1969, GIBBS & LESTON 1970). Larvae are seldomly seen after the end of May. The adults probably survive until about next March, and they are probably mainly diurnal in habits. Arrivals to light take place between 19.00 hours and midnight. The warning colouration pattern is efficient in so far as large feeding aggregations occur, but *K. festiva* is preyed upon by a large, green mantid species, *Sphodromantis lineola* (Burmeister, 1838) (LESTON 1969). The flight activity and its relationship with development of internal female reproductive organs was studied in Ivory Coast by DUVIARD (1975).

Distribution. **Angola** (new record), **Benin** (VILLIERS 1952b; this paper), **Cameroon** (AULMANN 1912, HAGLUND 1895, BLÔTE 1931, ROBERTSON 2004; this paper), **Central African Republic** (LINNAVUORI 1988, ROBERTSON 2004; this paper), **Democratic Republic of the Congo** (SCHOUTEDEN 1913, MAYNÉ & GHESQUIÈRE 1934; this paper), **Gabon** (new record), **Ghana** (SOUTHWOOD

1961, LESTON 1969, ROBERTSON 2004, VOTÝPKA et al. 2012; this paper), **Guinea** (FABRICIUS 1803, BLÖTE 1931, ROBERTSON 2004), **Ivory Coast** (VILLIERS 1949, DUVIARD 1975, LINNAVUORI 1988, ROBERTSON 2004; this paper), **Kenya** (new record), **Malawi** (new record), **Mozambique** (new record), **Niger** (new record), **Nigeria** (WALKER 1873, MEDLER 1980, LINNAVUORI 1988, ROBERTSON 2004; this paper), **Republic of the Congo** (VILLIERS 1967, ROBERTSON 2004; this paper), **Sierra Leone** (new record), **Tanzania** (new record), **Togo** (VILLIERS 1952b; this paper), **Uganda** (ROBERTSON 2004, no details; this paper), **Zambia** (STEHLÍK & JINDRA 2008b).

Discussion

In his cladistic analysis of Pentatomomorpha (with emphasis on Lygaeoidea), HENRY (1997) recognised Pyrrhocoroidea as monophyletic, a sister taxon of Coreoidea, including two sister families – Largidae (including Larginae and Physopeltinae) and Pyrrhocoridae. However, the phylogenetic relationships within Largidae and the Pyrrhocoroidea have never been a subject of a detailed study (based on a representative sample of taxa) using either morphological or molecular methods. Despite this impediment, I would like to point here some ideas based on my present studies of both Old and New World Largidae, which may serve as basic hypotheses for further testing by modern phylogenetic methods.

First, there is striking similarity between the Neotropical largine genus *Fibrenus* Stål, 1861 (possibly the most plesiomorphic genus of Larginae) and the genera *Physopelta* and *Kmentia* gen. nov., suggesting a plesiomorphic position of *Fibrenus* within the subfamily Larginae. The following characters are shared by *Fibrenus* and some of the subgenera of *Physopelta*:

- i) Antennomere 1 long, much longer than antennomere 2. The character is shared only with the nominotypical subgenus *Physopelta* s. str.
- ii) Callar lobe gibbosity sexually dimorphic, strongly gibbose in males, less developed in females. The character is shared with subgenera *Physopelta* s. str. and *Neophysopelta*.
- iii) Protibia ventrally with denticles along its entire length in males, unarmed in females. The character is shared with the subgenera *Physopelta* s. str. and *Neophysopelta*.
- iv) Meso- and metafemora with denticles along its entire length in males, unarmed in females. The character is shared with the subgenus *Physopeltoides* subgen. nov.; in *Neophysopelta* the denticles occur only on the mesofemora of males, with some exceptions (completely missing in *Ph. (Neophysopelta) slanbuschii*; present in female meso- and metafemora in *Ph. (Neophysopelta) kotheae*); in *Physopelta* s. str. the characters are exhibited only on mesofemora.
- v) Procoxa with a large tooth (strigil) and plectrum basally on profemur in *Fibrenus*. In *Neophysopelta* procoxa with smaller tooth (strigil) and plectrum situated on protrochanter. In *Physopelta* s. str. the stridulatory organs are developed but of different structure. In *Physopeltoides* subgen. nov. and *Afrophysopelta* subgen. nov. the stridulatory organs are not developed.

Fibrenus and *Kmentia* gen. nov. share the following characters:

- i) Antennomere 1 long, longer than antennomere 2.
- ii) Labium reaching mesocoxae.

- iii) Profemora without longitudinal furrow, with small denticles on its entire surface.
- iv) Mesofemora ventrally with small denticles.
- v) Parameres horizontally positioned, apically bent upwards.

The similarities between the West African *Kmentia* gen. nov. and the New World Larginae, especially in the structure of the parameres, which is otherwise rather uniform in both Larginae and Physopeltinae, offer interesting and so far unexplored hypotheses considering the origin of the American fauna of Pyrrhocoroidea. As *Mesopyrrhocris fasciata* Hong & Wang, 1990 from the early Cretaceous of China, described as a pyrrhocorid (HONG & WANG 1990), in fact belongs to Cimicomorpha (SHCHERBAKOV 2007), no fossil heteropterous species can be assigned to Pyrrhocoroidea with any certainty, so the age of the superfamily is merely a subject of speculation. However, most of the modern families of Heteroptera seem to have originated in the Jurassic or Cretaceous (e.g., GRIMALDI & ENGEL 2005, YAO et al. 2010). Therefore it is quite possible that the ancestor of Largidae lived already in Gondwana about the time of the opening of the Atlantic Ocean between Africa and South America (ca. 110 millions years ago, SANMARTÍN & RONQUIST 2004) with subsequent vicariant development of Larginae and Physopeltinae on opposite sides of the Atlantic.

On the other hand, the family Pyrrhocoridae is clearly an Old World group with all the genera occurring in Old World – only one of them (the nominotypical subgenus of *Dysdercus* Guérin-Méneville, 1831) is shared between west Africa and the Neotropical Region (STEHLÍK 1965b, VAN DOESBURG 1968, AHMAD & QADRI 2009), clearly suggesting the origin of American *Dysdercus* by a dispersal event during the Tertiary. These scenarios may also suggest that the more derived Pyrrhocoridae are in fact evolved in the Old World from a physopeltine ancestor only after its split from the largine lineage, which would render the family Largidae paraphyletic.

It is certain that phylogeny and phylogeography of Pyrrhocoridae represent an interesting problem which I hope will soon attract attention of researchers and will be addressed with use of modern analytic methods.

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Appendix

Classification, generic conspectus and distribution of Largidae

Taxon	Number of species	Distribution	References
LARGINAE Amyot & Serville, 1843			
Largini Amyot & Serville, 1843			
<i>Acinocoris</i> Hahn, 1834	16	Neotropical Region (Costa Rica to N Argentina)	HUSSEY (1929), SCHMIDT (1931), VAN DOESBURG (1966), BRAILOVSKY & BARRERA (1981b), BRAILOVSKY (1989)
<i>Fibrenus</i> Stål, 1861	13	Neotropical Region (Mexico to Brazil and Paraguay)	HUSSEY (1929), SCHMIDT (1931), BRAILOVSKY & BARRERA (1981a), BRAILOVSKY (1989)
<i>Largus</i> Hahn, 1831 = <i>Wupatkius</i> Bliven, 1959*)	61 (2)	S and E USA (N to New Jersey and New York), Neotropical Region (from Mexico to N Argentina, including Great Antilles and Curaçao)	HUSSEY (1929), BLÖTE (1931), SCHMIDT (1931), BLIVEN (1959, 1973), VAN DOESBURG (1966), HALSTEAD (1970, 1972a,b), HENRY (1988), DELLAPÉ et al. (2010), STEHLÍK & KMENT (2010), SCHAEFER & STEHLÍK (2013)
<i>Lecadra</i> Signoret, 1862	2	Neotropical Region (Brazil, Peru)	HUSSEY (1929), SCHMIDT (1931)
<i>Rosapha</i> Kirkaldy & Edwards, 1902 = <i>Astemma</i> auct., nec Le Peletier & Serville, 1825	7	Neotropical Region (Venezuela and Guyana to N Argentina)	HUSSEY (1929), BRAILOVSKY & BARRERA (1993), COSCARÓN & DELLAPÉ (2006), STEHLÍK (2007c)
<i>Stenomacra</i> Stål, 1870	8	USA (Arizona, California, New Mexico), Neotropical Region (Mexico to Brazil)	HUSSEY (1929), BRAILOVSKY & MAYROGA (1998)
<i>Thaumastaneis</i> Kirkaldy & Edwards, 1902	2	Neotropical Region (N Argentina, Bolivia, Brazil, Paraguay, Suriname)	HUSSEY (1929), DELLAPÉ & MELO (2007)
<i>Theraneis</i> Spinola, 1837	21	Neotropical Region (Honduras to N Argentina)	HUSSEY (1929), SCHMIDT (1931), VAN DOESBURG (1966), BRAILOVSKY (1991), STEHLÍK (2006), BRAILOVSKY & BARRERA (2008)
<i>Vasarhelbecoris</i> Brailovsky & Barrera, 1994	1	Neotropical Region (Peru)	BRAILOVSKY & BARRERA (1994)
Araphini Bliven, 1973			
<i>Arhapha</i> Herrich-Schaeffer, 1850 = <i>Jarhaphetus</i> Bliven, 1956	17	USA (northward to Illinois and Virginia), Neotropical Region (Mexico, Guatemala, Honduras)	HUSSEY (1929), BLIVEN (1956, 1973), HALSTEAD (1972c), BRAILOVSKY (1981, 1996), BRAILOVSKY & MARQUEZ (1974), STEHLÍK & KMENT (2011)
<i>Pararhapha</i> Henry, 1988 = <i>Japetus</i> Distant, 1883	1	Neotropical Region (Guatemala)	HUSSEY (1929), HENRY (1988), STEHLÍK & KMENT (2011)

Largulini Stehlík & Jindra, 2007			
<i>Armalargulus</i> Stehlík & Jindra, 2007	1	Neotropical Region (Jamaica)	STEHLÍK & JINDRA (2007)
<i>Largulus</i> Hussey, 1927	1	Neotropical Region (Jamaica)	HUSSEY (1927, 1929), STEHLÍK & JINDRA (2007)
<i>Neolargulus</i> Stehlík & Brailovsky, 2011	1	Neotropical Region (Dominican Republic)	STEHLÍK & BRAILOVSKY (2011)
<i>Paralargulus</i> Stehlík & Brailovsky, 2011	1	Neotropical Region (Jamaica)	BRAILOVSKY & BARRERA (2008), STEHLÍK & BRAILOVSKY (2011)
PHYSOPELTINAE Hussey, 1929			
Physopeltini Hussey, 1929			
<i>Delacampius</i> Distant, 1903	12	Oriental and Australian Region (S China and Laos to N Australia, New Guinea and Solomon Islands)	DISTANT (1919), HUSSEY (1929), STEHLÍK (1965), STEHLÍK & KERZNER (1999), CASSIS & GROSS (2002), STEHLÍK (2005b, 2006a), STEHLÍK & JINDRA (2006, 2008), RÉDEI et al. (2012)
<i>Iphita</i> Stål, 1870 = <i>Dindymellus</i> Distant, 1919	12 (2)	Oriental Region (from India and S China to New Guinea)	DISTANT (1919), HUSSEY (1929), AHMAD & ABBAS (1992), STEHLÍK (2005a), STEHLÍK & JINDRA (2006, 2008), this paper
<i>Jindraia</i> Stehlík, 2006	1	Oriental Region (India: Meghalaya, Sikkim)	STEHLÍK (2006a)
<i>Physopelta</i> Amyot & Serville, 1843	27 (2)	Afrotropical, S Palaearctic, Oriental and Australian Region	this paper
– <i>Physopelta</i> s. str.	3	Oriental Region (S China and Thailand to Bali and Philippines)	HUSSEY (1929)
– <i>Afrophysopelta</i> subgen. nov.	5	Afrotropical Region (Senegal to Kenya and Mozambique; Madagascar and Reunion)	HUSSEY (1929), VILLIERS (1951), CACHAN (1952), this paper
– <i>Neophysopelta</i> Ahmad & Abbas, 1987	21 (2)	S Palaearctic, Oriental and Australian Region (Afghanistan and Japan to N Australia, New Guinea and Solomon Islands)	HUSSEY (1929), BLÖTE (1931, 1933, 1938), AHMAD & ABBAS (1987), ZAMAL & CHOPRA (1990), PERVEEN & AHMAD (1991), STEHLÍK & JINDRA (2008), STEHLÍK & KMENT (2012), this paper
– <i>Physopeltoides</i> subgen. nov.	1	Afrotropical Region (Guinea to Uganda and Zimbabwe)	this paper
<i>Taeuberella</i> Schmidt, 1932	2	Australian Region (New Guinea, Australia: Northern Territory)	SCHMIDT (1932), BLÖTE (1933), STEHLÍK & JINDRA (2008)
Gen. nov. (for <i>Physopelta apicalis</i> Walker, 1873)	1	India	this paper, STEHLÍK & KMENT (in press)

Kmentini trib. nov.			
<i>Kmentia</i> gen. nov.	I	Afrotropical Region (Guinea to Uganda, Zambia and Angola)	this paper
Lohitini Ahmad & Abbas, 1987			
<i>Macrocheraia</i> Guérin-Ménéville, 1835 = <i>Lohita</i> Amyot & Serville, 1835	I (1)	Oriental Region (India to S China, Sumatra and Kalimantan)	HUSSEY (1929), KERZHNER (2001)
Physopeltinae incertae sedis			
<i>Wachsiella</i> Schmidt, 1931	I	Oriental Region (Indonesia: Sulawesi)	SCHMIDT (1931)

*) HALSTEAD (1972b) considered this taxon a synonym of *Largus*, and the species *Wupakius semo* Bliven 1956 a synonym of *Largus convivus* Stål, 1861. BLIVEN (1973) argued to maintain it as valid genus and species. HENRY (1988) maintained them as valid for the time being. I fully agree with the synonymies proposed by HALSTEAD (1972b) and treat them accordingly.

References

- AHMAD I. & ABBAS N. 1985: Redescription of *Lohita grandis* (Gray) (Hemiptera: Pyrrhocoroidea: Largidae) from Bangladesh with reference to its relationships. *Proceedings of the Entomological Society of Karachi* **14–15** (1984–1985): 13–20.
- AHMAD I. & ABBAS N. 1987: A revision of the family Largidae (Hemiptera: Pyrrhocoroidea) with description of a new genus from Indo-Pakistan subcontinent and their relationships. *Türkiye Bitki Koruma Dergisi* **11**: 131–142.
- AHMAD I. & PERVEEN R. 1986: Studies on the abdomen and genitalia of a Pyrrhocorid cotton stainer *Dysdercus koenigii* (Fabr.) and a largid *Physopelta gutta* (Burm.) (Hemiptera: Pyrrhocoroidea) and their bearing on classification. *Proceedings of the Pakistan Congress of Zoology* **5**: 159–169.
- AHMAD I. & PERVEEN R. 1989: Cephalic sclerites and sutures of Pyrrhocoroidea (Hemiptera: Heteroptera: Trichophora) and their bearing on classification. *Pakistan Journal of Zoology* **21**: 47–55.
- AHMAD I. & QADRI S. S. 2009. Male and female genitalia characters in the establishment of a new subgenus of cotton stainer's genus *Dysdercus* Guérin-Ménéville (Hemiptera: Pyrrhocoridae). *Pakistan Journal of Zoology* **41**: 125–130.
- AHMAD I. & ZAIDI R. H. 1987: Redescription of a little known genus *Delacampus* Distant (Hemiptera: Largidae: Physopeltinae) from Oriental region and its relationships. *Proceedings of the Pakistan Congress of Zoology* **7**: 161–165.
- AMYOT C. J. B. & SERVILLE J. G. A. 1843: *Histoire naturelle des Insectes. Hémiptères*. Roret, Paris, xxvi + 675 + 6 pp.
- AULMANN G. 1912: Die Schädlinge der Baumwolle. In: Zoologische Museum Berlin (ed.): Die Fauna der deutschen Kolonien. Reihe 5. Die Schädlinge der Kulturpflanzen. Heft 4. R. Friedländer & Sohn, Berlin, vi + 166 pp.
- BERGROTHE. 1894: Rhynchota orientalia. *Revue d'Entomologie* **13**: 152–164.
- BERGROTHE. 1913: Supplementum Catalogi Heteropterorum Bruxellensis II. *Memoires de la Société Entomologique de Belgique* **22**: 125–183.
- BLIVEN B. P. 1956: *New Hemiptera from the western states with illustrations of previously described species and new synonymy on the Psyllidae*. B. P. Bliven, Eureka, California, 27 pp.
- BLIVEN B. P. 1959: New Pyrrhocoridae and Miridae from the Western United States (Hemiptera). *Occidental Entomologist* **1(1)**: 25–33.
- BLIVEN B. P. 1973: A third paper of Hemiptera associated with Pyrrhocoridae. *Occidental Entomologist* **1(10)**: 123–133 + 141–142.
- BLÖTE H. C. 1931: Catalogue of the Pyrrhocoridae in 's Rijks Museum van Natuurlijke Historie. *Zoologische Mededeelingen* (Leiden) **14**: 97–117.
- BLÖTE H. C. 1933: New Pyrrhocoridae in the Collection of the British Museum (Natural History). *Annals and Magazine of Natural History, Series 10* **11**: 588–602.

- BLÖTE H. C. 1938: Fauna Buruana. Heteroptera, Fam. Pyrrhocoridae. *Treubia* **16**: 307–309.
- BRAILOVSKY H. 1981: Arhaphé H. S., description de nuevas especies (Hemiptera: Heteroptera: Largidae). *Folia Entomológica Mexicana* **47**: 81–109.
- BRAILOVSKY H. 1989: Cuatro especies nuevas sudamericanas de la familia Largidae (Hemiptera: Heteroptera). *Anales del Instituto de Biología, Universidad Nacional Autónoma de México, Serie Zoología* **60**: 77–90.
- BRAILOVSKY H. 1991: Four new species of the Neotropical genus *Theraneis* Spinola (Hemiptera: Heteroptera: Largidae). *Journal of the New York Entomological Society* **99**: 630–636.
- BRAILOVSKY H. 1996: Especies nuevas del género *Arhaphé* (Hemiptera: Heteroptera: Largidae: Arhaphinae). *Anales del Instituto de Biología, Universidad Nacional Autónoma de México, Serie Zoología* **67**: 309–318.
- BRAILOVSKY H. & BARRERA E. 1981a: Dos nuevas especies sudamericanas del género *Acinocoris*, Hahn (Hemiptera-Heteroptera-Largidae). *Anales del Instituto de Biología, Universidad Nacional Autónoma de México, Serie Zoología* **51**: 231–238.
- BRAILOVSKY H. & BARRERA E. 1981b: Una nueva especie de *Fibrenus*, Stål (Hemiptera-Heteroptera-Largidae) del Brasil. *Anales del Instituto de Biología, Universidad Nacional Autónoma de México, Serie Zoología* **51**: 227–230.
- BRAILOVSKY H. & BARRERA E. 1993: El género *Astemma* n. description de especies nuevas (Hemiptera-Heteroptera-Largidae). *Anales del Instituto de Biología, Universidad Nacional Autónoma de México, Serie Zoología* **64**: 39–47.
- BRAILOVSKY H. & BARRERA E. 1994: A remarkable new genus and species of Largidae from Peru (Hemiptera: Heteroptera). *Proceedings of the Entomological Society of Washington* **96**: 696–700.
- BRAILOVSKY H. & BARRERA E. 2008: New species of American Larginae (Heteroptera: Largidae) and keys to known species of *Largulus* and *Theraneis*. *Florida Entomologist* **91**: 256–265.
- BRAILOVSKY H. & MARQUEZ C. M. 1974: Contribución al estudio de los Hemiptera-Heteroptera de México III. Una nueva especie de *Arhaphé* Herrich-Schaeffer (Largidae). *Anales del Instituto de Biología, Universidad Nacional Autónoma de México, Serie Zoología* **45**: 99–104.
- BRAILOVSKY H. & MAYROGA C. 1998: An analysis of the genus *Stenomacra* Stål with description of four new species, and some taxonomic rearrangements (Hemiptera: Heteroptera: Largidae). *Journal of the New York Entomological Society* **105** (1997): 1–14.
- BREDDIN G. 1900: Hemiptera, gesammelt von Professor Kükenthal im Malayischen Archipel. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft* **25**: 139–202 + 1 plate.
- BREDDIN G. 1901a: Die Hemipteren von Celebes. Ein Beitrag zur Faunistik der Insel. *Abhandlungen der Naturforschenden Gesellschaft zu Halle* **24**: 1–215.
- BREDDIN G. 1901b: Hemiptera Sumatrana collecta a dom. Henrico Dohrn. Pars II. *Stettiner Entomologische Zeitung* **1901**: 138–145.
- BREDDIN G. 1905: Versuch einer Rhynchotenfauna der Malayischen Insel Banguay. *Mitteilungen aus dem Naturhistorischen Museum in Hamburg* **22**: 203–226.
- BREDDIN G. 1909: Rhynchoten von Ceylon, gesammelt von Dr. Walter Horn. *Annales de la Société Entomologique de Belgique* **53**: 250–309.
- BURMEISTER H. 1834: Rhyngota seu Hemiptera. Pp. 285–312. ERICHSON W. & BURMEISTER H. (eds.): Beiträge zur Zoologie, gesammelt auf einer Reise um die Erde, von Dr. F. J. F. Meyen. Sechste Abhandlung. Insekten. *Acta Academiae Caesareo-Leopoldina Naturae Curiosorum (Supplementum)*, Vol. 16.
- BURMEISTER H. 1835: *Handbuch der Entomologie. Zweiter Band. Besondere Entomologie. Erste Abtheilung. Schnabelkerfe. Rhynchota*. Theod. Ehr. Friedr. Enslin, Berlin, iv + 400 pp + 2 pls.
- CACHAN P. 1952: Pyrrhocoridae de Madagascar. *Mémoires de l'Institut Scientifique de Madagascar, Série E* **1**: 71–92.
- CASSIS G. & GROSS G. F. 2002: Hemiptera: Heteroptera (Pentatomomorpha). In: HOUSTON W. W. K. & WELLS A. (eds.): *Zoological Catalogue of Australia. Vol. 27.3B*. CSIRO, Melbourne, xiv + 737 pp. [Largidae: pp. 622–627].
- CHAKRABARTY S. P., GHOSH L. K. & BASU R. C. 1994: On a collection of Hemiptera from Namdapha Biosphere Reserve in Arunachal Pradesh, India. *Records of the Zoological Survey of India, Occasional Paper* **161**: 1–44.
- CHANDRA K. & KUSHWAHA S. 2012: Additions to the true bugs (Hemiptera) fauna of Pachmarhi Biosphere Reserve, Madhya Pradesh, India. *Annals of Forestry* **20**: 250–254.

- CHANDRA K. & KUSHWAHA S. 2013: Distribution and diversity of Hemiptera fauna of Singhori Wildlife Sanctuary, Raisen District, Madhya Pradesh, India. *Munis Entomology & Zoology* **8**: 677–681.
- CHANDRA K., KUSHWAHA S., SAMBATH S. & BISWAS B. 2012: Distribution and diversity of Hemiptera fauna of Veerangana Durgavati Wildlife Sanctuary, Damoh, Madhya Pradesh (India). *Biological Forum - An International Journal* **4**: 68–74.
- COSCARÓN M. C. & DELLAPÉ P. M. 2006: A new species of Astemma from Argentina (Heteroptera: Largidae: Larginae). *Transactions of the American Entomological Society* **132**: 99–102.
- DeGEER C. 1773: *Mémoires pour servir à l'histoire des Insectes*. Vol. III. Hasselberg, Stockholm, viii + 696 pp.
- DELLAPÉ P. M., CARPINTERO D. L. & MELO M. C. 2010: New records of Dipsocoromorpha, Cimicomorpha and Pentatomomorpha (Hemiptera: Heteroptera) from Argentina. *Zootaxa* **2436**: 57–64.
- DELLAPÉ P. M. & MELO M. C. 2007: Thaumastaneis nigricans, a new species of a remarkable ant-mimetic Larginae (Hemiptera: Largidae) and the discovery of an ant-mimetic complex. *Zootaxa* **1475**: 21–26.
- DISTANT W. L. 1879a: Hemiptera from the North-eastern frontier of India. *Annals and Magazine of Natural History, Series 5* **3**: 127–140.
- DISTANT W. L. 1879b: Hemiptera from Upper Tenasserim. *Journal of the Asiatic Society of Bengal* **48**(2): 87–90 + pl. II.
- DISTANT W. L. 1883: First report on the Rhynchota collected in Japan by Mr. George Lewis. *Transactions of the Royal Entomological Society of London* **31**: 413–443.
- DISTANT W. L. 1903a: Rhynchota. – Vol. II. (Heteroptera). In: BLANFORD W. T. (ed.): *The fauna of British India including Ceylon and Burma*. Taylor and Francis, London, xvii + 503 pp. [Published in two parts: pp. 1–242 (December 1903, incl. Pyrrhocoroidea), pp. 243–503 (April 1904) – see the Preface, p. iii].
- DISTANT W. L. 1903b: Report on the Rhynchota. Part I. Heteroptera. Pp. 221–272 + pls. XV–XVI. In: *Fasciculi Malayenses. Anthropological and zoological results of an expedition to Perak and the Siamese Malay States, 1901–1902 undertaken by Nelson Annandale and Herbert C. Robinson under the auspices of The University of Edinburgh and The University of Liverpool*. Zoology, Part II. University Press of Liverpool & Longmans, Green & Co., London – New York – Bombay.
- DISTANT W. L. 1904: Rhynchotal notes. – XXIV. *Annals and Magazine of Natural History, Series 7* **14**: 61–66.
- DISTANT W. L. 1909: Ruwenzori Expedition Reports. 9 Rhynchota. *Transactions of the Zoological Society of London* **19**: 67–82.
- DISTANT W. L. 1910: Rhynchota. – Vol. V. Heteroptera: Appendix. In: SHIPLEY A. E. & MARSHALL G. A. K. (eds.): *The fauna of British India including Ceylon and Burma*. Taylor and Francis, London, xii + 362 pp.
- DISTANT W. L. 1914: Report on the Rhynchota collected by the Wollaston Expedition in Dutch New Guinea. *Transactions of the Zoological Society of London* **20**: 335–362, pl. XXXIV.
- DISTANT W. L. 1919: Some new species of the Homopterous [sic!] family Pyrrhocoridae. *Annals and Magazine of Natural History, Series 9* **3**: 218–222.
- DOESBURG P. H. VAN 1966: Heteroptera of Suriname. I. Largidae and Pyrrhocoridae. *Studies on the Fauna of Suriname and other Guyanas* **9**: 1–60.
- DOESBURG P. H. VAN 1968: A revision of New World species of Dysdercus Guérin Meneville (Heteroptera, Pyrrhocoridae). *Zoologische Verhandelingen (Leiden)* **97**: 1–215.
- DUVIAR D. 1974: Vols migratoires et développement ovarien chez Physopelta spp. (Hemiptera: Largidae) en Côte d'Ivoire. *Cahiers ORSTOM, Série Biologie* **10**: 25–33.
- ESAKI T. 1926: Verzeichniss der Hemiptera-heteroptera der Insel Formosa. *Annales Musei Nationalis Hungarici* **24**: 136–189.
- ESAKI T. 1952: Hemiptera-Heteroptera. Pp. 185–270. In: ESAKI T., ISHII T., KAWAMURA T., KINOSHITA S., KUWAYAMA S., SHIRAKI T., UCHIDA S. & YUASA H. (eds.): *Iconographia Insectorum Japonicorum. Editio secunda, reformata*. Hokuryukan, Tokyo, [6] + 13 + 1738 + [2] + 203 pp + 15 pls. (in Japanese, English title).
- FABRICIUS J. CH. 1781: *Species insectorum exhibentes eorum differentias specificas, synonyma avctorum, loca natalia, metamorphosin adiectis observationibus, descriptionibus. Tom. II*. Carol. Ernest. Bohnii, Hambvrgi et Kilonii, 517 pp [1781: 1–494, 1782: 495–517].
- FABRICIUS J. CH. 1787: *Mantissa insectorum sistens species nuper detectas adiectis synonymis, observationibus, descriptionibus, emendationibus. Tom. II*. Christ. Gottl. Proft, Hafniae, v + 472 pp.
- FABRICIUS J. CH. 1794: *Entomologia systematica emendata et aucta secundum classes, ordines, genera, species adiectis synonymis, locis, observationibus, descriptionibus. Tom. IV*. C. G. Proft, Fil. et Soc., Hafniae, v + 472 pp.

- FABRICIUS J. CH. 1803: *Systema Rhyngotorum secundum ordines, genera, species, adiectis synonymis, locis, observationibus, descriptionibus*. Reichard, Brunsvigae, vi + 314 pp + Emendata and Index.
- FAIRMAIRE L. & SIGNORET V. 1858: [Voyage du Gabon]. V. Ordre Hémiptères. Pp. 268–343 + 2 pls. In: THOMSON M. J. (ed.): *Archives entomologiques ou recueil contenant des illustrations d'insectes nouveaux ou rares. Tome deuxième*. Société Entomologique de France, Paris, 465 pp + 15 pls.
- GIBBS D. G. & LESTON D. 1970: Insect phenology in a forest cocoa-farm locality in West Africa. *Journal of Applied Ecology* **7**: 519–548.
- GHOSH L. K., BISWAS B., CHAKRABORTY S. P. & SEN G. C. 1989: Insecta: Hemiptera. Pp. 181–224. In: JAIRAJPURI M. SH. (ed.) *Fauna of Orissa. Part 2. State Fauna Series. Vol. 1. Zoological Survey of India, Calcutta*, 318 pp.
- GOEZE J. A. E. 1778: *Entomologische Beyträge* [sic!] *zu des Ritter Linné zwölften Ausgabe des Natursystems. Zweyter Theil* [sic!]. Weidmanns Erben & Reich, Leipzig, lxxii + 352 pp.
- GMELIN J. F. 1790: *Caroli a Linné Systema Naturae. Tom I. Pars IV*. Beer, Lipsiae, pp. 1517–2224.
- GOLDING F. D. 1927: Notes on the food-plants and habits of some southern Nigeria insects. *Bulletin of Entomological Research* **18**: 95–99.
- GÖLLNER-SCHIEDING U. 2012: Heteroptera aus der Republik Kongo, gesammelt von Dr. G. Hertzfel in den Jahren 1977 und 1978. *Edessana* **2**: 95–107.
- GRIMALDI D. A. & ENGEL M. S. 2005: *Evolution of the Insects*. Cambridge University Press, Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo, xv + 715 pp.
- HAGLUND J. C. G. 1895: Beiträge zur Kenntnis der Insektenfauna von Kamerun. 4. Verzeichnis der von Yngve Sjostedt in nord-westlichen Kamerungebiete eingesammelten Hemipteren. *Öfversigt af Kongliga Svenska Vetenskaps-Akademiens Forhandlingar* **1895(7)**: 445–479.
- HALSTEAD T. F. 1970: A new species of the genus *Largus* Hahn with a key to the species of the genus in the Southwestern United States (Hemiptera: Largidae). *Pan-Pacific Entomologist* **46**: 45–46.
- HALSTEAD T. F. 1972a: A new species of *Largus* (Hemiptera: Largidae). *Canadian Entomologist* **104**: 959.
- HALSTEAD T. F. 1972b: Notes and synonymy in *Largus* Hahn with a key to United State species (Hemiptera: Largidae). *Pan-Pacific Entomologist* **48**: 246–248.
- HALSTEAD T. F. 1972c: A review of the genus *Arhapha* Herrich-Schäffer (Hemiptera: Largidae). *Pan-Pacific Entomologist* **48**: 1–7.
- HENRY T. J. 1998: Family Largidae Amyot and Serville, 1843. The Largid Bugs. Pp. 159–165. In: HENRY T. J. & FROESCHNER R. C. (eds.): *Catalog of the Heteroptera, or True Bugs, of Canada and the Continental United States*. E. J. Brill, Leiden, New York, København, Köln, xix + 958 pp.
- HENRY T. J. 1997: Phylogenetic analysis of family groups within the infraorder Pentatomomorpha (Hemiptera: Heteroptera), with emphasis on the Lygaeoidea. *Annals of the Entomological Society of America* **90**: 275–301.
- HENRY T. J. 2009: Biodiversity of Heteroptera. Pp. 224–263. In: FOOTITT R. & ADLER P. (eds.): *Insect Biodiversity: Science and Society*. Wiley-Blackwell, United Kingdom, 632 pp.
- HONG Y.-C. & WANG W.-L. 1990: Fossil insects from the Laiyang Formation. Pp. 44–189 + pls 8–27. In: RONG L.-B. (ed.): *The stratigraphy and palaeontology of Laiyang Basin, Shandong Province*. Geological Publishing House, Beijing, [iii] + 255 pp + 37 pl (in Chinese, English summary).
- HORN W., KAHLE I., FRIESE G. & GAEDIKE R. 1990: *Collectiones entomologicae. Ein Kompendium über der Verbleib entomologischer Sammlungen der Welt bis 1960*. Akademie der Landwirtschaftswissenschaften der Deutschen Demokratischen Republik, Berlin, pp. 1–220 (Teil I: A bis K) + 221–573 (Teil II: L bis Z).
- HUAL.-ZH. 2000: XVIII. Order Hemiptera. Pp. 162–216. In: HUAL.-ZH.: *List of Chinese insects. Vol. I. Zhongshan (Sun Yat-sen) University Press, Guangdong*, 448 pp.
- HUSSEY F. 1929: Fascicle 3. Pyrrhocoridae. In: HORVÁTH G. & PARSHLEY H. M. (eds.): *General Catalogue of the Hemiptera*. Smith College, Northampton, 144 pp.
- ISHIHARA T., MIYATAKE M., TOMOKUNI M. & TOKIHIRO G. 1974: The Heteroptera of the Ehime University Forest. (Researches on the insect-fauna of Komenono University Forest, 3). *Bulletin of the Ehime University Forest* **11**: 69–74 (in Japanese, English title).
- KERZHNER I. M. 2001: Superfamily Pyrrhocoroidea Amyot & Serville, 1843. Pp. 245–258. In: AUKEMA B. & RIEGER CH. (eds) *Catalogue of the Heteroptera of the Palaearctic Region. Vol. 4, Pentatomomorpha I*. The Netherlands Entomological Society, Amsterdam, xiv + 346 pp.

- KIRBY W. F. 1891: Catalogue of the described Hemiptera Heteroptera and Homoptera of Ceylon, based on the collection formed (chiefly at Pundaluoya) by Mr. E. Ernest Green. *Journal of the Linnean Society of London* **24**: 72–176.
- KIRKALDY G. W. 1905: Memoir on the Rhynchota collected by Dr. Arthur Willey, F.R.S., chiefly in Biara (New Britain) and Lifu. *Transactions of the Entomological Society of London* **1905(3)**: 327–363, pl. XVII.
- KIRKALDY G. W. & EDWARDS S. 1902: Anmerkungen über bemerkenswerte Pyrrhocorinen (Rhynchota). *Wiener Entomologische Zeitung* **21**: 161–172 + pl. III.
- KMENT P. & VILÍMOVÁ J. 2010: Thoracic scent efferent system of Pentatomoidea (Hemiptera: Heteroptera): a review of terminology. *Zootaxa* **2706**: 1–77.
- KOHNO K., TAKAHASHI T. & SAKAKIBARA M. 2002: New prey-predator association in aposematic pyrrhocorid bugs: *Antilochus coqueberti* as a specialist predator on *Dysdercus* species. *Entomological Science* **5**: 391–397.
- KUMAR R. 1968: Aspects of the morphology and relationships of the superfamilies Lygaeoidea, Piesmatoidae and Pyrrhocoroidea (Hemiptera: Heteroptera). *Entomologist's Monthly Magazine* **103**: 251–261.
- KWON Y. J., SUH S. J. & KIM J. A. 2001: Hemiptera. Economic Insects of Korea. Vol. 18. *Insecta Koreana, Supplement* **25**: 1–513.
- LEE CH. E. & KWON Y. J. 1991: Annotated check list of Hemiptera from Korea. Part 4. Pentatomorpha 1 [sic!] (excluding Pentatomidae). *Nature and Life* **21**: 39–61.
- LESTON D. 1969: Heteroptera of Ghana: Largidae. *Entomologist's Monthly Magazine* **104**: 225–227.
- LETHIERRY L. 1888: Liste des Hémiptères à Sumatra et dans l'île Nias par Mr. E. Modigliani. *Annali del Museo Civico di Storia Naturale di Genova, Serie 2a* **6**: 460–470.
- LETHIERRY L. & SEVERIN G. 1894: *Catalogue Général des Hémiptères. Tome II. Hétéroptères. Coreidae, Berytidae, Lygaeidae, Pyrrhocoridae*. F. Hayez, Bruxelles, 277 pp.
- LINNAVUORI R. 1988: Berytidae and Pyrrhocoridae (Heteroptera) from Nigeria and the Ivory Coast, with remarks on the occurrence in the adjacent countries. *Annales Entomologici Fennici* **54**: 11–18.
- LIU S.-L. 1981: Family Pyrrhocoridae. Pp. 222–235 + pls. 28–31. In: HSIAO T.-Y., REN SH.-ZH., ZHENG L.-Y., JING H.-L., ZOU H.-G. & LIU SH.-L.: *A handbook for the determination of the Chinese Hemiptera-Heteroptera. Volume II*. Science Press, Beijing, 654 pp + 85 pls (in Chinese, English title and summary).
- MALIPATIL M. B. & KUMAR R. 1975: Biology and immature stages of some Queensland Pentatomomorpha (Hemiptera: Heteroptera). *Journal of the Australian Entomological Society* **14**: 113–128.
- MANNA G. K., UESHIMAN N., DEY S. K. & DEB-MALLICK S. 1985: Marked sex chromosome variations between Indian and Japanese species of Physopelta (Largidae, Heteroptera). *Cytologia* **50**: 621–630.
- MATSUMURA S. 1905: Die Hemipteren Fauna von Riukiu (Okinawa). *Transactions of the Sapporo Natural History Society* **1**: 15–38 + pl. I.
- MAXWELL-LEFROY H. 1909: The insect fauna of Tirhut. I. – Rhynchota Heteroptera. *Records of the Indian Museum* **3**: 301–338.
- MAYNÉ R. & GHESQUIÈRE J. 1934: Hémiptère nuisibleaux végétaux du Congo belge. *Annales de Gembloux* **40**: 3–38 + 10 pls.
- MEDLER J. T. 1980: Insects of Nigeria – check list and bibliography. *Memoirs of the American Entomological Institute* **30**: i–vii + 1–919.
- MIYAMOTO S. 1965: Heteropterous insects of Formosa collected by Dr. Shirôzu and others, 1961. *Special Bulletin of Lepidopterological Society of Japan* **1**: 227–238.
- MIYAMOTO S. 1970: (Heteroptera of Tsushima (I). Pentatomomorpha). *Memoirs of the National Science Museum (Tokyo)* **3**: 251–267 (in Japanese, English summary).
- MIYAMOTO S., HAYASHI M. & KOHNO K. 2005: New records of three Pentatomomorphan species (Heteroptera) from Japan. *Japanese Journal of Systematic Entomology* **11**: 11–13.
- MIYAMOTO S. & YASUNAGA T. 1989: Hemiptera-Heteroptera. Pp. 151–188. In: HIRASHIMA Y. (ed.): *(A check list of Japanese insects. Vol. 1)*. Kyushu University Entomological Laboratory, Fukuoka, 174 pp (in Japanese, English title).
- MONTROUZIER P. 1855: Essai sur la faune de l'île Woodlark ou Moioiv (bei Neuguinea). *Annales des Sciences Physiques et Naturelles d'Agriculture et d'Industrie; publiée par la Société Royale d'Agriculture, Histoire Naturelle et Arts Utiles de Lyon, Serie 2* **1855**: 1–114.
- PERVEEN R. & AHMAD I. 1991: A new species of Neophysopelta Ahmad & Abbas (Hemiptera: Largidae: Physopeltinae) from south India and their relationships. *Proceedings of the Pakistan Congress of Zoology* **11**: 161–165.

- RÉDEI D., GAO C.-Q. & BU W.-J. 2012: First record of the genus *Delacampius* from China (Heteroptera: Largidae). *Entomologische Zeitschrift* (Stuttgart) **122**: 125–127.
- RÉDEI D., TSAI J.-F. & YANG M.-M. 2009: *Heteropteran Fauna of Taiwan: Cotton stainers and relatives* (Hemiptera: Heteroptera: Pyrrhocoroidea). National Chung Hsing University, Taichung, 52 pp.
- REUTER O. M. 1882: Ad cognitionem Heteropterorum Africae occidentalis. *Öfversigt af Finska Vetenskaps-Societets Föreläsningar* **25**: 1–43.
- ROBERTSON I. A. D. 2004: Pyrrhocoroidea (Hemiptera – Heteroptera) of the Ethiopian region. *Journal of Insect Science* **4**(14): 1–44.
- SAHA P. C. & BAL A. 2007: Insecta: Hemiptera: Pyrrhocoridae. Pp. 321–329. In: Zoological Survey of India (ed.): *Fauna of Andhra Pradesh. Part – 3: Insects. State Fauna Series, Vol. 5*. Zoological Survey of India, Kolkata, iv + 544 pp.
- SANMARTÍN I. & RONQUIST F. 2004: Southern Hemisphere biogeography inferred by event-based models: plant versus animal patterns. *Systematic Biology* **53**: 216–243.
- SCHAEFER C. W. 1977: Genital capsule of the Trichophoran male (Hemiptera: Heteroptera: Geocorisae). *Journal of Insect Morphology and Embryology* **6**: 277–301.
- SCHAEFER C. W. 2000: Systematic notes on Larginae (Hemiptera: Largidae). *Journal of the New York Entomological Society* **108**: 130–145.
- SCHAEFER C. W. & STEHLÍK J. L. 2013: Caribbean Sea Region Pyrrhocoroidea (Hemiptera: Pyrrhocoridae, Largidae). *Neotropical Entomology* **42**: 372–383.
- SCHMIDT E. 1931: Zur Kenntnis der Familie Pyrrhocoridae Fieber. (Hemiptera – Heteroptera). *Stettiner Entomologische Zeitung* **92**: 1–51.
- SCHMIDT E. 1932: Zur Kenntnis der Familie Pyrrhocoridae Fieber. (Hemiptera – Heteroptera). Teil II. *Wiener Entomologische Zeitung* **49**: 236–281.
- SCHOUTEDEN H. 1913: Reduviidae, Nabidae et Pyrrhocoridae recueillis au Congo par le Dr J. Bequaert. *Revue Zoologique Africaine* **2**(2): 232–248.
- SCHOUTEDEN H. 1929: Voyage au Congo de S.A.R. le Prince Leopold de Belgique (1925). Hemiptera. – 3. Pyrrhocorides, Myodochides, Aradides et Mirides. *Revue Zoologique et Botanique Africaine* **17**(1): 72–74.
- SCHOUTEDEN H. 1933: Resultats scientifiques du voyage aux Indes Orientales Néerlandaises de LL. AA. RR., le Prince et la Princesse Léopold de Belgique. Hemiptera-Heteroptera. *Mémoires du Musée Royal d'Histoire Naturelle de Belgique* **4**(8): 43–70.
- SCOTT J. 1874: On a collection of Hemiptera Heteroptera from Japan. Descriptions of various new genera and species. *Annals and Magazine of Natural History, Series 4* **14**: 289–304, 360–365, 426–452.
- SCOTT J. 1880: On a collection of Hemiptera from Japan. *Transactions of the Entomological Society London* **1880**(4): 305–317.
- SEHNAL CH. & KERZHNER I. M. 1999: On the type specimens of some Pyrrhocoridae in the Natural History Museum of Vienna (Heteroptera). *Zoosystematica Rossica* **8**: 132.
- SEN G. C., GHOSH M. & GHOSH L. K. 1998: Insecta: Hemiptera: Heteroptera: Pyrrhocoridae. Pp. 331–342. In: *Fauna of Meghalaya. State Fauna Series. Vol. 4*. Zoological Survey of India, Kolkata.
- SHCHERBAKOV D. E. 2007: Mesozoic Velocipedinae (Nabidae s.l.) and Ceresopseidae (Reduviidae), with notes on the phylogeny of Cimicomorpha (Heteroptera). *Russian Entomological Journal* **16**: 401–414.
- SINGH V. & BANYAL H. S. 2013: Insect Fauna of Khajjiar Lake of Chamba District, Himachal Pradesh, India. *Pakistan Journal of Zoology* **45**: 1053–1061.
- SOUTHWOOD T. R. E. 1961: Notes on light trap catches of Heteroptera made in tropics. *Entomologist's Monthly Magazine* **46**: 114–117.
- STÅL C. 1855: Nya Hemiptera. [New Hemiptera]. *Öfversigt af Kongliga Vetenskaps-Akademien Föreläsningar* **12**: 181–192 (in Latin, Swedish title).
- STÅL C. 1858: Hemipterologiska bidrag. [Hemipterological contribution]. *Öfversigt af Kongliga Vetenskaps-Akademien Föreläsningar* **15**: 433–454 (in Latin, Swedish title).
- STÅL C. 1861: Nova methodus familias quasdam Hemipterorum disponendi. *Öfversigt af Finska Vetenskaps-Societets Föreläsningar* **1861**(4): 195–212.
- STÅL C. 1863: Beitrag zur Kenntnis des Pyrrhocoriden. *Berliner Entomologische Zeitschrift* **7**: 390–404.

- STÅL C. 1866: *Hemiptera Africana. Tomus III*. Officina Norstedtiana, Holmiae, 200 pp.
- STÅL C. 1868: Hemiptera Fabriciana. I. *Kongliga Svenska Vetenskap-Akademiens Handlingar* **7(11)**: 1–148.
- STÅL C. 1870: Enumeratio Hemipterorum I. *Kongliga Svenska Vetenskap-Akademiens Handlingar* **9(1)**: 90–124.
- STÅL C. 1871: Hemiptera insularum Philippinarum. – Bidrag till Philipinska öarnes Hemiptera-fauna. *Öfversigt af Kongliga Vetenskaps-Akademiens Förhandlingar* **27** (1870): 607–776.
- STEHLÍK J. L. 1965a: Pyrrhocoridae and Largidae collected by E. S. Brown on Solomon Islands (Heteroptera). *Acta Musei Moraviae, Scientiae Naturales* **50**: 253–292.
- STEHLÍK J. L. 1965b: Mission Zoologique de l'I.R.S.A. en Afrique Orientale (P. Basilewsky—N. Leleup, 1957) Pyrrhocoridae (Het.). *Acta Musei Moraviae, Scientiae Naturales* **50**: 211–250.
- STEHLÍK J. L. 2004: Largidae and Pyrrhocoridae of Nepal (Heteroptera). *Entomologica Basiliensia* **25** (2003): 1–11.
- STEHLÍK J. L. 2005a: Largidae and Pyrrhocoridae of Laos (Hemiptera: Heteroptera). *Folia Heyrovskyana* **12** (2004): 141–160.
- STEHLÍK J. L. 2005b: Largidae and Pyrrhocoridae collected by Alexander Riedel in Irian Jaya (New Guinea) from 1990 up to 1996 (Heteroptera). *Linzer Biologische Beiträge* **37**: 1719–1736.
- STEHLÍK J. L. 2006a: New taxa of Pyrrhocoroidea (Heteroptera) from the Oriental Region in the Natural History Museum in London. Pp. 653–680. In: RABITSCH W. (ed.): Hug the bug – For love of true bugs. Festschrift zum 70. Geburtstag von Ernst Heiss. *Denisia* **19**: 1–1184.
- STEHLÍK J. L. 2006b: Four new species of the Neotropical genus *Theraneis* Spinola, 1837 (Heteroptera: Largidae, Larginae). *Entomologica Basiliensia et Collectionis Frey* **28**: 49–58.
- STEHLÍK J. L. 2007a: Largidae and Pyrrhocoroidea of Meghalaya state, India. *Acta Musei Moraviae, Scientiae Biologicae* **92**: 115–129.
- STEHLÍK J. L. 2007b: Two new species and new records of Pyrrhocoroidea from Laos (Heteroptera). *Acta Musei Moraviae, Scientiae Biologicae* **92**: 131–136.
- STEHLÍK J. L. 2007c: New combinations in the genus *Rosaphe* Kirkaldy et Edwards, 1902 (= *Astemma* auct., nec Le Peletier et Serville, 1825) (Heteroptera: Largidae, Larginae). *Acta Musei Moraviae, Scientiae Biologicae* **92**: 111–113.
- STEHLÍK J. L. & BRAILOVSKY H. 2011: Two new genera of the tribe Largulini (Hemiptera: Heteroptera: Largidae) from Greater Antilles. *Acta Entomologica Musei Nationalis Pragae* **51**: 449–456.
- STEHLÍK J. L. & JINDRA Z. 2003: Largidae and Pyrrhocoridae of Thailand (Heteroptera). *Acta Musei Moraviae, Scientiae Biologicae* **88**: 5–19.
- STEHLÍK J. L. & JINDRA Z. 2007: Largulini – a new tribe of Larginae from Jamaica (Heteroptera, Largidae). *Entomologica Basiliensia et Collectionis Frey* **29**: 13–20.
- STEHLÍK J. L. & JINDRA Z. 2008a: New taxa of the Largidae and Pyrrhocoridae (Hemiptera: Heteroptera) from Oriental Region. *Acta Entomologica Musei Nationalis Pragae* **48**: 611–648.
- STEHLÍK J. L. & JINDRA Z. 2008b: A contribution to knowledge of Pyrrhocoroidea (Heteroptera) of Zambia. *Acta Musei Moraviae, Scientiae Biologicae* **93**: 29–42.
- STEHLÍK J. L. & KERZHNER I. M. 1999: On taxonomy and distribution of some Palaearctic and Oriental Largidae and Pyrrhocoridae (Heteroptera). *Zoosystematica Rossica* **8(1)**: 121–128.
- STEHLÍK J. L. & KMENT P. 2010: *Largus giganteus* sp. nov. from Brazil and notes on hybridization within *Largus* (Hemiptera: Heteroptera: Largidae). *Acta Entomologica Musei Nationalis Pragae* **50**: 53–58.
- STEHLÍK J. L. & KMENT P. 2011: Redescription of *Pararhaphe* and review of *Arhaphe* (Hemiptera: Heteroptera: Largidae) of America north of Mexico. *Zootaxa* **3058**: 35–54.
- STEHLÍK J. L. & KMENT P. 2012: Description of *Physopelta finisterrae* sp. nov. from Papua New Guinea (Hemiptera: Heteroptera: Largidae). *Acta Entomologica Musei Nationalis Pragae* **52**: 349–354.
- STEHLÍK J. L. & KMENT P. in press: *Riegeriana*, a new genus for *Physopelta apicalis*, and checklist of the genus *Iphita* (Hemiptera: Heteroptera: Largidae). *Carolineana*.
- TAEUBER H. W. 1927: Beiträge zur Kenntnis der Heteropteren-Fauna der Philippinen. *Konowia* **6**: 165–201.
- TILLYARD R. J. 1926: *The Insects of Australia and New Zealand*. Angus & Robertson Ltd., Sydney, 560 pp + 42 pls.
- TOMOKUNI M. 1989: (Heteroptera (Insecta) of the Amami Islands, the Ryukyus, Japan. I. Pentatomomorpha). *Memoirs of the National Science Museum* (Tokyo) **22**: 185–195 (in Japanese, English summary).

- TOMOKUNI M. (ed.) 1993: *A field guide to Japanese bugs. Terrestrial heteropterans*. Zenkoku Noson Kyoiku Kyokai, Tokyo, 380 pp (in Japanese, English title).
- TOMOKUNI M. 2006: (Additional material of Hemiptera (Insecta) collected at the Imperial Palace, the Akasaka Imperial Gardens, and the Tokiwamatsu Imperial Villa, Tokyo Japan). *Memoirs of the National Science Museum* (Tokyo) **43**: 349–354 (in Japanese, English summary).
- UHLER P. R. 1861: Hemiptera of the North Pacific Exploring Expedition under Com'rs Rodgers and Ringgold. *Proceedings of the Academy of Natural Sciences of Philadelphia* **12** (1860): 221–231.
- UHLER P. R. 1897: Summary of the Hemiptera of Japan, presented to the United States National Museum by Professor Mitzukuri. *Proceedings of the United States National Museum* **19** (1896): 255–297.
- VILLIERS A. 1949: *Mission P. L. Dekeyser et A. Villiers en Guinée et Côte d'Ivoire (1946). Insectes (Première partie). Catalogues V*. Institut Français d'Afrique Noire, Dakar, 90 pp.
- VILLIERS A. 1951: Un nouveau *Physopelta* de Madagascar (Hem. Pyrrhocoridae). *Naturaliste Malgache* **3**: 39–40.
- VILLIERS A. 1952a: *Hémiptères de l'Afrique noire (Punaises et Cigales). Initiations Africaines. Vol. IX*. Institut français d'Afrique Noire, Dakar, 252 pp.
- VILLIERS A. 1952b: Mission A. Villiers au Togo et au Dahomey (1950). *Bulletin de l'Institut Français d'Afrique Noire* **14**(4): 1196–1213.
- VILLIERS A. 1967: Contribution à la faune du Congo (Brazzaville). Mission A. Villiers et A. Descarpentries. XLVIII. Hémiptères Pyrrhocoridae. *Bulletin de l'Institut Français d'Afrique Noire* **29**(1): 370–374.
- VOIGT K. 2006: The Palearctic species of Largidae (Heteroptera: Largidae: Physopeltinae). *Russian Entomological Journal* **15**: 223–225.
- VOTÝPKA J., KLEPETKOVÁ H., JIRKŮ M., KMENT P. & LUKEŠ J. 2012: Phylogenetic relationships of trypanosomatids parasitising true bugs (Insecta: Heteroptera) in sub-Saharan Africa. *International Journal of Parasitology* **42**: 489–500.
- VOTÝPKA J., MASLOV D. A., YURCHENKO V., JIRKŮ M., KMENT P., LUN ZH.-R. & LUKEŠ J. 2010: Probing into the diversity of trypanosomatid flagellates parasitizing insect hosts in South-West China reveals both endemism and global dispersal. *Molecular Phylogenetics and Evolution* **54**: 243–253.
- WALKER F. 1873: *Catalogue of the specimens of Heteropterous Hemiptera in the collection of the British Museum. Part VI*. Trustees of the British Museum, London, 210 pp.
- YANG Ch.-T. 2003: Descriptions of four external male genitalia of the Pyrrhocoroidea (Heteroptera). *Formosan Entomologist* **23**: 199–207.
- YAO Y.-ZH., REN D., SHIH CH.-K. & ZHANG W.-T. 2010: Chapter 15. Heteroptera - smelly defense or piercing offense. Pp. 139–157. In: DONG R., SHIH CH.-K., GAO T.-P., YAO Y.-ZH. & ZHAO Y.-Y. (eds.): *Silent stories – Insect fossil treasures from Dinosaur Era of the Northeastern China*. Science Press, Beijing, 322 pp.
- ZAMAL S. & CHOPRA N. P. 1990: Aaxonomic [sic!] studies on Indian Largidae (Hemiptera: Heteroptera). *Journal of Research, Assam Agricultural University* **11**: 1–15.
- ZHANG SH.-M. (ed.) 1995: (*Economic insect fauna of China. Vol. 50. Hemiptera* (2)). Science Press, Beijing, xiii + 169 pp. + pls. I–XXIV (in Chinese, English title).
- ZHU G.-P., WANG X.-J., BU W.-J. & LIU G.-Q. 2012: Potential distribution and ecological dimensions of four species in the genus *Physopelta* (Hemiptera: Largidae). *Entomotaxonomia* **34**: 192–200.
- ZIMSEN E. 1964: *The type material of I. C. Fabricius*. Munksgaard, Copenhagen, 656 pp.