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Additions to the catalogue of mantid type material deposited in the Muséum d'histoire naturelle de Genève (Insecta: Mantodea)

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Additions to the catalogue of mantid type material deposited in the Muséum d'histoire naturelle de Genève (Insecta: Mantodea). - We present here additions to an existing catalogue of mantid types (Mantodea) in the Muséum d'histoire naturelle de Genève with 27 new potential types. These are presented alphabetically with the number of specimens, sex, kind of type, label data and the box number where the specimens are stored. The new types are mostly of species described by Henri de Saussure.

Additions au catalogue du matériel types de Mantes déposés au Muséum d'histoire naturelle de Genève (Insecta: Mantodea). - Nous présentons ici une addition au catalogue des types de mantes (Mantodea) du Muséum d'histoire naturelle de Genève avec 27 nouveaux types potentiels. Les types sont présentés par ordre alphabétique avec le nombre de spécimens, le sexe, le genre de type, les différentes étiquettes et le numéro de boîte où les individus sont stockés. Ces nouveaux types sont principalement des espèces décrites par Henri de Saussure.

Keywords: Mantodea, type-catalogue, Saussure.

INTRODUCTION

The Mantodea collection of the Muséum d'histoire naturelle de Genève (MHNG) is of worldwide importance, largely because it houses the collection of Henri de Saussure, who described more than 50 genera and 300 species (Roy & Cuche, 2008). Saussure exchanged or bought material from other specialists and collections, augmenting the value of the MHNG holdings (Claparède, 1905). During the reorganization of the MHNG Mantodea collection, a number of type specimens not mentioned in the catalogue of Roy & Cuche (2008) were rediscovered. Many of them represent names that are now considered junior synonyms and the types had been placed in the collection under the supposedly valid names.

As many experts have studied this collection, it is not clear by whom some type labels were added. It appears that some locality labels were added after the publication of the description (and not always correctly), and in most cases of synonymy only the name assumed to be correct has been kept, making the identification of some specimens as types uncertain. In addition, the type concept has evolved, and although Saussure gave more information about his type series in his later publications, he never

labelled specimens as types. Consequently, the identification of specimens that might be considered types is more certain in some cases than in others. The status of the possible type specimens is discussed in the following list. We consider all these specimens to be syntypes unless it is clear from the description that a holotype was designated or that only one specimen was available to the author. It is possible that additional syntypes remain undetected in the MHNG collection.

Two of the specimens discussed are labelled as de Haan types. It is known that Saussure made extensive use of the holdings of the Nationaal Natuurhistorische Museum in Leiden (where de Haan's collection is housed) and that there are some de Haan Orthoptera syntypes amongst the MHNG holdings, but the real status of these specimens is difficult to determine because of the uncertainty about the use of the term "type" in the past.

The list presented follows the format of the previous catalogue (Roy & Cuche, 2008); the nomenclature follows Otte *et al.* (2011). Unless otherwise stated, the species remains in the original combination.

LIST OF POSSIBLE TYPE SPECIMENS

- aeta** Hebard, 1920 [*Amantis*]. One ♂ paratype (box 12) with three labels: "Zamboanga Mindanao Baker", "Amantis aeta Hebard ♂ PARATYPE HEBARD CLN" (orange card) and "8206". The holotype is in the collection of the Academy of Natural Sciences in Philadelphia.
- bicornis** Saussure, 1869 [*Oligonyx*]. One ♀ (box 11) corresponds quite well with the measurements given in the description, but has the end of the abdomen missing. There are two handwritten labels: "Tehuantepec Mexique M. H. de Saussure" and "Oligonyx bicornis ♀ Sauss." (green paper). Moreover, the description indicates "aptera, anne larva?" which matches perfectly with the specimen. This specimen is probably the holotype.
- bimaculata** Saussure, 1870 [*Acontista*]. One ♂ syntype from Brazil (box 2) labelled: "♂ Brésil M. H. de Saussure" and "Acontista bimaculata Sauss." (handwritten on green paper). This species is now considered a synonym of *Acontista aurantiaca* (Burmeister, 1838).
- capitata** Saussure, 1869 [*Chiropacha*]. One ♂ syntype (box 8) with two handwritten labels: "♂ c. Guérin" and "Lygdamia capitata ♂ Sauss!" (pink paper). The original description gives "Africa?" as the locality, which explains the absence of locality data on the label. This species was transferred to the genus *Lygdamia* by Saussure (1899) and is currently placed in *Galepsus* (*Onychogalepsus*).
- championi** Saussure & Zehntner, 1894 [*Phasmomantis*]. One ♀ syntype (box 30) with three labels: "Coll. G. et S. Volc. Chiriqui G.C. Champ." (printed white card), "Phasmomantis championi, Sauss. ♀" (handwritten on green paper) and "Taumomantis championi (S. Z.) det. Beier".
- chlorophaea var. cornuta** Saussure & Zehntner, 1894 [*Theoclytes*]. Although the MHNG collection includes several potential syntypes under the name *T.*

chlorophaea (box 30), none could be positively identified because the description does not distinguish between the type locality of the variety and the distribution of the nominal form. The specimens in the collection are in any case slightly smaller than indicated in the description. This variety is currently regarded as a valid species, *Phyllovates cornuta* (Saussure & Zehntner, 1894).

claraziana Saussure, 1869 [*Coptopteryx*] 5 ♂ syntypes (box 17) with two handwritten labels: "♂ Bahia blanca Rep. Arg. env. G. Claraz" and "Coptopteryx crenaticollis Blanch." (green paper). The specimens were placed in the collection as "*C. crenaticollis* Blanchard" because Saussure (1870) considered *C. claraziana* a junior synonym of this species. "*C. crenaticollis*" is a *nomen nudum* however, and *C. claraziana* is the valid name.

cubensis Saussure, 1869 [*Gonatista*]. Four ♂, two ♀ and one specimen of unspecified sex (♀?) are probably syntypes (box 6). Two ♂ and one ♀ labelled: "[sex] Cuba M. H. de Saussure", two ♂ and one ♀ labelled: "[sex] Cuba (Mr.) Poey" and the unspecified specimen: "75-2 ♀ = 5-23 *Gonatista cubensis* Sauss." Each specimen has also a label "*Gonatista grisea* Fabr." (green paper). All labels are handwritten. *G. cubensis* is now considered a junior synonym of *G. reticulata* (Thunberg, 1815), but Saussure & Zehntner (1894) placed it in synonymy with *G. grisea* (Fabricius, 1793), hence the identification labels.

elegans Saussure, 1869 [*Acontista*]. One ♂ syntype (box 3), missing the abdomen but corresponding to the measurement in the description (30 mm from the head to the end of the wings). It carries two handwritten labels: "♂ Guyanne M. H. de Saussure" and "*Acontista perspicua*, Fab. (*elegans*, Sauss.)" (green paper). This species name is now considered a junior synonym of *Raptrix perspicua* (Fabricius, 1787).

emortualis Saussure, 1869 [*Mantis*]. Two probable ♂ syntypes (box 28), placed in the collection as *Paramantis prasina* (Serville, 1839). Both match the measurement given in the description and each has two handwritten labels: "♂ Ile Bourbon M. H. de Saussure" and "*Mantis emortualis* ♂ type Sauss." (red paper). In addition, one of them bears a label "*Mantis prasina* Serv. Det Beier" and the other "*Paramantis prasina* (Serv.) R. Roy det. 1974", both handwritten. The original description gives the type locality as "Patria?" rather than the more precise provenance on the labels. *M. emortualis* is now considered a junior synonym of *Paramantis prasina* (Serville, 1839).

filiformis Saussure, 1869 [*Oligonyx*]. One ♂ (box 11) in the collection as *Thesprotia infumata* (Serville, 1839) is almost certainly a syntype. This specimen, unfortunately rather damaged, carries three handwritten labels: "♂ Amer. meri. coll. Jurine", "*Thesprotia filiformis*" (green paper) and "*Thesprotia infumata* (Serv.) det. Beier". This species name is now considered a junior synonym of *Thesprotia infumata* (Serville, 1839).

gryps var? Saussure & Zehntner, 1894 [*Harpagonyx*]. A variety of this species is mentioned in the original description. There is a ♂ specimen, in the MHNG

collection as *Oligonyx bicornis* Saussure (box 11), which corresponds to the description. It bears two labels: "Atoyac, Vera Cruz. April. H.H.S." and "Harpagonyx gryps Sauss. ♂ var.?" (handwritten on green paper). This specimen may be considered a syntype of *H. gryps* Saussure & Zehntner, 1894, although it is clear that Saussure and Zehntner were not sure if it was conspecific with the rest of the type series. A junior synonym of *Oligonyx bicornis* Saussure, 1869.

humbertiana Saussure, 1869 [*Empusa*]. Two ♀ and one ♂ (box 55) are probably syntypes. Each has two handwritten labels. For the ♂: "♂ Ceylan V^gc Humbert" and "Empusa unicornis Linn." (yellow paper); the first ♀: "♀ Ceylan V^gc Humbert" and "Empusa unicornis Linn." (yellow paper) and the second ♀: "♀ Trincomalie Ceylan V^gc Humbert" and "Empusa unicornis Linn." (yellow paper). *E. humbertiana* was synonymised with *Gryllus unicornis* by Saussure (1871), but the latter is a nomen dubium and both are now considered junior synonyms of *Empusa (Empusa) pennata* (Thunberg, 1815) (see Roy, 2004).

indica Saussure, 1869 [*Humbertiella*]. One ♀ syntype (box 6) with two handwritten labels: "♀ Indes or. M. H. de Saussure" and "Humbertiella indica Sauss." (yellow paper).

manillensis Saussure, 1870 [*Hierodula*]. Three specimens (box 22) correspond quite well to the measurements in the description and could be considered as syntypes. The first is a ♂, lacking the abdomen and with three handwritten labels: "♂ Manille M. H. de Saussure", "Hierodula bipapilla Serv." (yellow paper) and "Hierodula patellifera Serv. E. Giglio-Tos, det.". The second has two labels: "600-38 Manille Indes Or. M. H. de Saussure" and "Hierodula manillana Giglio-Tos, E. Giglio-Tos, det.". The third has three labels: "600-38 Manille Indes Or. M. H. de Saussure", "Manille" and "Hierodula patellifera Serv. E. Giglio-Tos, det.". This specimen is smaller than indicated in the description. This species name is now considered a junior synonym of *Hierododula patelli-fera* (Serville, 1839).

moseri Saussure, 1871 [*Iris (Fisheria)*]. Two ♀ syntypes (box 15), each with two handwritten labels: "♀ Turkestan Russe M. H. de Saussure" and "Bolivaria moseri Sss." (blue paper). This species name is now considered a junior synonym of *Bolivaria xanthoptera* (Olivier, 1792).

oligoneura de Haan, 1842 [Mantis]. One specimen (box 3) is possibly a syntype. There are three handwritten labels: "Type de Haan" (off-white card), "Acromantis oligoneura de Haan" (yellow paper) and "oligoneura [illegible] Padang, Sumatra". The original description did not mention the type locality. This species is currently placed in genus *Acromantis* Saussure, 1870.

palliat de Haan, 1842 [*Mantis (Deroplatys)*]. One specimen, in the collection as *Deroplatys desiccata* Westwood, 1839 (box 19), has two handwritten labels: "Type de Haan" (off-white card) and "Deroplatys dessicata [sic] de Haan" (yellow paper). This species name is now considered a junior synonym of *Deroplatys desiccata* Westwood, 1839.

perloides Saussure, 1869 [*Humbertiella*]. One specimen (box 19) with missing abdomen (but consistent with the measurement given in the description) is probably a syntype. It has three handwritten labels: "Sénégal colln. Guérin", "Elaea perloides Sauss." (pink paper) and "Elaea marchali (Coq, Reiche & Fairm.) R. Roy det. 1987". *H. perloides* is now placed in the genus *Elaea* Stål, 1877.

praedicatoria Saussure, 1870 [*Stagmatoptera*]. Three syntypes (box 41). The first has five handwritten labels: "609-56 Alto Amazon Brésil M^r. Brunner d. W.", "21" (off-white paper), "Alto Amazon." (off-white paper), "Stagmat. Praedicato. Sauss." (green paper) and "Stagmatoptera sp. nov. H^t Amazon. Bolivar.". The second has three handwritten labels: "609-56 Alto Amazon Brésil M^r. Brunner d. W.", "Stagmat. praedicat. Sauss." (green paper) and "Alto Amazon Stagmatoptera spec. nov. ach. à M Brunner" (green paper). The third has four handwritten labels: "609-56 Manaos Brésil M^r. Brunner d. W.", "Stagmat. praedicator Sauss." (green paper), "praedicatoria" (off-white paper) and "Stagmatoptera Praecaria Manaos Amazon" (off-white paper). Note: two variant spellings were used by Saussure in the original description, the key to species has *praedicatoria* and the description proper *predicatoria* (the former being that currently accepted).

septentrionalis var. *minor* Saussure & Zehntner, 1894 [*Stagmatoptera*]. One ♀ syntype (box 43) with three handwritten labels: "♀ Venezuela", "Venezuela" and "Stagmatoptera septentrionalis Sss & Z. var. minor, Sss & Z." (green paper). This variety is probably a distinct species (Roy, pers. comm.).

stolli Saussure & Zehntner, 1894 [*Phyllovates*]. One ♀ syntype (box 31) with two handwritten labels: "♀ c. [?]ichel." and "Theoclytes stolli - cingulata Sauss & Pict.[sic]" (green paper). *P. stolli* is the name given to the specimens originally identified by Saussure as "*Theoclytes cingulata* (Stoll)" and subsequently recognised as a distinct species.

striolatus var. Saussure & Zehntner, 1894 [*Oligonyx*]. The original description included a variety of this species. A ♂ specimen in the collection (box 11) matches the description, with 4 labels: "M^r. Hy. de Sauss." (printed on green paper), "Duenas, Guatemala, G. C. Champion", "620-90 Guatemala Amer. cent. Coll. Godm. & Salv." and "Oligonyx striolata, ♂. var. Sss." (handwritten on green paper). It could be considered a syntype of *Oligonicella striolata* (Saussure & Zehntner, 1894) although it is clear that Saussure and Zehntner were not sure if it was conspecific with the rest of the type series.

surinamensis Saussure, 1869 [*Theoclytes*]. One ♀, in the collection as *Phyllovates parallela* (de Haan, 1842) (box 31), is possibly a syntype. This specimen has three handwritten labels: "♀ Guyanne M. H. de Saussure", "Theoclytes parallela de Haan" (green paper) and "parallela de Haan Guyanne" (green paper). The status of the specimen is uncertain because it is a little bigger than indicated in the description and the original description gives Surinam (the Dutch part of Guyana) as type locality while the label has only Guyana, suggesting French

Guyana. Saussure (1871) placed *T. surinamensis* in synonymy with *T. parallela* (de Haan, 1842). *T. parallela* is currently placed in the genus *Phyllovates* Kirby, 1904.

vicina Saussure, 1870 [*Stagmomantis*]. One syntype (box 45) with three handwritten labels: "2-14 Guatemala H. d. Saussure", "15" and "Stagmom. Vicina Sauss." (green paper).

vitreoides Giglio-Tos, 1912 [*Hierodula*]. One paratype (box 24) with three labels: "600-38 Manilla Indes or. M^r. H. de Saussure" (handwritten), "Manille" (off-white paper) and "Hierodula vitreoides Giglio-Tos E. Giglio-Tos, det." (handwritten on off-white paper). This specimen is referred to as a paratype by Ehrmann (2002), although not labelled as such.

voeltzkowiana Saussure, 1899 [*Hierodula*]. One syntype (box 32) with three labels: "Voeltzkow. Aldabra" (off-white paper), "Hierodula voeltzkowiana ♀ Sauss." (handwritten on red paper) and "Polyspilota voeltzkowiana Sauss. ♀ R. Roy det 1998". This species is currently placed in the genus *Polyspilota* Burmeister, 1838.

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New Afrotropical species of the genus *Crambus* Fabricius, 1798 (Lepidoptera: Pyralidae, Crambinae)

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New Afrotropical species of the genus *Crambus* Fabricius, 1798 (Lepidoptera: Pyralidae, Crambinae). - Nine Afrotropical species of the genus *Crambus* Fabricius, 1798, are described and illustrated: *C. attis* n. sp., *C. rossinii* n. sp., *C. mozarti* n. sp., *C. berliozi* n. sp., *C. frescobaldii* n. sp., *C. bachi* n. sp., *C. netuncus* n. sp., *C. paris* n. sp., and *C. varii* n. sp.

Keywords: Lepidoptera, Pyralidae, Crambinae, new species, Afrotropical Region.

Nuove specie afrotropicali del genere *Crambus* Fabricius, 1798 (Lepidoptera: Pyralidae, Crambinae). - Nove specie afrotropicali del genere *Crambus* Fabricius, 1798, vengono descritte ed illustrate: *C. attis* n. sp., *C. rossinii* n. sp., *C. mozarti* n. sp., *C. berliozi* n. sp., *C. frescobaldii* n. sp., *C. bachi* n. sp., *C. netuncus* n. sp., *C. paris* n.sp. e *C. varii* n. sp.

Parole chiave: Lepidoptera, Pyralidae, Crambinae, nuove specie, Regione Afrotropicale.

INTRODUCTION

Crambus Fabricius, 1798 has, at the end of 2011, 155 described species (Nuss *et al.*, 2012). After my first works on Afrotropical *Crambus* (Bassi, 1986, 1992, 2000), I realized that the creation of infrageneric groups (sub-genera and species groups) was needed but impossible without a full revision of all known world species. An analysis at the generic level is made difficult by the great variability shown in genitalic structure. Thus we need to start from the type species of the genus, *Crambus pascuella* (Linnaeus) to try to better understand the phylogenetic relationships among the species. The male genitalia of this species (Slamka 2008:166, fig. 30; Landry 1995:199, fig. 233) have a peculiar uncus structure; the valva has both costal and saccular processes, and the phallus lacks external teeth and cornuti on the phallus. In female genitalia (Slamka 2008:195, fig. 30) the papillae anales are deeply divided into two lobes and with membranous and speculate dorsal fold, abdominal tergite VIII is wide and sclerotized, the ostium bursae is not produced, there is a peculiar sterigma, the corpus bursae has two signa, and abdominal segment VII has the tergite and especially the sternite very sclerotized and with resistant scales. These features can hardly be found together in other *Crambus* species. The tympanal organs, studied for Crambinae by Landry (1995) and the female spermatheca can also give some information on the

proximity of the various groups of species and genera, but perhaps only the use of both morphological and molecular characters will resolve the systematics of this genus. In this paper I describe and illustrate some species whose adults are similar to most of the European and North American *Crambus*, with a silvery white stripe on the forewings, and some other species with black (brown) and white forewings, a characteristic that in that area appears in many *Crambus* species, as well as in other genera more or less related, such as *Calamotropha* Zeller, *Argentochiloides* Błeszyński, *Pseudocatharylla* Błeszyński and *Bassiknysna* Kemal & Koçak. I shall indicate in the remarks the obvious sister species and their common characteristics.

MATERIAL AND METHODS

The descriptions are based on all available specimens. The length of the labial palpus is compared to the maximum diameter of the composite eye in side view. I follow Robinson (1976) for dissection genitalia technique and Klots (1970) for terminology. All specimens studied here came from the collections listed in the abbreviations list.

Abbreviations used:

- BMNH Natural History Museum, London.
 HNHM Hungarian Natural History Museum, Budapest.
 MHNG Muséum d'histoire naturelle, Genève.
 TMSA Distong National Museum of Natural History (formerly the Transvaal Museum), Pretoria.
 MFNB Museum für Naturkunde Leibniz-Institut für Evolutions-und Biodiversitätsforschung an der Humboldt-Universität zu Berlin, Berlin.
 CB Bassi collection, Avigliana (Torino).
 GS...GB Genitalia slide.... G. Bassi.
 RSA Republic of South Africa.

SYSTEMATIC PART

Crambus attis n. sp.

Figs 1, 11, 14-15

HOLOTYPE: TMSA, without registration number; ♂; [RSA, Mpumalanga, 25°20'S, 30°35'E] Wonderkloof, Powal, 25.I.1939, Coll. Janse, GS 3877 GB, Holotype *Crambus attis* n. sp. G. Bassi det. 1996.

PARATYPES: RSA, MPUMALANGA. - CB, without registration number; 1♂, 1♀; Mt. Sheba; 4.8.II.[19]85; B. Balinsky leg., GS 2860 GB and GS 373 Balinsky. - TMSA, without registration number; 1♀; Graskop, T[rans]v[aa]; 9.III.1967; Potgieter & Goode, GS 3876 GB. - TMSA, without registration number; 2♀♀; E[ast] Transvaal, Berlin, 300 m. below 25.33 S - 30.43 E; 4.2.1987; E-Y: 2416, UV light collection, leg. Endrödy-Younga. - TMSA, without registration number; 2♀♀; E[ast] Transvaal, Berlin, gorge-edge, 25.32 S - 30.44 E; 4.2.1987; E-Y: 2407, UV light collection, leg. Endrödy-Younga. - TMSA, without registration number; 1♀; T[rans]v[aa], Nelshoogte gallery for[est], below St[aatbos], 25.51 S - 30.53 E; 4.12.1986; E-Y: 2354, UV light collection, leg. Endrödy-Younga. - TMSA, without registration number; 1♀; Pilgrim's Rest., Skea; 26.XI.[19]20; Coll. Janse, GS 3466 GB. - MHNG, without registration number; 2♂♂, Mpumalanga, Waterval-Boven; 28-29.X.2002; st[ation] 11, leg. HW v[an] d[er] Wolf. - RSA, GAUTENG. - MHNG and CB (1♀), without registration number; 3♂♂, 2♀♀; 1000m, Pretoria East, 25°48'S 28°22'E; 09.XI.2004; leg. J. & W. De Prins, GS 5049 GB.



FIGS 1-6

Adults of *Crambus* spp. (1) *C. attis* sp. n., female paratype, RSA, Woodbush Village, wingspan 17.2 mm. (2) *C. rossinii* sp. n., holotype, wingspan 13.5 mm. (3) *C. paris* sp. n., holotype, wingspan 16.5 mm. (4) *C. mozarti* sp. n., female paratype, Tanzania, E. slopes of Mt. Meru Forestry, wingspan 22 mm. (5) *C. berliozii* sp. n., holotype, wingspan 17 mm. (6) *C. berliozii* sp. n., paratype, wingspan 18.5 mm.

- RSA, LIMPOPO. - TMSA, without registration number; 1 ♀; Haenertsburg; 24.31.XII.1921; C.J. Swiestra. - TMSA, without registration number; 1 ♀; Entabeni Forest; 6.XII.1964; Vári & Potgieter. - CB, without registration number; 1 ♀; Woodb[ush]. Vill[age]; 13.XII.1909; C. J. Swiestra. - RSA, NORTH WEST. - TMSA, without registration number; 1 ♂; Rustenburg, Natuuresrvat; 6.VIII.1975; Potgieter & Scoble. - RSA, FREE STATE. - TMSA, without registration number; 1 ♂; Oranjekrag, H.F. Verwoord Dam; 8-11.XII.1969; J.H. Potgieter. - RSA, KWA-ZULU NATAL. - CB, without registration number; 1 ♀; Royal Natal Nat. Park; 10-12.XII.2004; P. Ustjuzhanin leg. - MFNB, without registration number; 1 ♂; West-Natal, Dragon Peaks Park; 9-12.II.1993; Leg. Mey & Ebert, GS 3943 GB. - CB, without registration number; 1 ♀; Sani Pass road, Mkomazana Mountain Cottages, m. 1600; 28.XI.2011; 29°38' S, 29°26' E, G. Bassi legit. - SWAZILAND. - TMSA, without registration number; 1 ♀; Miller Falls; 10.I.92; N. J. Duke.

OTHER MATERIAL: 1 ♂, not included in type series because without label, TMSA.

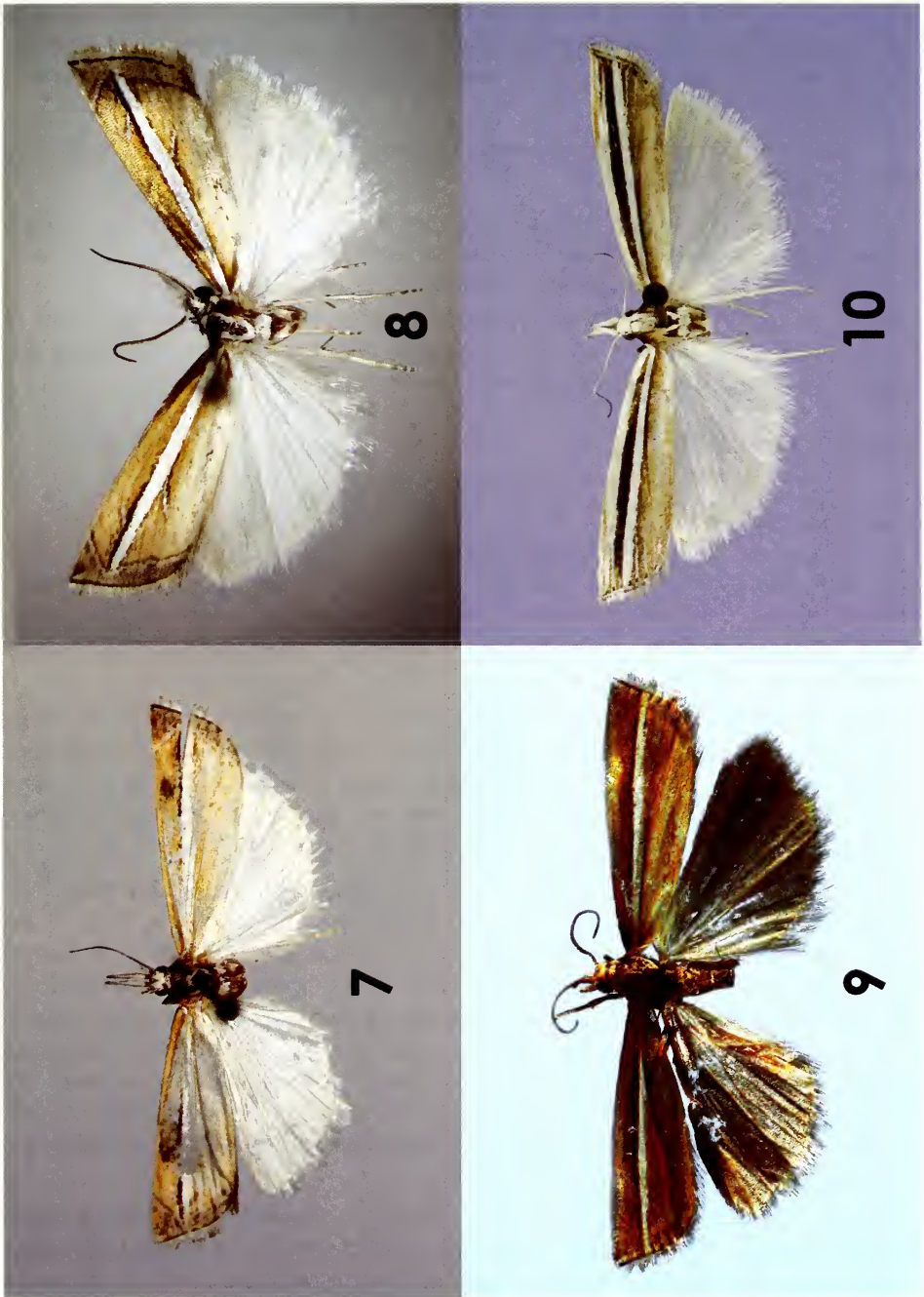
ETYMOLOGY: The specific epithet refers to a Phrygian god of vegetation.

DIAGNOSIS: *Crambus attis*, *C. rossinii*, described below, and *C. proteus* (Bassi & Mey, 2011) are characterized by their similar external appearance and genitalia of both sexes, *C. proteus* usually differing in the more ochreous tinge of the dark scales in forewings coloration, and in genitalia. *C. attis* differs from *C. rossinii* in male genitalia by the shorter valva and larger costal process. In female genitalia the lateral processes of the sterigma are rounded as opposed to elongate in *C. rossinii*.

DESCRIPTION (Fig. 1): Wingspan 14-17 mm. Labial palpi 3 X longer than widest diameter of eye, bronze brown with upper margin white. Maxillary palpi bronze brown with white basis. Frons clearly produced, rounded, white. Antennae bronze brown, serrate in male, slightly thickened in female. Ocelli and chaetosemata present. Head white, bronze brown around chaetosemata. Patagium white in middle, brown laterally. Tegulae brown. Thorax white. Abdomen light brown dorsally, ivory ventrally. Forewings ground color white, with costa with brown scales; apex moderately pointed; with dark brown stripe under cell; medial line usually complete, forming acute angle around end of cell, made of chestnut brown scales that become blackish below cell; subterminal area wide, white, with patch of dark brown scales toward apex, with inner margin bicolored: silvery toward margin and brown toward mid wing; subterminal area crossed by with 4-5 blackish terminal dashes; terminal line black; fringes bronze brown with white basis. Hindwings white with ivory and brownish suffusion, lighter in female; fringes white with ivory suffusion. Forelegs bronze brown; midlegs and hindlegs white with white and brown tarsomeres. Sclerotizations of abdominal segment VIII peculiar, as shown in Figure 11.

MALE GENITALIA (Fig. 11): Uncus thin, with rounded apex. Gnathos much longer than uncus, thin, with apex bent downward. Tegumen subtriangular, as long as gnathos. Vinculum suboval, with moderate dorsal projection. Pseudosaccus well developed. Juxta membranous. Valva short, with narrow cucullus, small mediobasal lamella and large costal process, strongly sclerotized, bent downward and pointed. Phallus as long as whole apparatus, with apex very thin and pointed; vesica without cornuti.

FEMALE GENITALIA (Figs 14-15): Papillae anales divided into two lobes and apophyses posteriores of medium size. Apophyses anteriores reduced to cuticular thickening. Ostium bursae everted, with very complex and sclerotized sterigma, with



FIGS 7-10

Adults of *Crambus* spp. (7) *C. frescobaldii* sp. n., holotype, wingspan 20 mm. (8) *C. bachi* sp. n., holotype, wingspan 15 mm. (9) *C. netuncus* sp. n., holotype, wingspan 20 mm. (10) *C. varii* sp. n., female paratype, RSA, Algeria Forestry, Clanwilliam Distr., wingspan 25 mm.

lamella postvaginalis bilobed and covered with small teeth. Ductus bursae as long as corpus bursae, more wrinkled in proximal third. Ductus seminalis opening in proximal third of ductus bursae. Corpus bursae suboval, with two signa, completely covered with sclerotized scobination.

DISTRIBUTION: RSA (Mpumalanga, Gauteng, Limpopo, North West, Kwa-Zulu Natal, Free State) and Swaziland.

REMARKS: Forewings structure and maculation, male genitalia with gnathos longer than uncus and strong costal process, female genitalia with papillae anales with median fold, subvestigial apophyses anteriores and double signa suggest that *C. attis* complex is closely related with the type species of the genus. The particular shape of the phallus in male genitalia and of the sterigma in female genitalia distinguish this complex of species from all other known *Crambus* species.

***Crambus rossinii* n. sp.**

Figs 2, 12-13

HOLOTYPE: TMSA, without registration number; 1 ♂; [Zimbabwe, 20°54'S, 30°47'E] Lundi, S.[outh] Rh.[odesia]; 13-16.III.1964; Vári & Van Son, Holotype *Crambus rossini* n. sp. G. Bassi det. 1997, GS 3818 GB.

PARATYPES, (all from ZIMBABWE): TMSA, without registration number; 1 ♀; Lundi; 25.III.1964; Vári & Van Son, GS 3769 GB. - CB, without registration number; 1 ♂; Lundi, Nuanetsi Dist.; 13.III.1973; D.M. Kroon, GS 4375 GB.

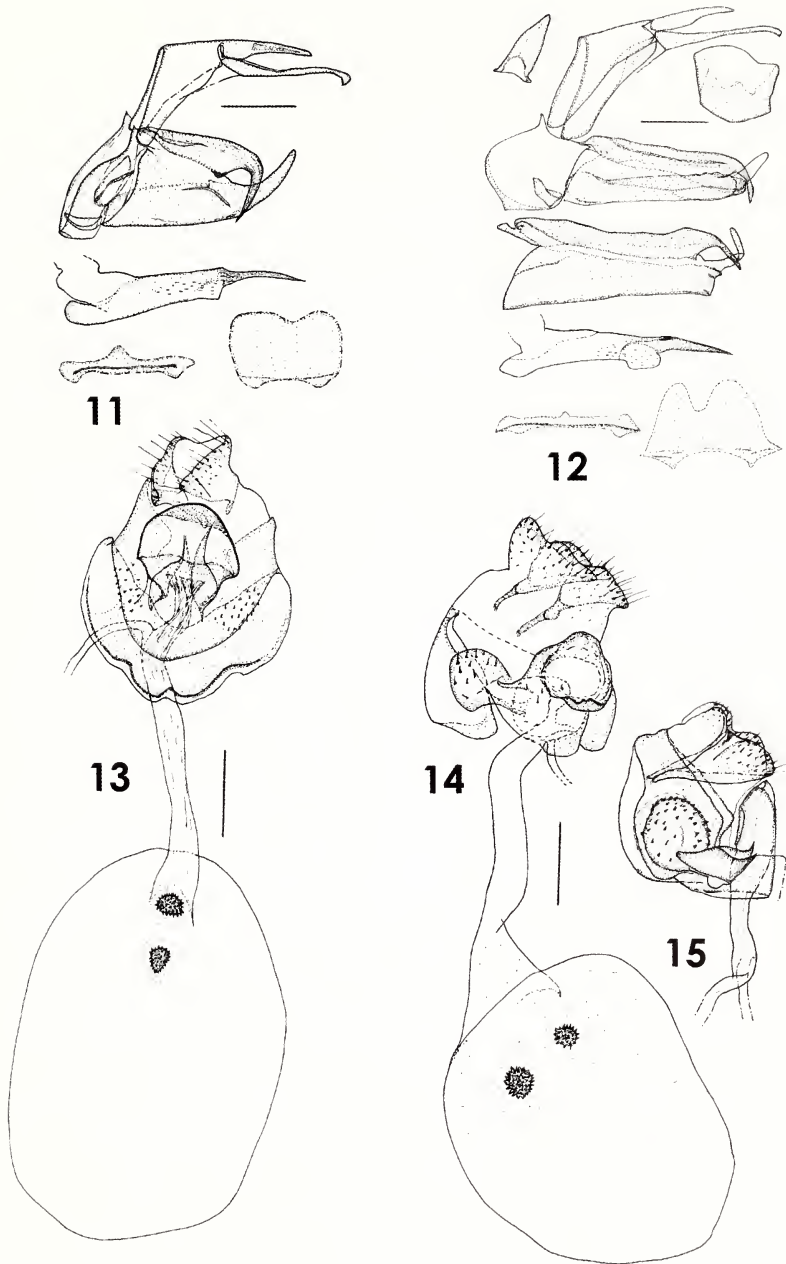
ETYMOLOGY: The species is named after the Italian composer Gioacchino Rossini (1792-1868).

DIAGNOSIS: Forewings ground color is similar to that of *C. attis*, with medial brown stripe less developed, postmedial band not complete in upper area toward apex and terminal dots smaller. In male genitalia the valva is more elongate in *C. rossinii* and the costal process of the valva is narrower and less strongly curved. In female genitalia the lateral processes of the sterigma are narrower.

DESCRIPTION (Fig. 2): Wingspan: ♂ 13.5 mm., ♀ 15 mm. Labial palpi 3 X longer than widest diameter of eye, bronze brown with upper margin white. Frons clearly produced, rounded, white. Antennae: in male serrate, brown; in female thickened, brown with slightly paler costa. Ocelli and chaetosemata moderately developed. Head white, with bronze brown edge around chaetosemata. Patagium white in middle, bronze brown laterally. Tegulae bronze brown. Thorax white. Forewings ground color white, with medial brown stripe poorly developed, postmedial band not complete in upper area toward apex and terminal dots small; fringes whitish. Hindwings white with brownish suffusion; fringes white. Sclerotizations of abdominal segment VIII peculiar, as shown in Figure 12.

MALE GENITALIA (Fig. 12): Uncus thin, with rounded apex. Gnathos much longer than uncus, thin, with apex bent downward and moderately rounded. Vinculum large, with pronounced dorsal extension. Valva elongate, with costal process short and slightly curved. Phallus as long as valva, with pointed tip.

FEMALE GENITALIA (Fig. 13): Papillae anales divided into two lobes and apophyses posteriores of medium size. Apophyses anteriores reduced to cuticular thickening. Ostium bursae everted, with very complex and sclerotized sterigma, with



FIGS 11-15

Male and female genitalia of *Crambus* spp., scale bars 0.5 mm. (11) *C. attis* sp. n., paratype, GS 2860 GB. (12) *C. rossinii* sp. n., holotype, GS 3818 GB and single left valva more pressed, uncus and juxta from the paratype GS 3769 GB. (13) *C. rossinii* sp. n., paratype GS 3769 GB. (14) *C. attis* sp. n., paratype GS 3466 GB. (15) *C. attis* sp. n., paratype GS 5049 GB, lateral view.

lamella postvaginalis laterally covered with small teeth. Corpus bursae with two signa and completely covered with sclerotized scobination.

DISTRIBUTION: The new species is only known from the type locality in South Western Zimbabwe.

***Crambus mozarti* n. sp.**

Figs 4, 16, 20

HOLOTYPE: HNHM, without registration number; ♂; Africa, Tanzania, Usa River [3°22'S, 36°51'E], 3900 ft; 19.IV.1965; leg. Dr. Szunyoghy, Holotype *Crambus mozarti* n. sp. G. Bassi det. 1995, GS 3258 GB.

PARATYPES (all from TANZANIA): HNHM, MHNG (1) and CB (1), without registration number; 4 ♀; same data as holotype except 20.IV.1965, GS 3281 and 5228 GB. - HNHM, without registration number; 1 ♀; idem, 23.IV.1965. - CB, without registration number; 1 ♀; E. slopes of Mt. Meru forestry 5700 ft.; 12.V.1965; leg. Dr. J. Szunyoghy, GS 5222 GB.

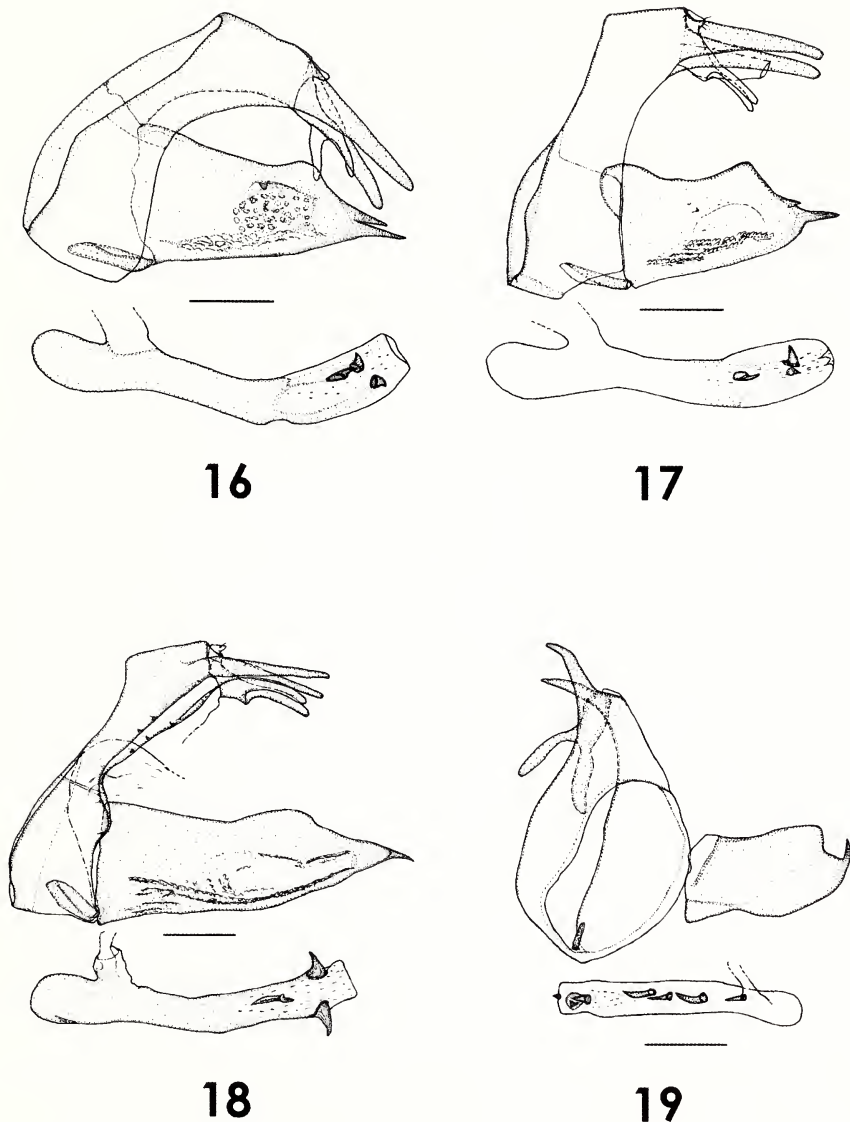
ETYMOLOGY: The species is named after the Austrian composer Wolfgang Amadeus Mozart (1756-1791).

DIAGNOSIS: Forewings with inner lines of subterminal area not angled at cell level. In male genitalia the bilobed pointed tip of the valva separate the species and *C. berliozii* (described below) from the other members of the *mozarti* complex. *C. mozarti* differs in the stronger pedunculi of the tegumen, the lower and more broadly rounded costal extension of the valva, and the larger dorsal apical tooth of the valva. In female genitalia the lateral process of the lamella antevaginalis are longer and narrower than in the other species of the *mozarti* complex. Within the *mozarti* complex this species is also the only one found in Tanzania.

DESCRIPTION (Fig. 4): Wingspan 18-22 mm. Labial palpi 4 X longer than widest diameter of eye, white on inner side and brown on outer side. Frons slightly produced, rounded, white and brown. Male antennae serrate, female antennae simple. Ocelli and chaetosemata well developed. Head laterally bronze brown; medially white. Tegulae bronze brown. Thorax laterally white and medially golden yellow. Abdomen white on first two segments, then ivory, more intense on anal tuft. Forewings golden yellow with costal margin white and large submarginal area with scales white with thick dark brown edge; double golden and silvery inner line curved around the end of the cell; terminal line brown with six small black dots; medial stripe large, silvery white with distal dorsal margin dark brown, reaching inner band of submarginal area; fringes white with outer margin golden yellow. Hindwings white with ivory suffusion; fringes white. Legs bronze brown.

MALE GENITALIA (Fig. 16): Uncus subvestigial and membranous. Gnathos broadly bilobed, poorly sclerotized. Tegumen almost fused with vinculum, with two symmetrical pedunculi longer than gnathos. Vinculum stubby, with slight dorsal extension. Pseudosaccus well developed. Valva concave, with swelling in last third of costa and cucullus sclerotized with two well developed tips. Phallus as long as whole apparatus, vesica with three small cornuti.

FEMALE GENITALIA (Fig. 20): Papillae anales simple, without medial fold, but with membranous and speculate dorsal fold. Apophyses posteriores medium sized, with bulge apically. Abdominal segment VIII completely membranous except for slight



FIGS 16-19

Male genitalia of *Crambus* spp., scale bars 0.5 mm. (16) *C. mozarti* sp. n., holotype GS 3258 GB. (17) *C. berliozii* sp. n., holotype GS 3310 GB. (18) *C. bachi* sp. n., holotype GS 5200 GB. (19) *C. netuncus* sp. n., holotype, GS 6545 S. Błeszyński (11335 British Museum).

ventral sclerotization, probably remains of apophyses anteriores. Ostium bursae slightly produced from margin of lamella antevaginalis, trapezioidal with inner part covered with small teeth. Sterigma very complex and strongly sclerotized, with lamella antevaginalis deeply bilobed and narrowing to level of proximal third of ductus, with lamella postvaginalis subtriangular. Ductus bursae 0,5 long as corpus bursae, sclerotized in first third, then corrugated. Ductus seminalis opening distal third of ductus bursae. Corpus bursae suboval, without signa, delicately wrinkled.

DISTRIBUTION: The species is only known from the Arusha area (Mt. Meru slopes) in Northern Tanzania.

REMARKS: In this species and in the following, *C. berliozii*, the sterigma in female genitalia is slightly variable. Based on my previous studies on Crambinae this feature occurs very rarely, as female genitalia are very homogeneous within the same species.

Crambus mozarti and the following, *Crambus berliozii*, *C. frescobaldii*, *C. bachi* and *C. netuncus*, are closely related, as shown by the same external appearance and very similar genitalia of both sexes. I know at least two more new species of this complex from Kenya, not described here because the available material is too rubbed. Despite the great similarity to many common Holarctic *Crambus* (such as *pascuella*) in adult features, the genitalia of both sexes state that this complex of species is quite distinct. The most important characteristics are, in male genitalia, the subvestigial uncus, the bilobed gnathos, the well developed pedunculi, the concave valva with a sclerotized and pointed cucullus. Female genitalia have the papillae anales without a clear median fold, abdominal tergite VIII completely membranous, the ostium bursae sclerotized and opening between well differentiated strong bifurcate lamella antevaginalis and subtriangular lamella postvaginalis, and no real signa. The phallus with external teeth and few little and medium-sized cornuti appears many times in African *Crambus*. Moreover, the papillae with a dorsal membranous fold, subvestigial apophyses anteriores, and a complex ostium bursae area are common characters in many African and Holarctic *Crambus*.

***Crambus berliozii* n. sp.**

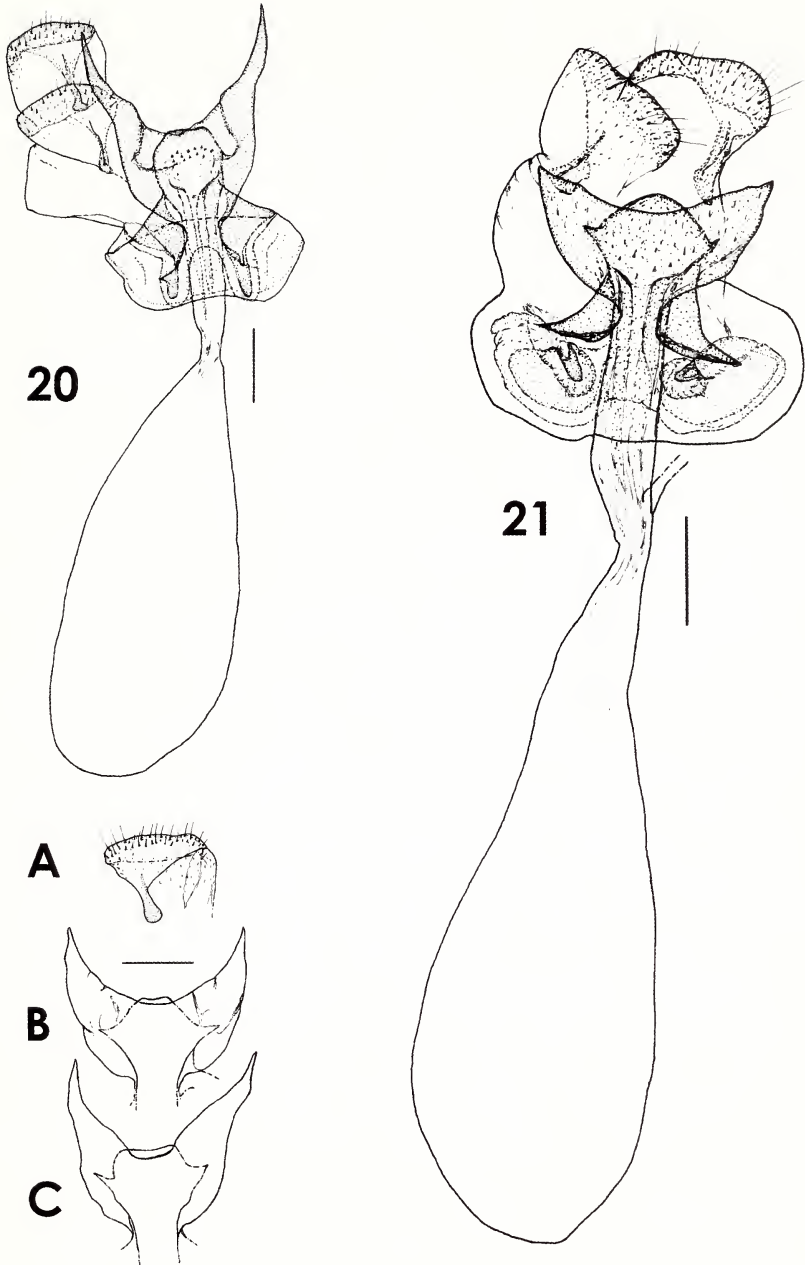
Figs 5-6, 17, 21, 25

HOLOTYPE: TMSA, without registration number; ♂; [RSA, Kwa-Zulu Natal, 29°46'S, 31°01'E] Effingham Quarries n[ea]r. Durban; 29.VIII.1959; C.G.C. Dickson, GS 3310 GB.

PARATYPES (all from RSA, KWA-ZULU NATAL): TMSA, without registration number; 1 ♂; Durban Nat[urreservaat]; 17.XI.1955; C.G.C. Dickson, GS 3385 GB. - CB, without registration number; 1 ♀; Sarnia, Mrs. Curry; 11.'[19]13; Coll. Janse, GS 3980 GB. - TMSA, without registration number; 1 ♀; K[ar]kloof; 8/10/16; [A.J.T. Janse], GS 3675 GB. - CB, without registration number; 1 ♀; Cumberland N[aturre] R[eserve], 15 Km. N[orth] E[ast] of Pietermaritzburg; 20-22.I.2008; leg. Ustjuzhanin P., GS 5277 GB.

ETYMOLOGY: The species is named after the French composer Hector Berlioz (1803-1869).

DIAGNOSIS: Differs from closely related species, *C. mozarti* and *C. frescobaldii*, in smaller average size (17-20 mm versus 18-22 mm). In male genitalia this species is more similar to *C. mozarti* but the pedunculi of the tegumen are narrower, the costa of the valva has a more strongly developed dorsal extension, and the dorsal apical tooth



FIGS 20-21

Female genitalia of *Crambus* spp., scale bars 0.5 mm. (20) *C. mozarti* sp. n., paratype, GS 3281 GB. (20 A) papilla analis and apophyses posteriores from the paratype GS 5222 GB; (20 B-C): variation in the sterigma from paratypes GS 5222 GB (B) and GS 5228 GB (C). (21) *C. berliozii* sp. n., paratype GS 3675 GB.

of the valva is smaller. In female genitalia the lamella postvaginalis is apically rounded as opposed to truncated or concave in other species of the complex.

DESCRIPTION (Figs 5-6): Wingspan 17-20 mm. Labial palpi 4 X longer than widest diameter of eye, white on inner side, otherwise golden brown. Maxillary palpi white, golden brown on basal half. Frons slightly produced, rounded, white with brown scales. Antennae serrate in male, simple in female, brown with white costa. Ocelli and chaetosemata present. Head white. Patagium laterally golden brown, medially white. Tegulae brown. Thorax whitish suffused yellow, with brown medial line. Forewings with pointed apex; ground color brown; medial silvery stripe with dorsal tooth at about half the length, largely bordered with dark brown scales and reaching inner line of submarginal area; inner submarginal line brown; submarginal area with scales ivory with brown tip; fringes white with ivory basis. Hindwings, including fringes, white. Legs brown.

MALE GENITALIA (Fig. 17): Uncus subvestigial and membranous. Gnathos broadly bilobed, poorly sclerotized. Tegumen narrow, with pedunculi 1,7 X longer than gnathos. valva short with costal swelling strongly produced upward, cucullus with second tooth short. Phallus slightly longer than whole apparatus. Vesica with 2 small and one medium-sized cornuti.

FEMALE GENITALIA (Fig. 21, 25): Papillae anales simple, without medial fold, but with membranous and speculate dorsal fold. Apophyses posteriores medium sized, with bulge apically. Ostium bursae small and rounded, slightly produced from middle of lamella antevaginalis. Sterigma with lamella antevaginalis moderately bifurcate and lamella postvaginalis lightly sclerotized.

DISTRIBUTION: RSA, Kwa-Zulu Natal.

Crambus frescobaldii n. sp.

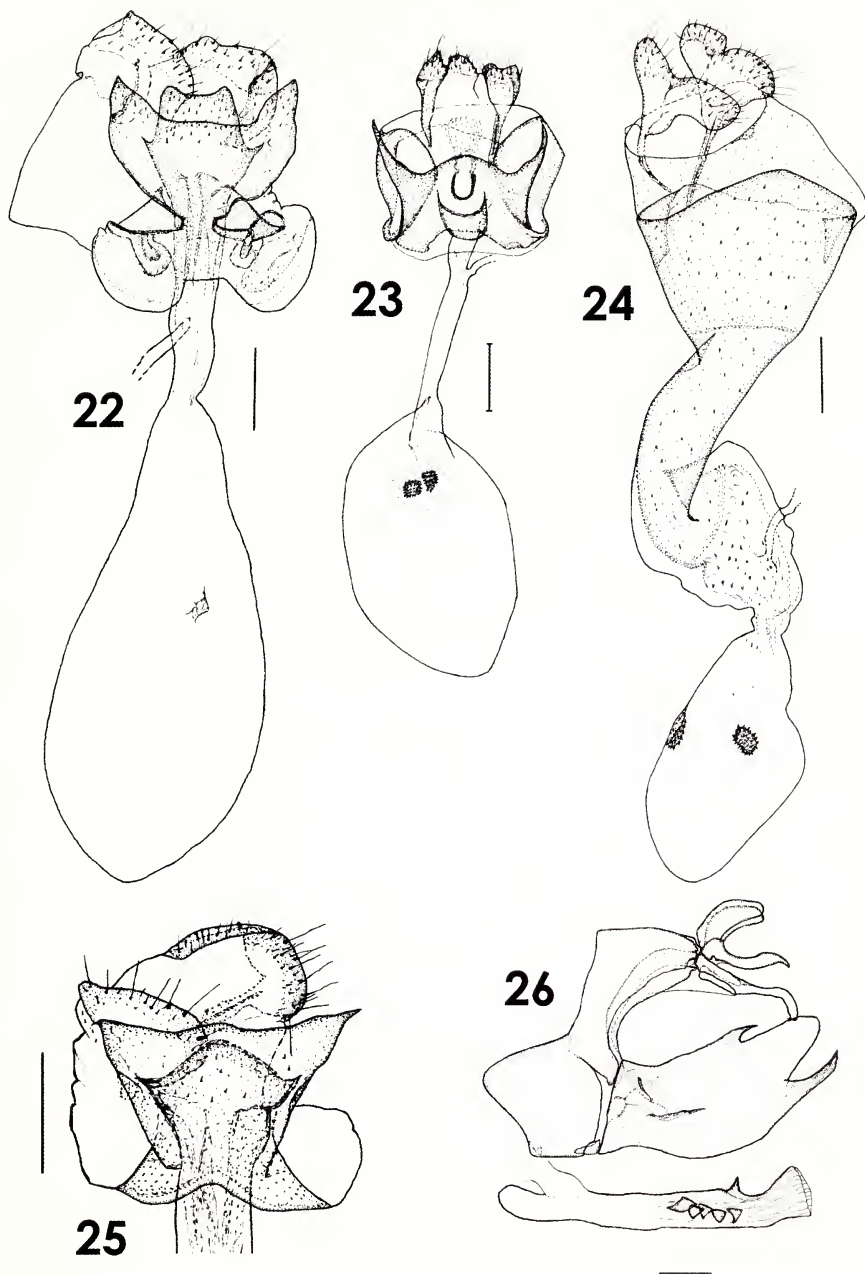
Figs 7, 22

HOLOTYPE: TMSA, without registration number; ♀; [Zimbabwe, 20°27'S, 32°43'E] Mt. Selinda; 8-17.II.1952; H. Cookson, Holotype *Crambus frescobaldii* n. sp. G. Bassi det. 2011, GS 4000 GB.

ETYMOLOGY: The species is named after the Italian composer Girolamo Frescobaldi (1583-1643).

DIAGNOSIS: More yellowish than the other species of the *mozarti* complex. In female genitalia the lamella postvaginalis is apically concave as opposed to truncated or rounded in the other species of the complex.

DESCRIPTION (Fig. 7): Wingspan 20 mm. Palpi 4.5 X longer than widest diameter of eye, white on inner side, bronzed brown with white basis on outer side. Maxillary palpi bronzed brown with white tip. Frons produced, rounded, with brown and white scales. Antennae simple, brown, with costa white on scape and first third of flagellum, otherwise glossy brown. Ocelli and chaetosemata well developed. Head white with small dot of light brown scales in middle. Patagium laterally golden brown, medially white. Tegulae golden brown. Thorax medially white, laterally brown. Forewings golden yellow-brown; costal line brown in basal third, lighter toward apex; subterminal area narrow, wider at apex; terminal line brown with 3-4 terminal dots;



FIGS 22-26

Male and female genitalia of *Crambus* spp., scale bars 0.5 mm. (22) *C. frescobaldii* sp. n., holotype, GS 4000 GB. (23) *C. paris* sp. n., holotype GS 3559 GB. (24) *C. varii* sp. n., paratype GS 3300 GB. (25) *C. berliozii* n. sp., paratype, sterigma complex, GS 3980 GB. (26) *C. varii* sp. n., paratype GS 3330 GB.

fringes white with golden tip. Hindwings white suffused ivory with fringes concolorous. Forelegs bronzed brown with black tip; midlegs broken; hindlegs yellow brown with dorsal side white.

MALE GENITALIA: Unknown.

FEMALE GENITALIA (Fig. 22): Papillae anales simple, without medial fold, but with membranous and speculate dorsal fold. Apophyses posteriores medium sized, with wide bulge apically. Ostium very wide, trapezoidal, clearly producing from lamella postvaginalis. Lamella postvaginalis with upper margin quite concave and with wide arms, narrowing to level of proximal third of ductus. Corpus bursae short, with poorly sclerotized patch that could be a subvestigial signum.

DISTRIBUTION: The new species is only known from the type locality in Zimbabwe.

Crambus bachi n. sp.

Figs 8, 18

HOLOTYPE: MFNB, without registration number; ♂; [Ethiopia, 11°33'N, 37°22'E] Äthiopien, Bahar Dar, Lake Tana; 24/25.XII.1979; 1880 m., 4284, Dr. Angenstein M[a]g[de]b[ur]g DDR, GS 5200 GB, Holotype *Crambus bachi* n. sp. G. Bassi det. 2010.

ETYMOLOGY: The species is named after the German composer Johann Sebastian Bach (1685-1750).

DIAGNOSIS: Differs from the other species of the complex by the smaller wingspan (15 mm versus 17-22 mm) and in male genitalia by the longer valva with a single down-curved apical tooth.

DESCRIPTION (Fig. 8): Wingspan 15 mm. Labial palpi 3 X longer than widest diameter of eye, white with wide brown margin on outside ventrally. Frons slightly produced, rounded, brown with long white scales. Antennae serrate, brown with costa white in first third, then golden yellow. Ocelli and chaetosemata well developed. Head white. Patagium white in middle, golden yellow laterally. Tegulae golden yellow. Thorax white. Abdomen white with medial segments suffused brown. Forewings golden brown, with dorsal part lighter, rather grayish white; medial stripe white with dark brown margin from middle to tip, thicker on upper margin and with two teeth, the first, dorsal, under cell, the second, costal over end of cell; submarginal area with scales white with thick dark brown edge and inner line bicolored brown and silvery, angled around cell; terminal line bronze brown without dots; fringes bronze brown with white base. Hindwings white with ivory suffusion; fringes white. Legs brown, with forelegs darker.

MALE GENITALIA (Fig. 18): Pedunculi and tegumen narrow and slender. Valva long and slender with costal swelling slightly pronounced; cucullus with one apical tooth. Phallus as long as valva, with two large subapical teeth; vesica with one small cornutus.

FEMALE GENITALIA: Unknown.

DISTRIBUTION: The new species is only known from the type locality in Ethiopia.

***Crambus netuncus* n. sp.**

Figs 9, 19

HOLOTYPE: BMNH, without registration number; ♂: [Ethiopia, 09°43'N, 38°52'E] Abyssinia, near Debra Libanos, ca 8,000 ft.; 31.XII.1926; H. Scott, B[ritish] M[useum] 1927-127, GS 6545 S[tanislaw] B[leszyński] (11335 B[ritish] M[useum]) *Crambus netuncus* Bl. det. Bleszyński, 1969, Holotype *Crambus netuncus* n. sp. G. Bassi det. 1997.

ETYMOLOGY: The new name was used by Bleszyński on a label pinned to the holotype. I am pleased to apply his name to the description of this new taxon. The name refers to the poor development of the uncus.

DIAGNOSIS: Easily distinguishable from the other species of the *mozarti* complex by the dark wing coloration and in male genitalia by the cucullus bent upward and vesica with five cornuti.

DESCRIPTION (Fig. 9): Wingspan 20 mm. Labial palpi 2.5 X longer than widest diameter of eye, rubbed. Frons clearly produced, rounded, white with creamy brown scales. Antennae serrate, brown with silvery costa. Ocelli present. Chaetosemata poorly developed. Head tricolored, white, mostly creamy brown and brown around chaetosemata. Patagium medially white, laterally brown. Tegulae brown with inner margin whitish. Thorax whitish. Forewings bronze brown in costal half, grayish brown in dorsal half; costal margin silvery white in apical third; apex pointed; medial silvery stripe well developed, with bronze brown margins, reaching wing outer margin; submarginal line silvery, angled around cell; subterminal dots 5, small; terminal line bronze brown; fringes white in apex area, then grayish brown. Hindwings translucent, light brown; fringes white suffused brown. Legs bronze brown.

MALE GENITALIA (Fig. 19): Uncus subvestigial and membranous. Gnathos broadly bilobed, poorly sclerotized. Tegumen almost fused with vinculum, with two symmetrical pedunculi as long as gnathos lobes. Vinculum stubby, with slight dorsal extension. Pseudosaccus well developed, narrow. Valva concave with costal swelling rounded; cucullus with one tip bent upward. Phallus clearly longer than valva, with one lateral tooth and one small apical tooth; vesica with 5 medium-sized cornuti.

FEMALE GENITALIA: Unknown.

DISTRIBUTION: The new species is only known from the type locality in Ethiopia.

***Crambus paris* n. sp.**

Figs 3, 23

HOLOTYPE: TMSA, without registration number; ♀: [RSA, Kwa-Zulu Natal, 29°24'S, 30°16'E.] Karkloof N.P.; 13-19.XII.[19]30; AJT Janse, Holotype *Crambus paris* n. sp. G. Bassi det. 1996, GS 3559 GB.

ETYMOLOGY: The species is named after the eponymous character of the Greek mythology, legendary figure of the Trojan War.

DIAGNOSIS: The forewings with a very large white stripe extending to termen will separate the species from other African *Crambus*. In female genitalia the ostium is opening in a membranous area as opposed to opening among sclerotized structures in the other African *Crambus* species.

DESCRIPTION (Fig. 3): Wingspan 16,5 mm. Palpi 3.5 X longer than widest diameter of eye, white on inner side, bronzed brown with white basis on outer side.

Maxillary palpi bronzed brown with white tip. Frons produced, conical with rounded apex, white with few brown scales around eyes. Antennae simple, brown, with costa whitish on scape and first flagellomeres, otherwise glossy bronzed brown. Ocelli and chaetosemata well developed. Head white, brown around chaetosemata. Tegulae bronzed brown. Thorax medially white, laterally brown. Forewings with very wide white median stripe reaching costa and subterminal lines close to termen; costa bronzed brown to chestnut brown towards apex, with two small diagonal brown streaks medially and sub-medially; subterminal line angled, silvery with costal end bordered brown; apical patch rounded, brown; four elongated dots in tornus area; terminal line silvery at tornus, then dark brown and curved at cell level; dorsal area white speckled brown to dark brown toward middle; fringes golden brown with white basis, wider around apex. Hindwings white suffused ivory with fringes concolorous. Forelegs bronzed brown, lighter on inner side of femur; midlegs whitish brown with tarsomeres white and brown; hindlegs whitish and yellow-brown with tarsomeres white and brown.

MALE GENITALIA: Unknown.

FEMALE GENITALIA (Fig. 23): Papillae anales divided into two lobes and apophyses posteriores of medium size. Apophyses anteriores absent. Abdominal segment VIII with narrow tergite and wide rounded and sclerotized sternite. Ostium bursae suboval, lightly sclerotized, opening in membranous area. Sterigma with lamella antevaginalis with wide biconcave upper margin and long and pointed arms, and lamella postvaginalis cup-shaped. Ductus bursae wrinkled, as long as 7/10 of corpus bursae. Ductus seminalis connected in proximal third of ductus bursae. Corpus bursae suboval, spiculate in proximal third, most evidently around two signa.

DISTRIBUTION: The new species is only known from the type locality in RSA.

REMARKS: The structure and maculation of the forewings, the presence in female genitalia of papillae with a median fold, the absence of apophyses anteriores, the complex sterigma and the double signa suggest that this species is close to the *C. attis* complex. In female genitalia the bifurcate shape of lamella antevaginalis is reminiscent of some *Chrysoteuchia* Hübner species, but in the latter ostium bursae directly opens in the middle of the bifurcate process while in *paris* ostium bursae is membranous and placed between well differentiated and bifurcate lamella antevaginalis and cup-shaped lamella postvaginalis. This feature could mean that this species is close to the *C. mozarti* complex, but only the discovery of the male will clarify the problem.

***Crambus varii* n.sp.**

Figs 10, 24, 26

HOLOTYPE: TMSA, without registration number; ♀; [RSA, Western Cape, 33°57'S, 22°32'E] Saasveld George, C[ape] P[rovince], South Africa, H. Geertsema; 26.8.1964; Holotype *Crambus varii* n. sp. G. Bassi det. 1995, TMSA, (not dissected).

PARATYPES (all from RSA): TMSA, without registration number; 1 ♀; same data as holotype. - TMSA, without registration number; 1 ♀; idem, 2.2.[19]65 - TMSA, without registration number; 1 ♀; idem, 1-10.II.1965. - TMSA, without registration number; 1 ♀; idem, 5.I.1965. - TMSA, without registration number; 1 ♂; idem, 26.XII.1964. - TMSA, without registration number; 1 ♂; idem, 1.I.1965. - TMSA, without registration number; 1 ♀; idem, 16.9.1964, De Fin. - TMSA, without registration number; 1 ♂; Kogelberg C[ape] P[rovince], Nature Reserve;

6-13.III.1983; Kroon & Molekane, GS 3330 GB. - TMSA, without registration number; 1♂; Cape Prov[ince], Kogelberg (34 18 BD), 23 Mar[ch] 1981, D.M. Kroon, GS 4193 GB. - TMSA, without registration number; 1♂; Stellenbosch; 3.3.'[19]21; Ch. K. Brain. - TMSA, without registration number; 1♂; 1♀, Vyeboom, Caledon Distr[ict]; 10.II.1954; L. Vári, GS 3300 GB. - TMSA, without registration number; 1♀; Saasveld; 5.I.[19]65. - MFNB, without registration number; 2♀♀; RSA, Bontebok NP, Swellendam; 14.16.XI.1993; leg. Mey & Ebert. - CB, without registration number; 1♂; Saasveld, C.P.; 23.XII.1964; H. Geertsema, GS 5235 GB. - CB, without registration number; 1♀; Algeria Forestry, Clanwilliam Distr.; 4-10.III.1969; Potgieter & Strydom, GS 5240 GB. - MHNG, without registration number; 1♀, Worcester, Amandel spruit; 18.X.1966; Vári & Potgieter. - TMSA and CB (1♂), without registration number; 2♂♂; 2♀♀, Tsitsikam[m]a Goesabos Forestry; 13-22.III.1979; Potgieter & Scoble. - TMSA, without registration number; 1♀; Cape Prov[ince], Tsitsikam[m]a forest, Goesabos, 33 23 DD; 13-22 Mar 1979; J. Potgieter & M. Scoble, GS 3850 GB. - TMSA, without registration number; 1♀; Tsitsikam[m]a, Ou-brug; 17.III.1979; Potgieter & Scoble.

ETYMOLOGY: The species is dedicated to Lajos Vári of the TMSA, author of very valuable entomological collections in Southern Africa.

DIAGNOSIS: The combination of forewings without separated submarginal area, male genitalia with fully developed uncus, phallus with dorsoapical tooth and strong cornuti, and female genitalia with very large and strongly sclerotized ostium characterize this species among African *Crambus*.

DESCRIPTION (Fig. 10): Wingspan: male 20-21 mm, female 25-27 mm. Labial palpi 4 X longer than widest diameter of eye, with inner side white and outer side brown with upper margin and tip white. Maxillary palpi white with brown basis. Frons clearly produced, rounded, white. Antennae brown, with silvery costa, serrate in male, simple in female. Ocelli and chaetosemata moderately developed. Head white, with few chestnut brown scales in middle. Patagium laterally brown, white medially. Tegulae dark brown. Thorax white. Abdomen bronze brown to whitish, suffused brown. Forewings ground color bronze brown, lighter in dorsal area; costal area white, wide, and white suffused with chestnut brown toward apex; female with more pointed apex; medial stripe wide, white, reaching outer margin; veins marked by white scales toward outer margin; outer margin with seven subterminal dots, more developed in female; fringes with both short and long scales white with silvery bronzed tip, thus appearing white with medial and terminal lines silvery bronzed. Hindwings white with brown suffusion; fringes white. Fore and midlegs bronze brown; hindlegs whitish, suffused bronze brown.

MALE GENITALIA (Fig. 26): Uncus long, sinuous, pointed, moderately bent downward and sclerotized. Two large and spatulate socii cover up to two thirds of length of uncus. Gnathos one third longer than uncus, with apex rounded and bent downward. Tegumen with large base, partially fused with vinculum. Vinculum stout, with large subtriangular dorsal extension. Pseudosaccus small. Valva wide, with membranous cucullus, with well developed and pointed costal and saccular processes and small medial process lamellar. Phallus slightly shorter than whole apparatus, with large subapical tooth; vesica with 5 subtriangular cornuti.

FEMALE GENITALIA (Fig. 24): Papillae anales divided into two lobes and apophyses posteriores of medium size. Apophyses anteriores absent. Abdominal segment VIII with narrow tergite and strong and complex sternite. Ostium bursae very

large and sclerotized. Ductus bursae longer than corpus bursae, sinuous, sclerotized in proximal two thirds, then fibrous. Ostium and ductus bursae spiculate. Ductus seminalis opening in distal third of ductus bursae. Corpus bursae with two well developed signa.

DISTRIBUTION: RSA, Western Cape and Eastern Cape at Tsitsikamma.

REMARKS: The presence of socii and both costal and saccular processes relates this species to *C. pascuella*; female genitalia are also reminiscent of some other *Crambus*, such as *heringiellus* Herrich-Schäffer.

ACKNOWLEDGEMENTS

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Two new species of *Microphorella* Becker (Diptera: Dolichopodidae) from the Mediterranean

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Two new species of *Microphorella* Becker (Diptera: Dolichopodidae) from the Mediterranean. - Two new species of *Microphorella* Becker are described from the Mediterranean – *Microphorella ebejeri* sp. n. from Israel, and *Microphorella mamillata* sp. n. from Tunisia.

Keywords: Diptera - Dolichopodidae - Parathalassiinae - *Microphorella* - new species - Mediterranean.

INTRODUCTION

Microphorella Becker is one of a small group of genera, both fossil and extant, which are currently placed in the subfamily Parathalassiinae of the Dolichopodidae *s. lato* (Ulrich, 2003; Sinclair & Cumming, 2006). The taxon was first proposed by Becker (1909) as a subgenus of *Microphor* Macquart, 1827. It currently comprises 18 named species of which seven are Nearctic (Melander, 1928; Brooks & Cumming, 2012), six Palaearctic (Chvála, 1988; Gatt, 2003, 2011; Shamshev, 2004), four Oriental (Shamshev & Grootaert, 2004) and one Australian (Colless, 1963). Four species - *M. curtipes* (Becker, 1910) (north Italy, Corsica & Sardinia), *M. ulrichi* Gatt, 2003 (Tunisia & Morocco), *M. merzi* Gatt, 2003 (Malta, Cyprus & Turkey) and *M. cassari* Gatt, 2011 (Tunisia) - are currently known from the Mediterranean, the latter three exclusively so. A further two, closely related species, one from Israel and another from Tunisia are described here. More undescribed species are known from the Mediterranean (Gatt, in prep.) and it is becoming increasingly apparent that this sub-region is a biodiversity hotspot for the genus.

Microphorella belongs to a group of four genera which includes *Thalassophorus* Saigusa, 1986, *Chimerothalassius* Shamshev & Grootaert, 2002 and *Eothalassius* Shamshev & Grootaert, 2005. At present it remains poorly defined and may be paraphyletic with respect to at least *Eothalassius* and *Thalassophorus* (Cumming & Brooks, 2006). Species of *Microphorella* are minute, cryptic flies with inconspicuous habits and which blend perfectly well with their surroundings (sandy beaches, gravel and sand in river beds, and moist rocks in streams). They are therefore often overlooked and poorly represented in collections.

MATERIAL AND METHODS

All specimens treated in this article were either collected by Bernhard Merz (Muséum d'histoire naturelle, Genève) in Israel in March 1995, or by the author in Tunisia in April 2000.

Temporary slide mounts of the abdomen and terminalia were prepared in Berlese fluid, as described by Disney (1983). Drawings were made with the aid of a x250 stereomicroscope and a built-in ocular grid. For some figures (Figs 4-5, 7-8, 11-12) a compound microscope was also employed. Drawings of complex structures made from slide mounts studied in transmitted light (e.g. Fig. 4) fail to make a clear distinction between internal and external structures, and cannot show how the various parts are interconnected.

In descriptions of the abdomen and hypopygium, the terms “dorsal” and “ventral”, and “left” and “right” refer to the morphological position *after* genital rotation and flexion, i.e. as they appear in the intact specimen.

The following abbreviations are used in figures 1-12:

ap	ventral appendage of left epandrial lamella
as	accessory sclerites of genital fork (sternite 9)
C	female cercus
Ce	male right cercus
ds	dorsal sclerite of genital fork (sternite 9)
fo	foramen from segment 8
HA	hypandrium
hs10	female abdominal hemisternite 10
ht8	female abdominal hemitergite 8
ht10	female abdominal hemitergite 10
LEP	left epandrial lamella
ls	lateral sclerite of genital fork (sternite 9)
PH	phallus
REP	right epandrial lamella
s5-s8	abdominal sternites 5-8
t5- t7	abdominal tergites 5-7
vs	ventral sclerite of genital fork (sternite 9)

The holotype labels are cited verbatim. The text of each separate label is enclosed in quotation marks, whilst individual lines on each label are separated by slash lines.

All specimens are deposited at the Muséum d'histoire naturelle, Genève (MHNG).

The terminology used in this account follows Merz & Haenni (2000). Homologies for the male terminalia follows Sinclair (2000).

TAXONOMIC TREATMENT

Microphorella ebejeri sp. n.

Figs 1-8

MATERIAL EXAMINED: Holotype ♂; “ISRAEL/Bor Mashash/16.III.1995/leg. B. Merz”; “HOLOTYPUS / *Microphorella / ebejeri* Gatt.” (MHNG). The holotype is double mounted on pins. One wing is glued to a piece of card, and the pre-abdomen (with part of the thorax attached) and the hypopygium are stored in a glycerine microvial. Both card and microvial are pinned with the rest of the specimen.

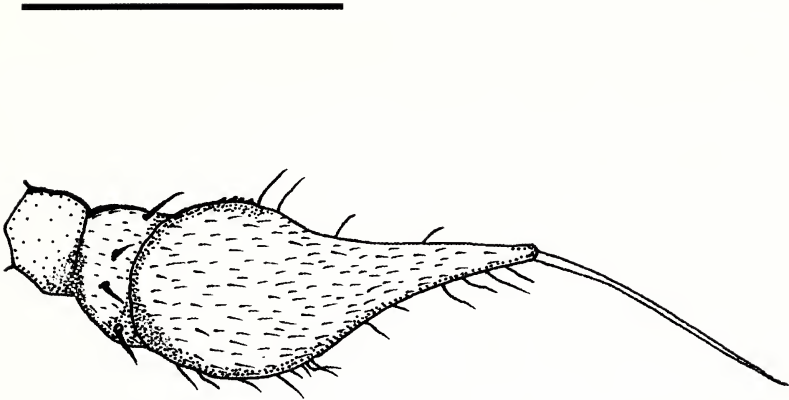


FIG. 1

Microphorella ebejeri sp. n. ♂ antenna, lateral view. Scale bar = 0.1mm.

Paratypes: 1 ♀, same data as holotype (MHNG).- 2 ♀ ♀, ISRAEL, Tel Aviv Country Club, beach, 14.III.1995, leg. B. Merz (MHNG).

ETYMOLOGY: This species is dedicated to my dear friend and colleague Dr. Martin J. Ebejer (Cardiff, UK) in celebration of 20 years of friendship and collaboration.

DIAGNOSIS: A small (1.7 mm), whitish-grey microtrichose, sexually dimorphic species with white macrosetae and clear wings. Wing membrane between C and R₁ yellowish. Postpedicel pear-shaped. Stylus long, as long as postpedicel. One pair of fronto-orbital setae. Eight pairs of dorsocentral setae. Male: anterior costal margin with long, spine-like setae at middle; fore femur with a long posteroventral seta on apical third; fore and mid-tibia, posteriorly, with long setae; mid-femur ventrally densely clothed with short setulae and some long setae; mid-basitarsus bowed laterally, ventrally with a long row of hook-like spinules. Hypandrium without mamillary process at caudal pole. Female: tergite 8, tergite 10 and sternite 10 completely divided; hemitergite 10 bearing unmodified setae.

DESCRIPTION

Male

Length: Body 1.7 mm, wing 1.7 mm (specimen dry).

Head: Black in ground colour, grey microtrichose with brownish tints; higher and wider than deep. Eyes widely separated on frons, ommatidia equal in size, sparsely covered with minute ommatrichia. Neck inserted high on head. Occiput grey microtrichose with some brownish hues; projecting beyond posterior margin of eye, concave above neck, convex below. Frons broad, whitish grey microtrichose with some brownish hues and metallic reflections. Gena very narrow. Face black, grey micro-

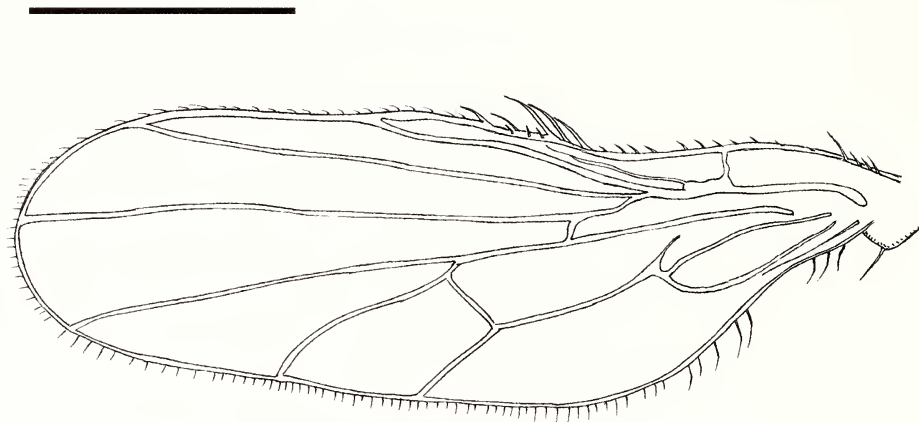


FIG. 2

Microphorella ebejeri sp. n. ♂ wing. Scale bar = 0.5mm.

trichose; long and narrow, narrower than frons above antennae, widening towards mouth edge. Antenna (Fig. 1) black in ground colour and clothed with pale setulae; placed at middle of head in profile, and as long as head is deep; scape cup-shaped, pedicel globular, subequal in length to scape, sparsely grey microtrichose and with a circle of subapical setulae; postpedicel pear-shaped, more intensely and brown microtrichose, setulose; stylus uniaarticulate, long, subequal in length to postpedicel. Labrum very short, almost completely concealed within oral cavity; lustrous black, curving caudally. Palpus very small, grey microtrichose, with some long white setulae; sensory pit not discernable. Chaetotaxy: cephalic setae white; one pair of strong, lateroconate anterior ocellars; one pair of very short, proclinate posterior ocellars; one pair of strong inclinate anterior fronto-orbitals; one pair of long, inclinate medial verticals; one pair of lateroconate lateral verticals; postocular occipital setae uniserial above neck, becoming longer and irregularly multiserial below; several longer setae present just posterior to mouth opening, including postgena.

Thorax: Black in ground colour, generally whitish grey microtrichose; scutum, viewed anteriorly from above with a distinct, golden brown microtrichose longitudinal stripe between dorsocentral rows; similar stripes one on each side of scutum; viewed posteriorly from above with 4 dull-grey, less microtrichose longitudinal stripes (2 medially, and one on each side) which become confluent anteriorly; dorsal surface of scutum moderately arched; prescutellar depression distinct; complete prothoracic pre-coxal bridge present. Anepisternum greyish brown microtrichose. Chaetotaxy: thoracic setae white. Anteprenotum with 4 setulae. Propleuron with 1 setula. Postpronotum with 3 very short setulae. A single pair of long acrostichal setae on anterior slope of mesoscutum. Eight (4+4) pairs of more or less equal sized dorsocentral setae, 1 pre-

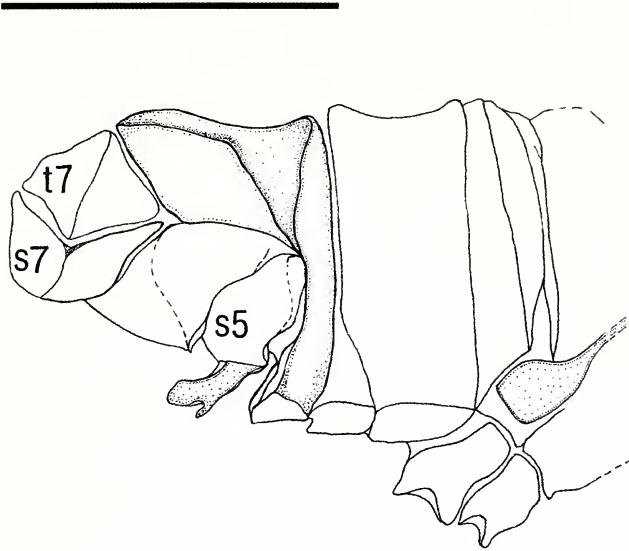


FIG. 3

Microphorella ebejeri sp. n. ♂ abdomen, right lateral view. Scale bar = 0.5mm. Abbreviations explained in the text.

scutellar pair longer, wider apart, and as strong as 1 pair of long, inclinate scutellar setae; 3 supra-alar setae, the posterior-most longest; preceded by a row of 3 minute setulae; 2-3 additional minute setulae outside supra-alar line; 1 postalar seta; 3 notopleural setae.

Legs: Long and slender, black in ground colour, greyish microtrichose and clothed with short, white setulae; trochanters, apices of femora and all tibiae and tarsi paler. Femora equally thick, not much stronger than tibiae. Fore and hind basitarsi as long as following tarsal segments combined; mid-basitarsus longer. Fore coxa densely clothed with white setulae and some longer setae. All tarsomeres with short, black, spine-like subapical setae, stronger and in groups of 4 on middle segments. Tarsal claws, pulvilli and empodium developed on all legs. Fore femur with 1 long postero-ventral seta in apical third; some longish setae near apex and at base. Fore tibia with a posterodorsal row of 8-10 long posteriorly curved setae; bearing anterior apical comb; pigmented spinulated tubercles absent. Mid-femur with a dense tuft of very short setulae along middle third of ventral surface, and with a fringe of 8 long pale ventral setae, as long as or longer than femur is deep. Mid-tibia, posteriorly, with 2 long setae; one spine-like subapical seta. Mid-basitarsus, ventrally, with 2 white spine-like setae at base and another 2 long, black, spine-like setae at apex; curved, convex laterally, and with a long row of some 23 short ventral spinules having curved, hook-like apices. Hind leg simple. Hind femur anteroventrally with some longer setae. Hind tibia with an apical posterior comb of closely set spinules. Hind basitarsus with an apical posterior comb of short setae.

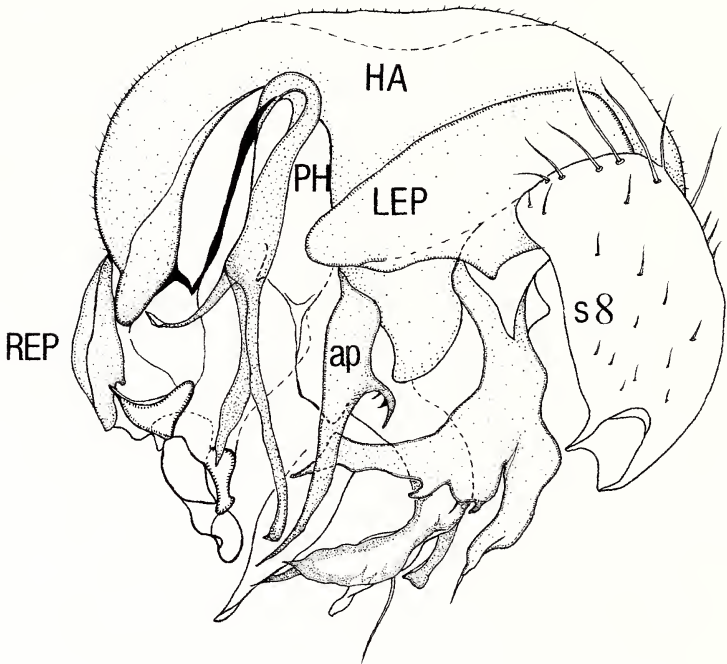


FIG. 4

Microphorella ebejeri sp. n. ♂ hypopygium and sternite 8, viewed from the left. Scale bar = 0.5mm. Abbreviations explained in the text.

Wing (Fig. 2): Three times longer than broad; axillary lobe hardly developed; wing membrane clear; space between C and R₁ yellowish; membrane, including veins, covered with microtrichia; veins brown; macrosetae white; hind marginal fringe longest at base of wing. C circumambient, with 1 basal seta preceded by 3 shorter setae; anterior costal margin with a row of spine-like setae, very long and strong at middle of wing; longest seta as long as crossvein DM-Cu. Sc parallel to R₁, upturning to C before merging imperceptibly into membrane as a fold; humeral crossvein indistinct; Rs originating opposite humeral crossvein; R₁ ending in C beyond tip of discal cell; R₂₊₃ straight, upcurved at its junction with C; R₄₊₅ sinuous, ending in C before tip of wing; crossvein R-M present; discal cell incompletely separated from second basal cell by incomplete crossvein BM-Cu, closed distally by crossvein DM-Cu and emitting 3 veins to wing margin; base of M₂ complete; crossvein DM-Cu complete; CuA₂ curved; A₁ absent; A₂ present on posterobasal margin of wing. Alula absent. Squama brown, short, with a fringe of long, pale setae. Haltere brown, stem darker than knob, the latter large and quadrate.

Abdomen (Fig. 3): Brownish black in ground colour, less intensely grey microtrichose than thorax; sclerites with sparse, white setulae on posterior margins and

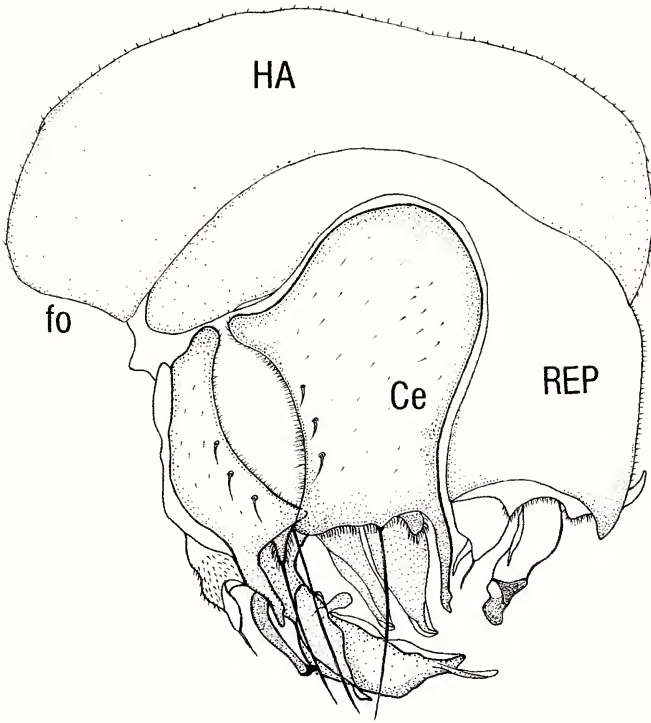


FIG. 5

Microphorella ebejeri sp. n. ♂ hypopygium, viewed from the right. Scale bar = 0.5mm. Abbreviations explained in the text.

on disc. Abdominal muscle plaques distinct. Tergites 1-4 and sternites 1-3 unmodified. Postabdomen beginning with sternite 5, rotated and lateroflexed to the right. Sternites 1 and 2 short; sternite 3 with long setae on posterior margin; sternite 4 with a postero-medial membranous area, fringed on each side with a number of long setae; long setae present also on posterior margin of sclerite. Sternites 5 and 6 mostly lustrous brown. Sternite 5 short, bare, with a robust, well sclerotised, bifid posteromedian projection; well-developed ventral tubercle present at point of bifurcation. Sternites 6 and 7 simple, bare; sternite 8 large, subrectangular. Tergite 8 atrophied. Terminalia (Figs 4-5) lateroflexed to the right, inverted and with caudal pole directed forward, asymmetrical. Hypandrium large, separated from epandrium, distinctly produced at apex and with several accessory processes, microtrichose; without mamillary process at caudal pole. Ventral appendage of left epandrial lamella asymmetrical, with two arms: the right arm long and pointed; the left arm short, arcuate, its concave margin with 2 tooth-like processes. Cerci large, the right cercus larger, both clothed with setulae; each with 3 short, inclinate spine-like setae medially; apicolateral corners produced. Left cercus with medial margin smoothly rounded; apicolateral corner long and slender;

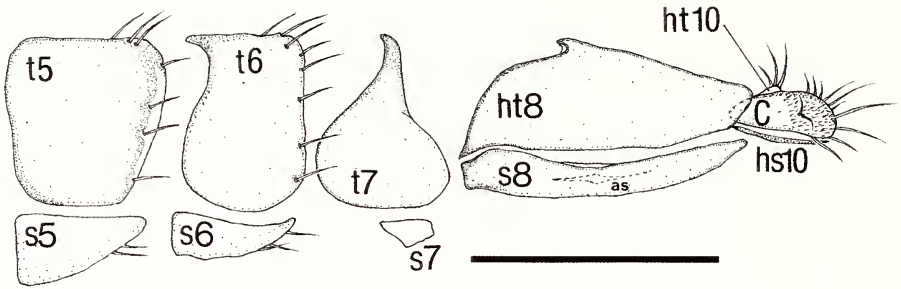


FIG. 6

Microphorella ebejeri sp. n. ♀ abdomen, lateral view (stretched, membranes and spermatheca omitted). Scale bar = 0.3mm. Abbreviations explained in the text.

1 very long hair-like seta on apical margin, and another long seta arising from a setulose, mamillary process. Right cercus with (seemingly) only 1 long seta arising from apical margin; setulose mamillary process devoid of long setae. Phallus directed forwards, apex pointed; dorsal surface with 2 processes, the superior curved to the right, the inferior straight, flat and pointed.

Female

Length: Body 1.5 – 1.7 mm (n=2); wing 1.3 – 1.5 mm (n=2). Specimens dry.

Resembling male, including dichoptic condition of eyes and apical combs on fore and hind tibia and hind basitarsus, but differing in the following:

Body less intensely microtrichose. Cephalic and thoracic macrosetae longer, stronger. Median golden-brown microtrichose stripe on scutum divided into 2 separate narrower vittae. All legs with short, undifferentiated setulae. No differentiated spine-like setae on anterior margin of costa near middle of wing. Abdomen (Figs 6-7): gradually tapering, segments 1-6 grey microtrichose, forming preabdomen. Segment 7 concealed internally. Segment 8 partly retracted into segment 7, partly exposed, forming 'ovipositor'; lustrous brown and contrasting strongly with preceding microtrichose segments. Terminalia not acanthophorous. Tergite 1 short, tergites 2-4 normal. Tergites 5 and 6 with a fringe of long setae on posterior margin. Tergite 7 bare, very narrow dorsally, broadly emarginate anteriorly and posteriorly, and broadening widely as it extends laterally. Tergite 8 long, emarginate anteriorly, divided medially into 2 hemitergites; apices of hemitergites divergent. Tergite 10 minute and barely sclerotised, fused to cerci, divided into 2 hemitergites each bearing 3 long setae not forming spines. Sternite 1 short. Sternites 2-4 normal. Sternites 5 and 6 with a fringe of longer setae on posterior margin. Sternite 7 short, poorly sclerotised. Sternite 8 long, produced posteriorly, depigmented posteromedially; genital fork (= sternite 9) represented by a single ventral and paired dorsal and lateral accessory sclerites. Sternite 10 divided into 2 sinuous, strap-like hemisternites. Cercus long, microtrichose, bearing long setae of varying lengths on dorsal and lateral surfaces, longest at tip; in addition bearing numerous setulae on apical half. Spermatheca (Fig. 8) short tubular with tracheated surface.

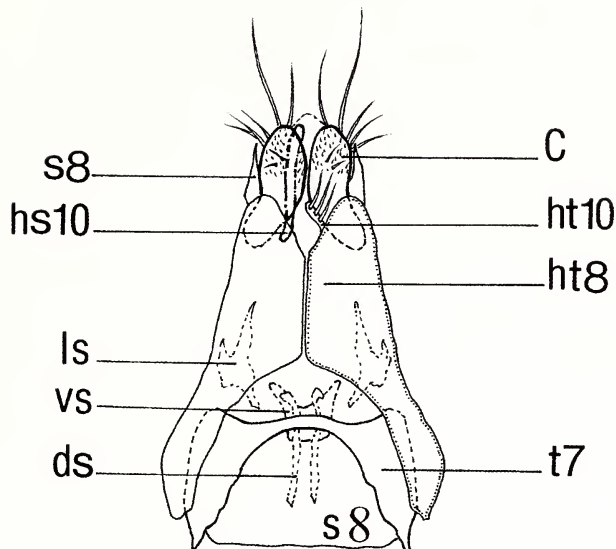


FIG. 7

Microphorella ebejeri sp. n. ♀ tip of abdomen, with (internally) parts of genital fork, dorsal view (right ht10 and left hst 10 omitted). Scale bar = 0.3mm. Abbreviations explained in the text.

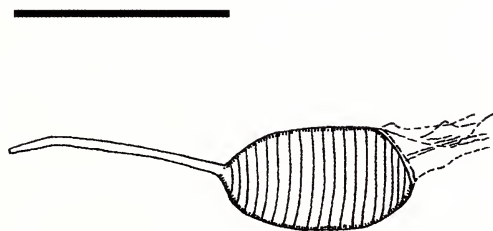


FIG. 8

Microphorella ebejeri sp. n. ♀ spermatheca, lateral view. Scale bar = 0.1mm.

BIOLOGY: Unknown. All specimens were collected from inland sand dunes and a sandy beach, suggesting that the species is psammophilous.

DISTRIBUTION: Hitherto known only from two localities in Israel.

REMARKS: This species was previously reported from Israel as probably new but not formally described (Gatt, 2003).

Microphorella mamillata sp. n.

Figs 9-12

MATERIAL EXAMINED: Holotype ♂; "TUNISIA: Tabarka/Nefza-Zouara/coastal dunes/21.iv.2000/ P. Gatt"; "HOLOTYPUS / *Microphorella / mamillata* Gatt" (MHNG). The holotype is preserved in alcohol, and is in good condition.

Paratype ♂: TUNISIA; Gulf of Gabes, Hachichina, Khaouala, coastal steppe, 25.iv.2000, P. Gatt (MHNG).

ETYMOLOGY: The specific name *mamillata* refers to the characteristic mamillary process which is present at the caudal pole of the hypandrium of this species.

DIAGNOSIS: A small (1.6 mm), whitish-grey microtrichose species with white macrosetae and clear wings. Wing membrane between C and R₁ yellowish. Postpedicel pear-shaped. Stylus long, as long as postpedicel. Two pairs of fronto-orbital setae. Five pairs of dorsocentral setae. Male: anterior costal margin with long, spine-like setae at middle; fore-femur with a long posteroventral seta on apical third; fore and mid-tibiae, posteriorly, with long setae; mid-femur, ventrally, densely clothed with short setulae and some long setae; mid-basitarsus bowed laterally, ventrally with a long row of hook-like spinules. Hypandrium with mamillary process at caudal pole.

DESCRIPTION

Male

Length: Body 1.6 mm, wing 1.4 mm (specimen in alcohol).

Head: Black in ground colour, whitish-grey microtrichose, higher and wider than deep. Eyes widely separated on frons, ommatidia equal in size, sparsely covered with minute ommatrichia. Neck inserted at middle of head. Occiput greyish microtrichose with some brownish tints and metallic reflections, projecting beyond posterior margin of eye, concave above neck, convex below. Frons broad, whitish grey microtrichose with some brownish hues and metallic reflections. Gena very narrow. Face brown microtrichose, long and narrow, narrower than frons above antennae, widening towards mouth edge. Clypeus convex, grey microtrichose. Antenna (Fig. 9) black in ground colour and clothed with short, pale setulae; placed at middle of head in profile, and as long as head is deep; scape cup-shaped; pedicel globular; subequal in length to scape, sparsely grey microtrichose, and with a circlet of subapical setulae; postpedicel long, bulbous in basal half; stylus uniaarticulate, long, subequal in length to postpedicel. Labrum very short, brown, projecting forward. Palpus small, grey microtrichose and bearing some long and short setulae; sensory pit not discernable. Chaetotaxy: cephalic setae white, thick and flattened; one pair of strong, laterocline anterior ocellars; one pair of weak, laterocline posterior ocellars; one pair of minute postocellars; one pair of strong inclinate anterior fronto-orbitals, as strong as anterior ocellars; one pair of shorter, inclinate posterior fronto-orbitals; one pair of long, inclinate medial verticals; one pair of shorter, laterocline lateral verticals; postocular occipital setae uniserial above neck, becoming longer and irregularly multiserial below; several longer setae present just behind mouth opening, including postgena.

Thorax: Black in ground colour, generally whitish grey microtrichose; scutum, viewed anteriorly from above with 4 narrow, less microtrichose longitudinal stripes (2 medially and 1 on each side of scutum); viewed posteriorly from above, medial longitudinal stripes very broad. Dorsal surface of mesoscutum moderately arched;

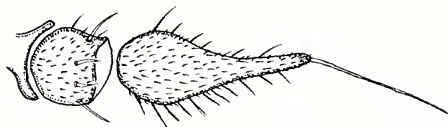


FIG. 9

Microphorella mamillata sp. n. ♂ antenna, lateral view. Scale bar = 0.1mm.

prescutellar depression distinct; complete prothoracic precoxal bridge present. Anepisternum bare, greyish brown microtrichose. Chaetotaxy: thoracic setae white, rather thick and flattened. Antepronotum with 4 setulae. Propleuron with one pair of very short setulae. Postpronotum with 3-4 very short setulae. A single pair of long, acrostichal setae on anterior slope of mesoscutum. Five (2+3) pairs of subequal dorso-central setae, the prescutellar pair longer, wider apart, and shorter than 1 pair of long, inclinate scutellar setae; dorsocentral setae preceded by 1-2 shorter setulae; 3 short supra-alar setae, the posteriormost longest; additional setulae present both inside and outside supra-alar row; 1 postalar seta; 3 notopleural setae.

Legs: Long and slender, black in ground colour, greyish microtrichose and clothed with short, white setulae; trochanters, apices of femora and all tibiae and tarsi paler, brownish. Femora equally thick, not much stronger than tibiae. Basitarsi shorter than following tarsal segments combined. Fore coxa densely setulose; mid-coxa with some long setulae. Hind trochanter with 1 short, ventral seta. All tarsomeres with short, spine-like subapical setae, stronger and in groups of 4 on middle segments. Tarsal claws, pulvilli and empodium developed on all legs; pulvilli and empodium haired. Fore femur with 1 long posteroventral seta in apical third; some longish setae near apex and at base. Fore tibia with a posterior row of 8 long posteriorly curved setae, as long as or longer than greatest width of tibia; bearing anterior apical comb; pigmented spinulated tubercles absent. Mid-femur with a dense tuft of very short setulae along middle third of ventral surface, and with a fringe of 10 long pale ventral setae, as long as or longer than femur is deep. Mid-tibia with a posterior row of 4-5 long setae, and one spine-like subapical seta. Mid-basitarsus with 2 black spine-like setae ventrally at base; curved laterally, and with a long row of some 23 short ventral spinules having curved, hook-like apices. Hind leg simple. Hind femur with a dorsal row of longer setae. Hind tibia with an apical posterior comb of closely set spinules. Hind basitarsus with an apical posterior comb of short setae.

Wing: Very similar to previous species, 3.5 times longer than broad, axillary lobe hardly developed; wing membrane clear; space between C and R₁ brown; membrane, including veins, covered with microtrichia; macrosetae white; hind marginal fringe longest at base of wing; wing veins brown, stigma absent; C circumambient; C with 3 short basal setae, anterior costal margin with a row of spine-like setae, very long

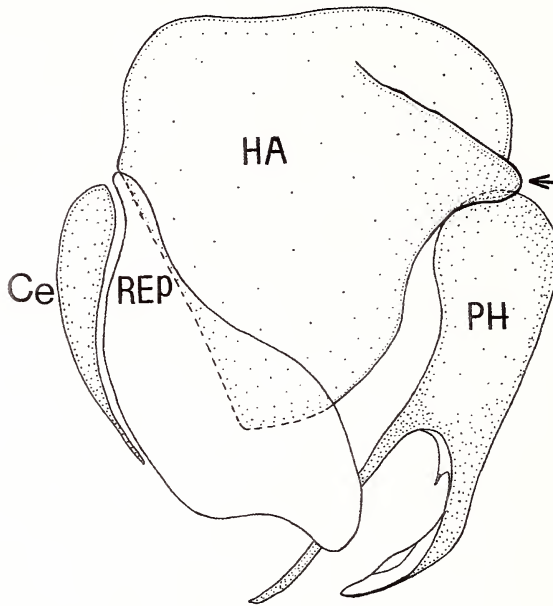


FIG. 10

Microphorella mamillata sp. n. ♂ hypopygium, dorsal view from the right. Scale bar = 0.5mm. Arrow: mamillary process of hypandrium. Abbreviations explained in the text.

and stronger at middle of wing; longest seta as long as crossvein DM-Cu. Sc parallel to R_1 , upturning to C before merging imperceptibly into membrane; humeral crossvein indistinct; R_s originating opposite humeral crossvein; R_1 sinuous, meeting C beyond tip of discal cell; R_{2+3} sinuous, upcurved at its junction with C; R_{4+5} almost straight, downturned to C and ending in C before tip of wing; crossvein R-M present, discal cell incompletely separated from second basal cell by incomplete crossvein BM-Cu, closed distally by crossvein DM-Cu and emitting 3 veins to wing margin; base of M_2 complete; crossvein DM-Cu complete; CuA_2 curved; A_1 absent; A_2 present on posterobasal margin of wing. Alula absent. Squama brown, short, with a fringe of long, pale hairs. Knob of haltere large, quadrate, brown with white margins; stem of haltere darker than knob.

Abdomen: Black in ground colour, brownish-grey microtrichose; sclerites with sparse, white setulae on posterior margins and on disc. Abdominal muscle plaques distinct. Tergites 1-4 and sternites 1-3 unmodified. Tergite 7 not setulose. Postabdomen beginning with sternite 5, rotated and lateroflexed to the right. Sternites 1 and 2 short; sternite 3 without long setae on posterior margin; sternite 4 with a posteromedian mem-

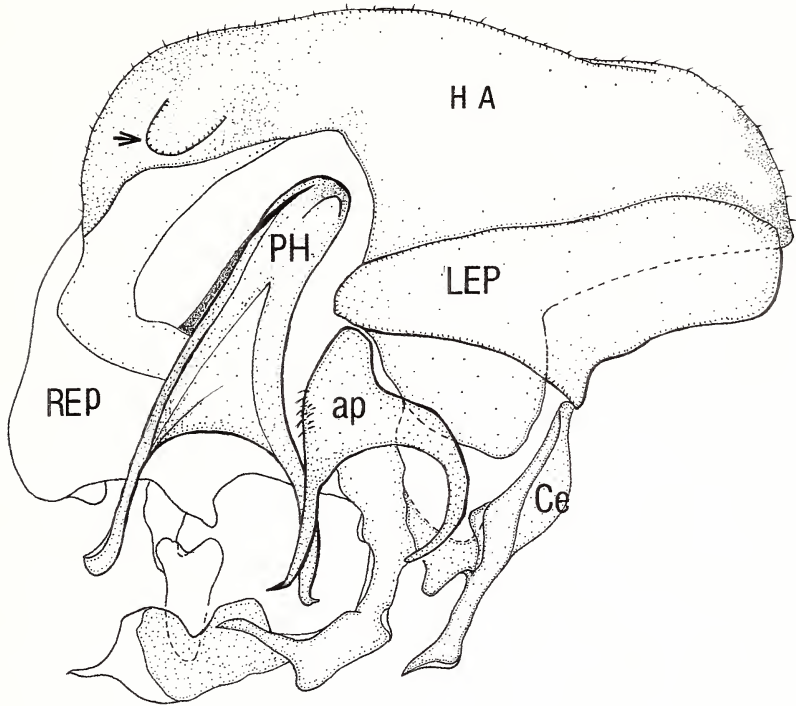


FIG. 11

Microphorella mamillata sp. n. ♂ hypopygium viewed from the left (postgonites omitted). Scale bar = 0.5mm. Arrow: mamillary process of hypandrium. Abbreviations explained in the text.

branous area, fringed on each side with a number of long setae; long setae present also on posterior margin of sclerite. Sternite 5 short, bare, with a robust, sclerotised, bifid posteromedian projection; tips of bifurcation broadly membranous; ventral tubercle at point of bifurcation hardly developed. Sternites 6 and 7 bare, simple. Sternite 8 large, subrectangular, subshining and bearing very long setulae on posterior margin and shorter setulae on disc; tergite 8 atrophied. Terminalia (Figs 10-12) lateroflexed to the right, inverted and with caudal pole directed forward, asymmetrical. Hypandrium large, separated from epandrium, produced at apex and with several accessory processes, subshining; bearing distinct mamillary process at caudal pole, pointing to the left (Fig. 10 arrow). Ventral appendage of left epandrial lamella more or less symmetrical, with two arms: the right arm setulose at middle; the left arm without tooth-like processes on concave margin. Cerci large, the right cercus larger, both setulose; each with 3 short, inclinate spine-like setae medially; apicolateral corners produced. Left cercus with medial margin not smoothly rounded; apicolateral corner long and

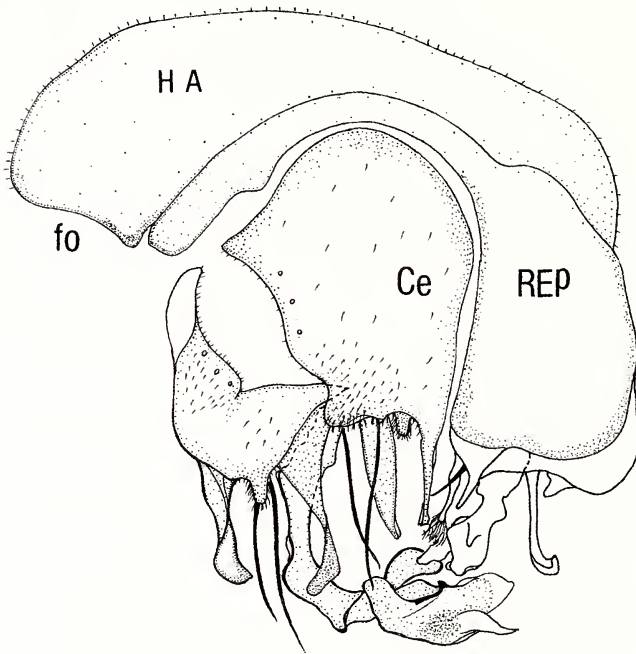


FIG. 12

Microphorella mamillata sp. n. ♂ hypopygium viewed from the right (postgonites omitted). Scale bar = 0.5mm. Abbreviations explained in the text.

broad, spatulate; 1 very long hair-like seta on apical margin, and another long seta arising from a setulose, mamillary process. Right cercus with 2 long, hair-like setae arising from apical margin. Phallus directed forwards, apex pointed; dorsal surface bearing 1 broad, arcuate expansion.

Variation: Paratype: postocellar setae absent; the 4 narrow, less microtrichose stripes present on the scutum of the holotype are absent, and are replaced by 2 narrow, brown microtrichose longitudinal stripes along dorsocentral lines.

Female: unknown.

BIOLOGY: Unknown. Specimens were collected from coastal sand dunes and steppes suggesting that the species inhabits sandy, coastal biotopes.

DISTRIBUTION: Hitherto known only from two localities in Tunisia, the Tabarka embayment and the gulf of Gabes.

DISCUSSION

The two new species described in this article share a set of unique and remarkable morphological characters with *M. cassari* Gatt, 2011 and *M. praecox* (Loew, 1864). In the male they include: 1) several long, spine-like setae on the middle portion of the costal vein; 2) fore tibia with a posterior row of 8-10 long, posteriorly curved setae; 3) mid-femur ventrally in its middle third with a dense tuft of very short setulae, as well as some long setae; 4) mid-basitarsus curved laterally, and ventrally with a long row of hook-like spinules. In at least two of these species where the female terminalia have been studied (*M. cassari* and *M. ebejeri* sp. n.) 5) a completely divided sternite 10 present.

An exclusively setose tergite 10 has previously been reported only in three species of *Microphorella* described from Southeast Asia and New Guinea (Shamshev & Grootaert, 2004) and in *M. cassari* from Tunisia (Gatt, 2011).

Both the male and the female terminalia in this group of species exhibit good morphologically distinguishing characters. In the male, the shape of the hypandrium and cerci, and the morphology of the dorsal expansions of the phallus and of (what has been termed here) the ventral appendage of the left epandrial lamella would appear to be the most useful characters. In the female, valuable differentiating features are provided mostly by the structure of segment 8 and by the shape and arrangement of the various sclerites that (in part) make up the genital fork (sternite 9).

ACKNOWLEDGEMENTS

I am greatly indebted to my friend and colleague Bernhard Merz (Muséum d'histoire naturelle, Genève, Switzerland) who collected the type specimen of *Microphorella ebejeri* sp. n. and forwarded it to me for further study. Dr. Joachim Ziegler, Curator of Diptera and Siphonaptera (Museum für Naturkunde, Leibniz – Institute for Research on Evolution and Biodiversity at the Humboldt University, Berlin) is warmly thanked for kindly making available type material of *Microphorella* species, including *M. praecox*, under his care. I am also very grateful to Dr. Scott E. Brooks (Invertebrate Biodiversity, Agriculture and Agri-Food, Ottawa, Canada) and Dr. Igor Shamshev (All-Russian Institute of Plant Protection, St. Petersburg, Russia) for reading a draft of the manuscript and suggesting improvements. Grateful thanks go to the MECO Project (baseline research for the integrated sustainable management of Mediterranean sensitive coastal ecosystems) coordinators, in particular Prof. Felicità Scapini (Dipartimento di Biologia Animale e Genetica 'Leo Pardi', University of Florence) and Dr. Louis F. Cassar (Institute of Earth Systems, University of Malta) for facilitating my fieldwork in Tunisia in 2000, funded by the European Commission INCO-DC Program (MECO Project ERB-IC-18-CT98-0270).

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An annotated list of the Orthoptera (Insecta) species described by Henri de Saussure, with an account of the primary type material housed in the Muséum d'histoire naturelle de Genève, Part 3: The Acridoidea excluding the Acrididae: Oedipodinae

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An annotated list of the Orthoptera (Insecta) species described by Henri de Saussure, with an account of the primary type material housed in the Muséum d'histoire naturelle de Genève, Part 3: The Acridoidea excluding the Acrididae: Oedipodinae.- Henri de Saussure described 113 species or subspecies in the superfamily Acridoidea (excluding the Acrididae: Oedipodinae). The names are listed alphabetically, and the location of the type material (if known) and the current nomenclatural combination are given. When there is primary type material in the Muséum d'histoire naturelle de Genève (MHNG) the sex, label data and condition of the specimens is given, along with their location within the collection.

Keywords: Caelifera - Acrididae - Charilaidae - Lathiceridae - Lithidiidae - Pamphagidae - Romaleidae - Tristiridae - grasshoppers.

INTRODUCTION

Henri de Saussure (1829-1905) was a prolific taxonomist probably best known for his work on the orthopteroid insects. Details of his career can be found in the introduction to the first part of the catalogue (Hollier & Heads 2012). The species described by Saussure in the Acrididae subfamily Oedipodinae are listed by Hollier (2012). Saussure made great use of the collection of Brunner von Wattenwyl (1823-1914), most of which is now in the Naturhistorisches Museum in Vienna (NHMW). Other material studied by Saussure is in the Natural History Museum in London (BMNH) and the Muséum National d'Histoire Naturelle in Paris (MNHN).

Type specimens of 72 species have been identified in the collection of the Geneva Natural History Museum (MHNG). Specimens that were in other collections at the time of publication have been located where possible but there are 15 species unaccounted for. It is possible that some type specimens are to be found amongst the series placed in the MHNG under the name of their senior synonyms, or amongst the duplicate and depot collections having lost any labels that identify them as such (Carbonell, in litt.).

ARRANGEMENT AND FORMAT

The species are listed alphabetically. The format for each is:

specific epithet Author, work: page [*Original generic placement*].

Type locality as given in the original description. Type series.

Number of specimens. Specimen: "Label data" [format of label]. Following the recommendations of Ohl & Oswald (2004) the condition of each specimen is noted. Other comments. Location of material in the MHNG main Orthoptera collection.

Currently valid nomenclatural combination of taxon following Eades *et al.* (2011).

The following abbreviations are used

BMNH Natural History Museum, London

MHNG Muséum d'histoire naturelle, Geneva

MNHN Muséum National d'Histoire Naturelle, Paris

MNMS Museo Nacional de Ciencias Naturales, Madrid

MRSN Museo Regionale di Scienze Naturali, Turin

NHMW Naturhistorisches Museum, Vienna

OSF Orthoptera Species File Online (Eades *et al.*, 2011)

RMNH Nationaal Natuurhistorisch Museum, Leiden

SAMC Iziko Museum, Cape Town, South Africa

SMFD Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt

ZMHB Museum für Naturkunde, Berlin

CATALOGUE

acutus Saussure, 1888a: 151-152 [*Batrachotettix*].

Africa meridionalis; Terra Namaquensis (Peringuey leg. *in copula*) (Mus. Capense & Genavense). Unspecified number of ♂ and ♀.

One ♂ syntype with labels: "Batrachotettix acutus Sss., Namaquis." [handwritten on red paper]; "Batr. acutus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. The right hind leg is missing. There is at least one further syntype in the SAMC according to OSF. Box W6.

Batrachotettix acutus Saussure, 1888.

aestuans Saussure, 1887: 32, 52-54 [*Xiphocera*].

Africa orientalis meridionalis; Lorenzo-Marquez (Bolívar). Unspecified number of ♂.

No specimens found in the MHNG. The type material was in the collection of Bolívar when the description was published, and is now in the MNMS according to OSF.

A junior synonym of *Lobosceliana cinerascens* (Stål, 1873).

americana Saussure, 1859: 391 [*Xiphophora*].

Guiana. Unspecified number of ♀.

No specimens found in the MHNG collection. The whereabouts of the type material is unknown. Carbonell (in litt.) considers the species to be unrecognisable from the description.

Xiphophora americana Saussure, 1859. (Considered a *nomen dubium* on OSF).

anderssonii minor Saussure, 1888a: 157 [*Methone*].

Africa meridionalis; Terra Namaquensis, desertus Karoo, Angra Pequeña. Unspecified number of ♂.

There are no specimens placed under this name in the MHNG collection, but there is a possible ♂ syntype with labels: "ANGRA" [printed on pink paper]; "36" [handwritten on white paper]; "Methone Peringueyi, ♂, Sss." [handwritten on red paper]; "Syntype of *M. anderssonii minor* Sauss.? Hollier 2010" [handwritten on red paper]. The right antenna is lost. This specimen was placed in the collection as "*Methone dubius* Saussure" (an unavailable collection name) but the measurements and locality data match those given in the description of *M. anderssonii minor*. A second ♂ with the same data label could also be a syntype.

A junior synonym of *Trachypetrella anderssonii* (Stål, 1875).

angolensis Saussure, 1887: 31, 47-8, fig. 8 [*Xiphocera*].

Angola (coll. Brunn. no 7711). One ♀ nymph.

The holotype, a ♀ nymph, was in the collection of Brunner von Wattenwyl when the description was published and is now in MNMS according to Dirsh (1958: 399) who considered it to be undeterminable. The MHNG collection includes three specimens under this name, but these are not types. Box Y2.

Xiphoceriana angolensis (Saussure, 1887). (Considered *nomen dubium* on OSF).

arieticeps Saussure, 1884: 218 [*Daemonea*].

Peru (coll. Brunner n° 10346). One ♀ nymph.

No specimens found in the MHNG. The ♀ holotype, which was in the collection of Brunner von Wattenwyl when the description was published, is in the NHMW (Bruckner, pers. comm.). Images on OSF.

Hippacris arieticeps (Saussure, 1884).

asina Saussure, 1887: 35, 68-69, figs 20-21 [*Xiphocera*].

Africa meridionalis; Prom. B. Sp. (coll. Brunn. no 7710). Unspecified number of ♂ and ♀.

The lectotype ♂ (designated by Dirsh, 1958: 362) is in the NHMW, having been in the collection of Brunner von Wattenwyl when the description was published. The MHNG collection includes two specimens, collected by Peringuey, which are apparently not from Brunner's collection and thus not types. Box Y4.

Hoplolopha asina (Saussure, 1887).

atavus Saussure, 1859: 393 [*Polysarcus*].

Brasilia, Bahia. Unspecified number of ♀.

One ♀ syntype with labels: “Bahia” [printed on white card]; “Polysarcus atavus Sauss, ♀, no 17” [handwritten on bluish paper]; “atavus Sauss. Brésil” [handwritten on green paper]; “Polysarcus avatus Sauss., Holotypus ♀, C S Carbonell. 1966” [handwritten by Carbonell on red card]; “Type series unspecified: treat as syntype. Hollier 2011” [handwritten on red paper]. Specimen lacks the right antenna, the tibia and tars of the left front leg, the right front leg, the claw of the left hind leg and the last tarsal segment of the right hind leg. There are two further ♀ specimens without locality labels which could be syntypes. Box Z67.

Pycnosarcus atavus (Saussure, 1859).

aviculus Saussure, 1888a: 73 [*Leptoscirtus*].

Aegyptus. Unspecified number of ♂.

No specimens found in the MHNG. The whereabouts of the type material is unknown.

Leptoscirtus aviculus Saussure, 1888.

azteca Saussure, 1861a: 315 [*Oxycoryphus*].

Mexico. Unspecified number of ♂ and ♀.

Two ♂ syntypes. A ♂ with labels: “Cordova, t.c.” [printed on white card]; “Saussure, Type” [handwritten on white paper]; “Oxycoryphus (Orphula) aztecus Sauss.” [handwritten on white paper]; “Orphula azteca Sauss.” [handwritten by L. Bruner on white card with printed red border]; “Oxycoryphus aztecus Sauss., Holotypus, CS Carbonell 1966” [handwritten by Carbonell on red card]; “Syntype not holotype! Hollier 2011” [handwritten on red paper]. Specimen set with right wings spread and left wings folded; both antennae, the last tarsal segment of the left front leg, two tarsal segments of the left middle leg and both hind legs are missing. A ♂ with labels: “Cordova, t.c.” [printed on white card]; “O. aztecus Sauss., Mr H. S., Mexique” [handwritten on blue paper]; “aztecus Sauss, Mexique” [handwritten on green paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded; the right antenna, both front legs and both hind legs are missing. There is a third specimen, collected by Sumichrast, which may also be a syntype. It is not clear why Bruner (1904: 74) assumed that one specimen was the holotype unless he had only seen a single specimen and not consulted the description. Box U11.

Orphula azteca (Saussure, 1861).

aztecum Saussure, 1861a: 161-162 [*Platyphyma*].

Mexico temperata. Unspecified number of ♂.

A lectotype ♂ was designated by Roberts (1947: 209) but was not labelled as such. There are three ♂ specimens under this name with labels: “17” [handwritten on white card]; “Orizaba, reg. temp., Sumichrast” [handwritten on white paper] (one specimen does not have “reg. temp.”); “Platyphyma aztecum Sauss.” [handwritten on white paper]. Roberts did not see these three specimens, but relied on drawings of the cerci made by Jean Carl (then curator of arthropods in the MHNG) to conclude that all three were conspecific. Roberts (in litt.) asked Carl to select the lectotype and I expect Carl to have chosen the specimen that was both in the best condition and had been

studied by Bruner, which has the additional labels: "Musée de Genève, N° 33." [numerals handwritten on printed white card]; "Aidemona azteca Sauss." [handwritten by L. Bruner on white card with a printed red border]; "Lectotype of *P. azteca* Sauss, 1861? Hollier, 2010" [handwritten on red paper]. Specimen set with wings folded; the right antenna and the last tarsal segment of the right hind leg are lost. Images on OSF. Box Z56.

Aidemona atzeca (Saussure, 1861).

bilineatus Saussure in Bolivar, 1912: 60-61 [*Hieroceryx*].

Indias orientales (Saussure, Museo de Madrid). More than one ♂ and ♀.

No specimens found in the MHNG. The ♂ lectotype (designated by Mason, 1973: 548) is in the MNMS.

Parahieroglyphus bilineatus (Saussure, 1912).

bolivariana Saussure, 1887: 33, 57-58 [*Xiphocera*].

Africa orientalis; Lorenzo-Marquez ad meridium Mozambiqueae. Unspecified number of ♂.

One ♂ syntype with labels: "Delagoa, M H de Saussure" [handwritten on ruled white card]; "Delagoa 5425/4" [locality handwritten and numerals printed on rhomboid of white card]; "1734" [handwritten on whitepaper]; "Xiphocera Bolivariana Sss ♂" [handwritten on red paper]; "Xiphocera bolivariana Sauss." [handwritten on pink paper]; "Xiphocera bolivariana Sss., ♂" [handwritten by Dirsh on white card]. Specimens set with wings folded; both antennae, both front legs, both middle legs and the last tarsal segment of both hind legs are missing. Box Y2.

Lamarckiana bolivariana (Saussure, 1887).

bradyana Saussure, 1887: 33, 55-56, fig. 1 [*Xiphocera*].

Africa meridionalis; Transvaal. Unspecified number of ♀.

One ♀ syntype with labels: "620 73, Cap b. sp., M^r Brady" [handwritten on ruled white card]; "Porthetis Bradyana Sss., ♀ Cap, M. H. de Sauss." [handwritten on red paper]; "Xiph. bradyana Sauss." [handwritten on pink paper]; "Xiphocera bradyana Sss. ♀" [handwritten by Dirsh on white card]; "Holotypus" [printed on red card]; "Type series unspecified: treat as syntype. Hollier 2011" [handwritten on red paper]. Specimen has lost both antennae, both front legs, the tibia and tarsi of the left middle leg, two tarsal segments of the right middle leg and the tarsi of both hind legs. Dirsh (1958: 392) refers to this specimen as the holotype without further comment. Box Y2

Pagopedilum bradyana (Saussure, 1887).

brunneri Saussure, 1899: 654-656, fig. 49 [*Charilaus*].

Africa meridionalis, Ondonga (coll. Brunner v. W. n° 17714). Unspecified number of ♂ and ♀.

No specimens found in the MHNG. The type series was in the collection of Brunner von Wattenwyl when the description was published and is now in the NHMW (Bruckner, pers. comm.).

Hemicharilaus brunneri (Saussure, 1899).

brunneriana Saussure, 1888a: 126, fig. 10 [*Haplotropis*].

Asia orientalis, ager fluminis Amur (coll. Brunner n° 14,764). Unspecified number of ♀.

No specimens found in the MHNG. There is a ♀ syntype in the NHMW (Bruckner, pers. comm.).

Haplotropis brunneriana Saussure, 1888.

brunneriana Saussure, 1887: 31, 43-44, fig. 7 [*Xiphocera*].

Abyssinia; Massana (coll. Brunn. n° 7121). Unspecified number of ♀.

The type material was in the collection of Brunner von Wattenwyl when the description was published and there is at least one ♀ syntype in the NHMW (Bruckner, pers. comm.). The MHNG collection contains a single ♀ specimen collected after the publication of the description and thus not a type. Box Y2.

Xiphoceriana brunneriana (Saussure, 1887).

brunnerianus Saussure, 1887: 75-77, figs 24-25 [*Pamphagus*].

Syria septentrionalis. Unspecified number of ♂ and ♀.

Three ♂ and four ♀ syntypes. A ♂ with labels: "Syrie sept." [handwritten on yellow paper]; "609 56, Syrie, Brunner d. W." [handwritten on ruled white card]; "Pamph., brunnerian. Sauss." [handwritten on yellow paper]; "Pamphigus sp. n., vic. verrucosa Br." [handwritten on ruled white card with printed margins]; "Syntypus" [printed on red paper]. Specimen lacks the right middle leg. A ♂ with labels: "Dr E Leuthener, Lâdiktve 5.1885, N.SYRIEN" [printed on whitish card with printed margin]; "Syrie, Dr H Leuthner" [handwritten on ruled white card]; "Pamphagus Brunnerianus Sss. type ♂" [handwritten on yellow paper]; "Pamphigus brunnerianus Sauss." [handwritten on yellow card]; "Syntypus" [printed on red paper]. Specimen lacks the left antenna. A micro-tube containing dissected part is secured on a separate pin next to this specimen. A ♂ with labels: "Dr E Leuthener, Lâdiktve 5.1885, N.SYRIEN" [printed on whitish card with printed margin]; "Pamphigus brunnerianus Sauss." [handwritten on yellow card]; "Syntypus" [printed on red paper]. A ♀ with labels: "Syrie sept." [handwritten on yellow paper]; "609 56, Syrie, Brunner d. W." [handwritten on ruled white card]; "Pamph., brunnerianus Sauss." [handwritten on yellow paper]; "Syntypus" [printed on red paper]. A ♀ with labels: "Syrie sept." [handwritten on yellow paper]; "609 56, Syrie, Brunner d. W." [handwritten on ruled white card]; "Pamph., brunnerianus Sauss." [handwritten on yellow paper]; "Syntypus" [printed on red paper]. Specimen lacks the tibia and tarsi of the left middle leg and the tarsi of the left hind leg. A ♀ with labels: "Pamphigus brunnerianus Sauss." [handwritten on yellow card]; "Syntypus" [printed on red paper]. Specimen lacks the tarsi of the right middle leg. A ♀ with labels: "Syrie, Dr H Leuthner" [handwritten on ruled white card]; "Pamphagus Brunnerianus Sss. ♀ Armenie" [handwritten on yellow paper]; "Pamph., brunnerian. Sauss." [handwritten on yellow paper]; "Ocnerosthenus sp. cf. O. Kneuckeri (Krauss), det. B. Massa XI.2002, from photograph" [handwritten on white card]; "Syntypus" [printed on red card]. Specimen lacks both antennae, the tarsi of the right front leg, the tarsi of the left middle leg and the right middle leg. Box Y5.

Ocnerosthenus brunnerianus (Saussure, 1887).

burkhartianus Saussure, 1861a: 314 [*Oxycoryphus*].

Mexico. Unspecified number of ♂ and ♀.

One ♀ syntype with labels: "Mexiq" [handwritten on white paper]; "Bati" [handwritten on white paper]; "Oxycoryphus (Chloipasa) Burkhartianus Sauss." [handwritten on white paper]; "Saussure, Type" [handwritten on white paper]; "Musée de Genève, N° 17" [numerals handwritten on printed white card]; "Truxalis brevicornis Linn." [handwritten by L. Bruner on white card with printed red border]; "Oxycoryphus burkhartianus Sauss., Holotypus, C S Carbonell 1966" [handwritten by Carbonell on red card]; "Syntype not holotype! Hollier 2011" [handwritten on red paper]. Specimen set with left wings spread and right wings folded; the right front and middle legs, the last tarsal segment of the left hind leg and the right hind leg are lost. Although Otte (1981: 240) regarded this specimen as the holotype this is unjustified because the original description also mentions the ♂, and no holotype was designated. It is possible that some of the eight ♂ and four other ♀ from Mexico in the MHNG collection under this name are also syntypes and that the handwritten type label was only added to the specimen(s) sent to Bruner for examination around 1900. Images on OSF. Box U8.

A junior synonym of *Metaleptea brevicornis* (Johannson, 1763).

caffra Saussure, 1899: 652-653, figs 43-48 [*Thrinotropis*].

Africa meridionalis, Natal. Unspecified number of ♂ and ♀.

One ♂ and one ♀ syntype. A ♂ with labels: "Transvaal" [printed on pink paper] "Thrinotropis caffra Sss., Natal ♂" [handwritten on red paper]; "Syntypus" [printed on red paper]. Specimen lacks the tarsi of the right front leg. The right hind leg is detached and glued to a piece of card on the original pin. A ♀ with labels: "Thrinotropis caffra Sss., ♀ Natal" [handwritten on red paper]; "Syntypus" [printed on red paper]. The antennae are detached and glued to a piece of card on the original pin. Box Y9.

Thrinotropis caffra Saussure, 1899.

calens Saussure, 1887: 70-72 [*Bolivarella*].

Africa occidentalis, Littus Benguelae, Mossamedes (coll. Bolívar). Unspecified number of ♂.

No specimens found in the MHNG. The type material was in the collection of Bolívar when the description was published and there is at least one ♂ syntype in the MNMS according to OSF.

Bolivarella calens Saussure, 1887.

camelina Saussure, 1887: 34, 67, figs 18-19 [*Xiphocera*].

Africa meridionalis, Pron. B. Sp., Transvaal (Mus. Genev.). Unspecified number of ♂ and ♀.

Lectotype ♀ (designated by Dirsh, 1958: 360) with labels: "620 74, Transvaal, Mr Peringuey" [handwritten on ruled white card]; "camelina Sss, ♀, Transvaal" [handwritten on red paper]; "Type" [printed on white card with a printed red border]; "X. camelina Sauss., Type!, = H. reflexa Walk., V. M. Dirsh, det. 1958" [handwritten on

white card with "V. M. Dirsh, det. 195" printed]; "Lectotypus" [printed on red card]. There is a second specimen with the same data which is presumably a paralectotype although not labelled as such. Box Y4.

A junior synonym of *Hoplolopha reflexa* (Walker, 1870).

cantans Saussure, 1888a: 145-146 [*Batrachotettix*].

Africa meridionalis; Terra Altior Namaquensis, Prieska (leg. Peringuey, Mus. Capense). Unspecified number of ♂ and ♀ (several colour variations mentioned).

Two ♂ and two ♀ syntypes. A ♂ with labels: "Namaqua" [handwritten on pinkish card]; "B. cantans, ♂ Sss, Namaquais" [handwritten on red paper]; "Batr cantans Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. Specimen set with wings spread; both antennae and the tarsi of the right middle leg are lost. A ♂ with labels: "Prieska, Fl. Orange" [handwritten on pinkish paper]; "Batr. cantans Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. Specimen set with wings spread; both antennae, the tarsi of the right front leg, the tarsi of the left middle leg and the tibia and tarsi of the right middle leg are lost. A ♀ with labels: "Namaqua" [handwritten on pinkish card]; "A RENVOYER" [printed on blue paper]; "Syntypus" [printed on red paper]. Specimen set with wings roughly spread; both antennae, the tibia and tarsi of the left middle leg and the tarsi of the right middle leg are lost. A ♀ with labels: "Prieska, Fl. Orange" [handwritten on pinkish paper]; "Batrachotettix cantans Sss., Namaquais" [handwritten on red paper]; "Batr. cantans Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. Specimen set with wings spread; the tarsi of the left middle leg are lost. The left hind leg is detached and secured through the femur on a separate pin. There are also syntypes in the SAMC. Box W5.

Batrachotettix cantans Saussure, 1888.

chilensis Saussure, 1861a: 318-319 [*Stenobothrus*].

Chili. Unspecified number of ♂.

One ♂ syntype with labels: "Chili" [printed on white card]; "St. chilensis Sauss., Chili ♂, M. H. S." [handwritten on white paper]; "Stenobothrus chilensis Sauss., Holotypus ♂, C S Carbonell 1966" [handwritten by Carbonell on red card]; "Probably Scyllina humilis Blanchard. Found in a box of duplicates without indication of being a type" [handwritten by Carbonell on white card with printed margins for two labels]; "Scyllina chilensis" [handwritten on white card]. Specimen set with right wings spread and left wings folded; the left antenna, the tarsi of the left front leg and the left hind leg are missing. Carbonell (1995: 137) mentions that he labelled this specimen as the holotype even though it is slightly smaller than the measurements given in the rather cursory description, but since the type series is unspecified it should be regarded as a syntype. Images on OSF. Box U24.

A junior synonym of *Scyllinula humilis* (Blanchard, 1851)

cimex Saussure, 1888a: 103-104 [*Lathicerus*].

Africa meridionalis; Terra Angraë pequeniae. Unspecified number of ♂ and ♀.

Lectotype ♀ (designated by Irish, 1988: 464) with labels: "ANGRA" [printed on pink paper]; "15" [handwritten on white paper]; "Lathicerus cimex Sss, Afr. mer."

[handwritten on red paper]; "*Lathicerus cimex* Sauss." [handwritten on pink paper]; "LECTOTYPUS, *Lathicerus cimex*, Saussure, 1888, des. J. Irish, 1986" [handwritten on white card with "LECTOTYPUS" and margins printed in red]. Specimen lacks the right front leg and the left middle leg. A ♂ specimen labelled as a paralectotype is also present. Box V33.

Lathicerus cimex Saussure, 1888.

cincta Saussure, 1859: 394 [*Ommatolampis*].

Brasilia. Unspecified number of ♂.

One ♂ syntype with labels: "Bahia" [printed on white card]; "Omatolampis cincta Sauss." [handwritten on green paper]; "1151" [handwritten by Carbonell on a strip of white card]; "Ommatolampis cincta Sauss., Holotypus ♂, C S Carbonell 1966" [handwritten by Carbonell on red card]; "Type series unspecified: treat as syntype. Hollier 2011" [handwritten on red paper]. Specimen lacks the left antenna, left front leg, the last tarsal segment of the right middle leg, the left hind leg and the tarsi of the right hind leg. A micro-tube containing dissected parts and a label "1151" [handwritten by Carbonell on white card] is secured on the original pin. Images on OSF. Box Z26.

Seabraxis cincta cincta (Saussure, 1859).

clarazianus Saussure, 1884: 101-102, fig. 13 [*Papipappus*].

Patagonia septentr., in arvo inter flumina Rio-Negro et Rio-Chubut (leg G. Claraz) (Mus. Genavense). More than one ♂ (variation in rugosity mentioned).

Lectotype ♂ (designated by Cigliano, 1989: 68) with labels: "Rio Negro, envoi Claraz" [handwritten on whitish paper]; "Rio Chubut, Patagonie, M. G. Claraz" [handwritten on green paper]; "Papipappus clarazianus Sss. Type ♂" [handwritten on green paper]; "Papipappus clarazianus Sauss., Hololectotypus [sic] ♂, C. S. Carbonell 1966" [handwritten by Carbonell on red card]. Specimen lacks the right antenna, part of the tibia and the tarsi of the left front leg and the tarsi of the right hind leg. A ♂ specimen labelled as a paralectotype is also present. Part of an antenna is glued to card on a separate pin, and two sets of tarsi are placed in a separate tube pinned into the insect box but it is not clear which specimen they belong to. Images on OSF Box V6.

Bufonacris claraziana (Saussure, 1884).

clavelii algericus Saussure, 1888a: 131 [*Eremobia*].

Algérie. Unspecified.

There are no specimens placed under this name in the MHNG collection. There is a series of five ♂ and five ♀ placed separately in the collection as *E. clavelii* with "Algerie du Sud" on the species name label in the insect box. The colouration of these specimens conforms to the original description of *E. c. algericus* and they may be syntypes, although it is not possible to be certain of this. Box W1.

Tmethis pulchripennis algerica (Saussure, 1888).

clavelii gracilis Saussure, 1888a: 131 [*Eremobia*].

Tunisie (coll. Guérin-Méneville). Unspecified.

There are no specimens placed under this name in the MHNG collection. There is a rather faded ♀ specimen placed in the collection as *E. clavelii* with the labels:

“Tunisia, Gerid.” [handwritten on whitish card]; “*Eremobia clavelii* Luc.” [handwritten on blue paper], which corresponds to the description of *E. c. gracilis* and may be a syntype, although it is not possible to be certain of this. Box W1.

Tmethis cisti gracilis (Saussure, 1888).

clavelii tunensis Saussure, 1888a: 131 [*Eremobia*].

Tunisie. Unspecified (several habitats mentioned).

Four ♂ and three ♀ syntypes. A ♂ with labels: “Tunisie” [printed on pink paper]; “*Eremobia tunensis* Sauss.” [handwritten on blue paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded. A ♂ with labels: “Tunisie” [printed on pink paper]; “*Eremobia tunensis* Sauss.” [handwritten on blue paper]; “Syntypus” [printed on red paper]. Specimen set with left wings spread and right wings folded; the right antenna and the tarsi of the right hind leg are lost. A ♂ with labels: “Tunisie” [printed on pink paper]; “*Eremobia tunensis* Sauss.” [handwritten on blue paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded. A ♂ with labels: “Tunisie” [printed on pink paper]; “*Eremobia tunensis* Sauss.” [handwritten on blue paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded; the right front leg and the last tarsal segment of the left middle leg are missing. A ♀ with labels: “Tunisie” [printed on pink paper]; “*Eremobia tunensis* Sauss.” [handwritten on blue paper]; “Syntypus” [printed on red paper]. Specimen set with wings spread. A ♀ with labels: “Tunisie” [printed on pink paper]; “*Eremobia tunensis* Sauss.” [handwritten on blue paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded; the left antenna is missing. A ♀ with labels: “Tunisie” [printed on pink paper]; “*Eremobia tunensis* Sauss.” [handwritten on blue paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded. Box W1.

Tmethis cisti tunensis (Saussure, 1888).

colibri Saussure, 1859: 394 [*Ommatolampis*].

Guinea. Unspecified number of ♂.

One ♂ syntype with labels: “Guy.” [printed on white card]; “*Ophthalmolampis colibri* Sss.” [handwritten on green paper]; “C S C 1148” [handwritten by Carbonell on white card]; “*Ophthalmolampis colibri* Sauss., Holotypus, C.S. Carbonell – 1966” [handwritten by Carbonell on red card]. Specimen set with wings folded; both antennae, the last tarsal segment of the right front leg and the claw of the left hind leg are lost. A micro-tube containing dissected parts and a label “1148” [handwritten by Carbonell on white card] is secured on the original pin. Descamps (1978: 445) refers to this specimen as the holotype without discussion, but since the type series is unspecified this is unjustified. There are four other specimens placed under this name, but these appear to have been collected later and so are not syntypes. Images on OSF. Box Z17.

Ophthalmolampis colibri (Saussure, 1859).

consobrina Saussure, 1887: 33, 62 [*Xiphocera*].

Transvaal. Unspecified number of ♂ and ♀.

Three ♂ and one ♀ syntype. A ♂ with labels: “620 72, Transvaal, M^r Peringuey” [handwritten on ruled white card]; “*Porth. consobrina* Sauss.” [handwritten

on pink paper]; “Syntypus” [printed on red paper]. Specimen set with left wings spread and right wings folded; the right antenna and two tarsal segments of the left front leg are lost. A ♂ with labels: “620 72, Transvaal, M^r Peringuey” [handwritten on ruled white card]; “Transvaal, Potschefts, Peringuey” [handwritten on white paper]; “Porth. consobrina Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. Specimen set with right wings spread and left wings folded; the right antenna, the tarsi of the left front leg and the last tarsal segment of the right front leg are lost. A ♂ with labels: “620 72, Afr. merid., M^r Peringuey” [handwritten on ruled white card]; “Porth. consobrina Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded; the last tarsal segment of the left middle leg is lost. A ♀ with labels: “620 74, Transvaal, M^r Peringuey” [handwritten on ruled white card]; “Transvaal, Potschefts, Peringuey” [handwritten on white paper]; “Porth. consobrina Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. Specimen lacks both antennae, both front legs, the left middle leg, the tibia and tarsi of the right middle leg, and the tarsi of both hind legs. The specimen has a second pin through the abdomen. Box Y3.

A junior synonym of *Porthetis carinata* (Linnaeus, 1758).

corallinus Saussure, 1861a: 158 [*Poepedetes*].

Mexico temperata. Unspecified (only ♀ mentioned explicitly).

One ♂ and one ♀ syntype. A ♂ with labels: “Metzill, t.t.” [printed on white card]; “Type, Saussure” [handwritten on white paper]; “Poepedetes corallinus Sauss.” [handwritten on green paper]; “Propedetes [sic] corallinus Sauss., Hololectotypus [sic] ♂, C S Carbonell, 1966” [handwritten by Carbonell on red card]. Specimen lacks the right middle leg. A ♀ with labels: “Metzill, t.t.” [printed on white card]; “Type, Saussure” [handwritten on white paper]; “Poepedetes corallinus Sauss.” [handwritten on green paper]; “Propedetes [sic] corallinus Sauss., Allolectotypus [sic] ♀, C S Carbonell – 1966” [handwritten by Carbonell on red card]. Specimen lacks the left middle leg and the last tarsal segment of the right hind leg. The lectotype does not seem to have been formally designated. Images on OSF. Box Z64.

Dactylotum corallinum (Saussure, 1861)

crassivenosa Saussure, 1888a: 71-72 [*Charora*].

Caucasus, Mons Elbrus (coll. Brunn. no 15,214). Unspecified number of ♂ and ♀ (colour variations mentioned).

One ♂ syntype with labels: “Elbrus” [handwritten on blue card with printed border]; “Charora crassivenosa Sauss.” [handwritten on yellow paper]; “Charora crassivenosa Sauss.” [handwritten on blue paper]; “Syntypus” [printed on red paper]. Specimen set with wings spread. The head, most of the thorax and part of the abdomen have been lost to insect feeding-damage; only the right middle leg is left. There is also a second ♂ specimen which may be a syntype although the data label is less exact: “Arménie, M Brunner” [handwritten on yellowish paper]; “Ch. crassivenosa Sss., Arménie, M Brunner” [handwritten on yellow paper]; “Charora crassivenosa Sauss.” [handwritten on yellow paper]; “Charora crassivenosa Sauss.” [handwritten on blue

paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded. The head shows insect feeding damage, especially near the eyes, which are missing. Box V29.

Charora crassivenosa Saussure, 1888.

cristata Saussure, 1887: 31, 44-45, fig. 9 [*Xiphocera*].

Africa orientalis: Somal in meridione sina Adems. Unspecified number of ♂ and ♀.

One ♀ syntype with labels: “Somali, Afr. orient, H. de Sauss.” [handwritten on ruled white card]; “Somalis, Afr. M. H. S.” [handwritten on mauve paper]; “cristata Sss., Afr. orient, Somalis” [handwritten on red paper]; “Xiphocera cristata Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. Specimen lacks two tarsal segments of the left front leg. Dirsh (1958: 348) considered the types lost. Box Y1.

Xiphoceriana cristata (Saussure, 1887).

cubense Saussure, 1861a: 163 [*Acridium*].

Cuba. Unspecified.

Lectotype ♀ (designated by Dirsh, 1974: 55) with labels: “29/31” [handwritten on white paper]; “Cuba, M^r H. de Saussure” [handwritten on white paper]; “Acridium cubense Sauss.” [handwritten on white paper]; “Musée de Genève, N^o 28” [numerals handwritten on printed white card]; “Schistocerca serialis Thunb., V. M. Dirsh det., 1964” [handwritten on white card with “V. M. Dirsh det., 19” printed]; “Lectotypus, design. Dirsh, 1974” [handwritten on red paper]. Specimen set with wings folded; both antennae, the last tarsal segment of the left front leg, the tibia and tarsi of the right front leg, the right middle leg and the last tarsal segment of the right hind leg are missing. There are two ♀ paralectotypes present. Box Z34.

Schistocerca serialis cubense (Saussure, 1861).

cubicus Saussure, 1888a: 100-102 [*Crypsicerus*].

Africa meridionalis; Terra Namaquensis (Mus. Prom. B. Sp.) One immature ♀.

There is only a handwritten note: “envoyé à M^r Peringuey [in ink] auquel l’expl. appartient [in pencil]” where the specimen had been placed in box V33. The ♀ holotype is now in the SAMC.

Crypsicerus cubicus Saussure, 1888.

cultricolle Saussure, 1887: 73, 74-75 [*Tropidauchen*].

Turquestania meridionalis: Aschabad (coll. Brunn. de W.). Unspecified number of ♀.

Lectotype ♀ (designated by Dirsh, 1952a: 105) with labels: “609 56 Turquestan, M^r Brunner d. W.” [handwritten on ruled white card]; “Tropid. cultricolle Sauss.” [handwritten on yellow paper]; “Tropidauchen cultricolle Sauss., V. M. Dirsh det. 1951, Type!” [handwritten on white card with “V. M. Dirsh det. 19” printed]; “Type” [printed on a disk of white card with red margins]; “Lectotypus” [printed on red card]. Specimen lacks the right antenna, the tarsi of the left middle leg, the last tarsal segment of the right middle leg and the last tarsal segment of the right hind leg. Box Y4.

Saxetania cultricollis cultricollis (Saussure, 1887).

cyanipennis Saussure, 1884: 232 [*Eremobia*].

Asia centralis; Chiva (coll. Brun. n° 12601). Unspecified number of ♂ and ♀.

No specimens found in the MHNG. The ♂ lectotype, designated by Uvarov (1943: 45), is in the NHMW (Bruckner, pers. comm.).

Iranotmethis cyanipennis cyanipennis (Saussure, 1884).

damnifica Saussure, 1861a: 164 [*Acridium*].

America borealis, Tennessee. Unspecified number of ♂ and ♀.

One ♂ and two ♀ syntypes. A ♂ with labels: "Teness." [printed on white card]; "Musée de Genève, N° 29" [numerals handwritten on printed white card]; "Acridium damniferum Sauss." [handwritten on white paper]; "Saussure, Type" [handwritten on white paper]; "Acridium damnificum Sauss., selected by R- G., TYPE 1960" [handwritten on red card with "TYPE" printed]; "Schistocerca damnifica Sauss., V. M. Dirsh det., 1964" [handwritten on white card with "V. M. Dirsh det., 19" printed]. Specimen set with left wings spread and right wings folded; the left antenna, the last tarsal segment of the left middle leg, the left hind leg and the last tarsal segment of the right hind leg are missing. A ♀ with labels: "Teness." [printed on white card]; "Acridium damnifica Sauss., PARATYPE" [handwritten on blue card with "PARATYPE" printed]; "Syntypus" [printed on red paper]. Specimen set with left wings spread and right wings folded; the right antenna is lost. A ♀ with labels: "Teness." [printed on white card]; "Acridium damniferum Sss." [handwritten on white paper]; "Acridium damnifica Sauss., PARATYPE" [handwritten on blue card with "PARATYPE" printed]; "Syntypus" [printed on red paper]. Specimen set with wings folded; the last tarsal segment of the left middle leg, the tarsi of the left hind leg are missing. The right hind leg is detached and secured through the femur on a separate pin. Dirsh (1974: 168) refers to the ♂ as "the type", but does not explicitly designate it as lectotype. Box Z33.

Schistocerca damnifica (Saussure, 1861).

distanti Saussure in Distant, 1892: 261; pl. IV, fig.1 [*Xiphocera*].

Pretoria. One ♀.

No specimens found in the MHNG. The ♀ holotype is in the BMNH according to their online database.

Transvaaliana distanti (Saussure, 1892)

dromadaria Saussure, 1887: 34, 64-65, figs 14-15 [*Xiphocera*].

Africa meridionalis, Prom. B. Sp., Transvaal. Unspecified number of ♂ and ♀ (variation of the pronotal crest mentioned).

Lectotype ♂ (designated by Dirsh, 1958: 358) with labels: "620 74, Transvaal, M^r Peringuey" [handwritten on ruled white card]; "dromadaria Sss, Transvaal" [handwritten on red paper]; "Hoploph. dromadaria Sauss." [handwritten on pink paper]; "Type" [printed on white card disk with printed red border]; "X. dromadaria Sauss. Type!., = Hopl. horrida Burm., V. M. Dirsh, det. 1958" [handwritten on white card with "V. M. Dirsh, det. 195" printed]; "Lectotypus" [printed on red card. Specimen set with right wings spread and left wings folded. There is a ♀ labelled as a para[lecto]type by

Dirsh, and five ♂, four ♀ and two juveniles with similar data which are probably also paralectotypes although not labelled as such. Box Y4.

A junior synonym of *Hoplolopha horrida* (Burmeister, 1838).

edax Saussure, 1899: 634, figs 31-32 [*Gelastorhinus*].

Madagascar, Majunga. Insula Makambi in sinu Boeni. More than one ♀.

The MHNG collection has a series of one ♂ and eight ♀, but none of them can be positively identified as syntypes because the data labels are too generalised. The type material, from Voeltzkow's expedition, ought to be in the SMFD. Box U7.

Gelastorhinus edax Saussure, 1899.

edax Saussure, 1861a: 161 [*Pezotettix*].

Carolina. Unspecified number of ♂ and ♀.

There are no specimens under this name in the MHNG collection. The type series may be amongst the specimens from Carolina placed under *Melanoplus bivittatus* (Say) in Box Z61 but cannot be positively identified. *P. edax* was synonymised with *M. bivittatus* by Kirby (1910: 531) and the name does not appear on OSF.

A junior synonym of *Melanoplus bivittatus* (Say, 1825).

elephas Saussure, 1884: 237 [*Batrachotettix*].

Africa merid., Promont. Bonae Spei. (coll Brunn. n° 2011). Unspecified number of ♀.

No specimens found in the MHNG. The type material was in the collection of Brunner von Wattenwyl when the description was published, and is now in the NHMW (Bruckner, pers. comm.).

A junior synonym of *Tuarega insignis* (Lucas, 1851).

emortuale Saussure, 1861a: 163 [*Acridium*].

Brasilia. Unspecified.

Two ♀ syntypes. A ♀ with labels: "Bahia" [printed on white card]; "Gomphocerca emortuale" [handwritten on white paper]; "Syntypus" [printed on red paper]. Specimen set with right wings spread and left wings folded; most of both antennae, both front legs and both middle legs are missing. The right hind leg, which lacks the last tarsal segment, is detached and secured through the femur on the original pin. The specimen is discoloured and twisted from having been preserved in spirit. A ♀ with labels: "San José, Entre Rios, env. Claraz" [handwritten on white paper]; "Acridium emortuale Sauss., Brésil, M. H. S." [handwritten on white paper]; "Schistocerca emortuale Sauss., V. M. Dirsh det., 1964" [handwritten on white card with "V. M. Dirsh det., 19" printed]; "Gomphocerca emortuale" [handwritten on white paper]; "Syntypus" [printed on red paper]. Specimen set with wings folded; the left antenna and right hind leg are lost. The specimen is discoloured and twisted from having been preserved in spirit. Carbonell (in litt.) considers the "Claraz" label to be mistaken, but it is also possible that the Bahia on the data label of the other specimen refers to Bahia Blanca in Argentina (where Georges Claraz, who collected many specimens for Saussure, lived), and that the locality given in the description is a lapse. Box Z32.

A junior synonym of *Schistocerca cancellata cancellata* (Serville, 1838).

ensicornis Saussure, 1893: 152-153 [*Xiphocera*].

Transvaal, Zoutpansberg (coll. Distant & de Sauss.). More than one ♀.

There are no specimens found under this name in the MHNG collection, but a ♀ specimen placed in the collection under *X. nasuta* with labels "Transvaal" [printed on a strip of white paper] and "Xiphocera nasuta Sss., (Carl det., nec type Sss.," [handwritten on pink paper] could be a syntype of *X. ensicornis*, especially as Jean Carl's label suggests that it was labelled as a type (the two other specimens in the series were also determined by Carl but do not have this note). The original description states that the type material was in the collections of Distant and Saussure, and there is type material in the BMNH (Beccaloni, pers. comm.). Box Y1.

A junior synonym of *Lamarckiana nasuta* (Saussure, 1887).

erythrocnemis rugosa Saussure, 1884: 217 [*Urnisa*].

Gawlwertown. Unspecified.

One ♀ syntype with labels: "Australia merid, Gawlwertown" [printed on white card]; "Urnissa erythrocnemis Stål" [handwritten on lilac paper]; "var. rugosa Sss." [handwritten on pinkish paper]; "Holotype of *Urnisa erythrocnemis* var. *rugosa* Sauss., 1884" [handwritten by K. Key on white card]; "Type series unspecified: treat as syntype. Hollier 2011" [handwritten on red paper]. Specimen set with right wings spread and left wings folded; the left antenna is missing. Box V33.

Urnisa rugosa Saussure, 1884.

fissa Saussure, 1887: 35, 66-67 [*Xiphocera*].

Africa meridionalis, Lessoutos. Unspecified number of ♀.

One ♂ syntype with labels: "603/25 Lessoutos, Afriq. merid." [handwritten on white paper]; "Lessoutos, Afr. merid" [handwritten on ruled white card]; "fissa Sss., Afr. mérid." [handwritten in pencil on white card]; "Hoploph. fissa Sauss." [handwritten on pink paper]; "Xiphocera fissa Sauss. ♂" [handwritten by Dirsh on white card]; "Holotypus" [printed on red card]; "Type series unspecified: treat as syntype. Hollier 2011" [handwritten on red paper]. Specimen set with wings roughly spread, the edges rather ragged; both antennae, the tibia and tarsi of the left front leg, the right front leg, both middle legs and both hind legs are missing. There is insect feeding-damage to the abdomen. The sex of the type material given in the description appears to be a lapse. Box Y4.

A junior synonym of *Hoplolopha reflexa* (Walker, 1870).

gregarius Saussure, 1861a: 318 [*Stenobothrus*].

Insula Antillarum St Thomas (♂), Haiti (♀). Unspecified number of ♂ and ♀.

Two ♂ and one ♀ syntype. A ♂ with labels: "St Thom" [printed on white card]; "Scillina gregaria Sss. [sic], type ♂" [handwritten on green paper]; "Plectrophorus gregarius Sauss., type!" [handwritten on green paper]; "Syntypus" [printed on red paper]. Specimen set with left wing spread and right wings folded; most of the right antenna, the last tarsal segment of the right front leg, the last tarsal segment of the left middle leg, two tarsal segments of the right middle leg, the tarsi of the left hind leg and two tarsal segments of the right hind leg are lost. The specimen once had a pin placed

laterally through the hind femora and abdomen, and the right hind leg has been reattached with glue. A ♂ with labels: “St Thom” [printed on white card]; “Saussure, Type” [handwritten on white paper]; “Musée de Genève, No 18” [numerals handwritten on printed white card]; “Plectrophorus gregarius” [handwritten on white paper]; “Syntypus” [printed on red paper]. Specimen set with left wing spread and right wings folded; both antennae, part of the tibia and the tarsi of the right front leg and two tarsal segments of the left middle leg are lost. The specimen once had a pin placed laterally through the hind femora and abdomen. A ♀ with labels: “Haiti” [printed on white card]; “Scyllina gregaria Sss., type ♀” [handwritten on green paper]; “Plectrophorus gregarius Sauss., type!” [handwritten on green paper]; “Syntypus” [printed on red paper]. Specimen set with right wings spread and left wings folded; both antennae, the last tarsal segment of the left front leg, the tibia and tarsi of the right front and middle legs and the right hind leg are missing. The specimen once had a pin placed laterally through the hind femora and abdomen, the head appears to have been reattached with glue. Box U25.

Rhammatocerus gregarius (Saussure, 1861).

hottentotus Saussure, 1884: 237-238 [*Batrachotettix*].

Africa merid.; Promont. Bon. Spei. (coll. Brunn. n° 2912). Unspecified number of ♂ and ♀.

No specimens found in the MHNG. The type material was in the collection of Brunner von Wattenwyl when the description was published but could not be located in the NHMW (Bruckner, pers. comm.). It is said to be in the BMNH on OSF but does not appear on the BMNH online database.

Batrachornis hottentotus (Saussure, 1884).

jurinei Saussure, 1861a: 157 [*Oxyphyma*].

America meridionalis? Unspecified (probably one individual).

No specimens found in the MHNG. The whereabouts of the type material is unknown.

Oxyphyma jurinei Saussure, 1861.

latipes Saussure, 1887: 32, 54-55, fig. 12 [*Xiphocera*].

Africa orientalis, ad flumen Zambezem (coll. Brun. n° 14413). Unspecified number of ♀.

One ♀ syntype with labels: “Zambesi, Afr. orient., M^r H de Saussure” [handwritten on ruled white card]; “latipes Sss, Type ♀, Zambezi, M. H. de Sauss.” [handwritten on red paper]; “Syntypus” [printed on red paper]. Specimen lacks the tarsi of the left front leg, two tarsal segments of the right middle leg and the last tarsal segment of the right hind leg. The right antenna is detached and glued to a piece of card secured on a separate pin. The type material was said to be in the collection of Brunner von Wattenwyl when the description was published, and there is a ♀ syntype in the NHMW (Bruckner, pers. comm.) which was erroneously regarded as the holotype by Dirsh (1958: 328). Box Y2.

A junior synonym of *Lobosceliana loboscelis* (Schaum, 1853).

linearis Saussure, 1861b: 476-477, pl. XI, fig. 3 [*Calamus*].

Patrie inconnue (coll. Jurine). One individual.

Holotype ♀ with labels: "4777" [handwritten on white card disk]; "linearis Sauss., Africa cent." [handwritten on pink paper]; "Holotype of *Calamus linearis* Sauss., 1861? Hollier 2010" [handwritten on red paper]. Specimen set with wings roughly spread; both antennae (apart from a fragment glued to the right front leg), the left front leg, the right middle leg and the right hind leg are lost. The left hind leg appears to have been reattached with glue. According to the original description the provenance was unknown, but the pink identification label indicates that Saussure thought (correctly, since this species is indeed African) that the specimen was from Africa. Box U9.

A junior synonym of *Cannula gracilis* (Burmeister, 1838).

longicornis Saussure, 1861a: 159 [*Pezotettix*].

Carolina. Unspecified number of ♂.

One ♂ syntype with labels: "Carol. S" [printed on white card]; "Type ? Saussure" [handwritten on white paper]; "*Melanoplus longicornis*" [handwritten on green paper]; "Poepedatus longicornis ♂ n^o 25" [handwritten on bluish paper]; "Holotypus" [printed on red card]; "Type series unspecified: treat as syntype. Hollier 2011" [handwritten on red paper]. Specimen set with brachypterous left fore wing spread, the others folded; both antennae, two tarsal segments of the left front leg, the last tarsal segment of the left middle leg, the tibia and tarsi of the left hind leg and the last tarsal segment of the right hind leg are lost. Box Z63.

Melanoplus longicornis (Saussure, 1861).

loricatus Saussure, 1884: 238 [*Batrachotettix*].

Patria? (Mus. Vindobonense). Unspecified number of ♀.

No specimens found in the MHNG. There is a ♀ syntype in the NHMW (Bruckner, pers. comm.).

Batrachotettix loricatus Saussure, 1884.

mannulus Saussure, 1887: 33, 56, fig. 5 [*Xiphocera*].

Africa meridionalis, Grahamstown (coll. Brunner de Wattenwyl no 6703). Unspecified number of ♀.

There is a ♀ syntype, which was in the collection of Brunner von Wattenwyl when the description was published, in the NHMW (Bruckner, pers. comm.). The MHNG collection includes four specimens under this name, but the label data do not correspond to the locality information in the description and they are apparently not types. Box Y2.

A junior synonym of *Pagopedilum bradyana* (Saussure, 1887).

maroccanus Saussure, 1887: 78, 80-81, fig. 27 [*Eunapius*].

Marocco, prope Tingem (Vaucher). Unspecified number of ♂ and more than one ♀ (size range given in measurements).

Six ♂ and six ♀ syntypes. A ♂ with labels: "620 61, Tanger, Maroc., M^r Vaucher" [handwritten on ruled white card]; "*Eunapius maroccanus* Sauss." [hand-

written on pink paper]; “Syntypus” [printed on red paper]. Specimen lacks both antennae. A ♂ with labels: “620 61, Tanger, Maroc., M^r Vaucher” [handwritten on ruled white card]; “Eunapius maroccanus Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. Specimen lacks the left antenna and the right front leg. A ♂ with labels: “620 61, Tanger, Maroc., M^r Vaucher” [handwritten on ruled white card]; “Eunapius maroccanus Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. A ♂ with labels: “620 61, Tanger, Maroc., M^r Vaucher” [handwritten on ruled white card]; “Eunapius maroccanus Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. Specimen lacks the tarsi of the right hind leg. A ♂ with labels: “620 61, Maroc., M^r Vaucher” [handwritten on ruled white card]; “Eunapius maroccanus Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. Specimen lacks the left front leg and the last tarsal segment of the left middle leg. A ♂ with labels: “620 61, Maroc., M^r Vaucher” [handwritten on ruled white card]; “Eunapius maroccanus Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. A ♀ with labels: “620 61, Maroc., M^r Vaucher” [handwritten on ruled white card]; “MAROC” [printed on a strip of white card]; “Maroccanus Sss, Maroc” [handwritten on white paper]; “Eunapius maroccanus Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. A ♀ with labels: “620 61, Tanger, Maroc., M^r Vaucher” [handwritten on ruled white card]; “Eunapius maroccanus Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. Specimen lacks both front legs and the tarsi of the left middle leg. A ♀ with labels: “620 61, Tanger, Maroc., M^r Vaucher” [handwritten on ruled white card]; “Eunapius maroccanus Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. A ♀ with labels: “620 61, Maroc., M^r Vaucher” [handwritten on ruled white card]; “Eunapius maroccanus Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. Specimen lacks the tarsi of the right front leg and the left middle leg. A ♀ with labels: “620 61, Maroc., M^r Vaucher” [handwritten on ruled white card]; “MAROC” [printed on a strip of white card]; “Eunapius maroccanus Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. Specimen lacks the left antenna. A ♀ with labels: “620 61, Tanger, Maroc., M^r Vaucher” [handwritten on ruled white card]; “TANGER” [printed on a strip of pink paper]; “Eunapius maroccanus Sauss.” [handwritten on pink paper]; “Syntypus” [printed on red paper]. Specimen lacks the right front leg, two tarsal segments of the left middle leg, the tarsi of the right middle leg, and the last tarsal segment of the right hind leg. Several other specimens in the series lack locality labels and could also be syntypes. Box Y8.

Eurypanyphes maroccanus (Saussure, 1887).

mexicana Saussure, 1859: 393 [*Ommatolampis*].

Mexico frigida, Toluca. Unspecified number of ♂.

One ♂ syntype with labels: “Toluca, t.f.” [printed on white card]; “Proctolabus mexicana Sauss.” [handwritten on green paper]; “Omatolampis mexicana Sauss, Holotypus, C S Carbonell – 1966” [handwritten by Carbonell on red card]; “Type series unspecified; treat as syntype. Hollier 2011” [handwritten on red paper]. Specimens set with left wings spread and right wings folded; the last tarsal segment of the right hind leg is lost. Carbonell considered this specimen to be the holotype because

it matches the measurements given in the description (Carbonell in litt.). Images on OSF. Box Z24.

Proctolabus mexicanus (Saussure, 1859).

mexicana Saussure, 1861a: 156 [*Opomala*].

Mexico. Unspecified.

One ♀ syntype with labels: “Opomala mexicana Sauss. ♀” [handwritten on blue paper]; “Leptysma meicana Sauss.” [handwritten on green paper]; “Fig. Rehn-Grant Eades 1961” [printed on white card with “Eades” and “61” handwritten]; “Leptysma mexicana (Saussure), det. Rehn- Grant Eades 1961” [handwritten on white card with “det. Rehn- Grant 19” printed]; “Opomala mexicana Sauss., TYPE” [handwritten on red card with “TYPE” printed]; “Type series unspecified; treat as syntype. Hollier 2011” [handwritten on red paper]. The species name label in the insect box has the locality “Mexique” handwritten in the lower left corner. Specimen set with right wings spread and left wings folded; the last tarsal segment of both front legs, the tarsi of the left hind leg and the right hind leg are missing. There is a ♂ labelled “Potrero, Sumichrast” [handwritten on white paper] which could be another syntype, although Rehn & Eades (1961: 109) considered the ♀ to be the holotype based on the measurements. Images on OSF. Box Z23.

Leptysma marginicollis mexicana (Saussure, 1861).

mexicana Saussure, 1861a: 314-315 [*Oxycoryphus*].

Mexico. Unspecified number of ♂ and ♀.

One ♂ and one ♀ syntype. A ♂ with labels: “Huastec, t.t.” [printed on white card]; “Musée de Genève, No 4” [printed on white card with numeral added by hand]; “Stenobothrus mexicanus Sauss” [handwritten on white paper]; “Orphulella mexicana Sauss?” [handwritten by L. Bruner on white card with printed red border]; “Syntypus” [printed on red paper]. Specimen set with right wings spread and left wings folded; the left antenna, the tibia and tarsi of the left front leg, the tarsi of both middle legs, the left hind leg and the tarsi of the right hind leg are missing. The specimen has extensive insect feeding-damage. A ♀ with labels: “Tesuitlan” [handwritten on white card]; “Type Saussure” [handwritten on white paper]; “Musée de Genève, N° 3” [printed on white card with numeral added by hand]; “Oxycoryphus (Chortoplana Sauss. inedit) mexicanus Sauss.” [handwritten on white paper]; “Orphulella mexicana Sauss.” [handwritten by L. Bruner on white card with printed red border]; “Holotypus, Oxycorypha mexicana Sauss. THH” [handwritten by Hubbell on red card with “Holotypus” printed]; “Syntype, not holotype! Hollier 2011” [handwritten on red paper]. Specimen set with right wings spread and left wings folded, the right fore wing is missing; both antennae, the right front leg, both middle legs, the left hind leg and two tarsal segments of the right hind leg are lost. Although Otte refers to a ♀ holotype (1981: 241) the original description treats both sexes and no holotype is designated. Box U11.

Orphula azteca (Saussure, 1861).

mexicana Saussure, 1861a: 160 [*Pezotettix*].

Mexico temperata. Unspecified number of ♂ and ♀.

Lectotype ♂ (designated by Gurney & Brooks, 1959: 8) with labels: "Cordova, t.c." [printed on white card]; "Melanoplus mexicanus Sauss." [handwritten on green paper]; "LectHOLOTYPE, Melanoplus mexicanus (Sauss.), Selected 1956 by Ashley B. Gurney" [handwritten on red card with "HOLOTYPE" and "Ashley B. Gurney" printed]; "Lectotype valid?" [handwritten on red paper]. Specimen set with wings folded: the antennae, the tarsi of the left front leg, the right middle leg, the tibia and tarsi of the left hind leg and the last tarsal segment of the right hind leg are lost. Unfortunately, the MHNG collection has two series of this species under different generic names and the lectotype is invalid because it is almost certainly not part of the type series. Gurney selected the lectotype from part of the series placed under "*Melanoplus mexicana* var. *dubia*" in box Z61. Apart from the fact that it is identified as a variation, the original description gives the locality as "Mexico temperata" while the data label of the lectotype has "[t[errae].c[alidae]." In box Z20 there is a series placed under "*Platyphyma mexicana*"; this was examined by Carbonell, who identified and labelled a ♂ and a ♀ from Oaxaca as the true type specimens of *P. mexicana* (Carbonell, in litt.).

Melanoplus mexicanus (Saussure, 1861).

montezuma Saussure, 1861a: 316-317 [*Oxycoryphus*].

Mexico. Unspecified number of ♂.

One ♂ syntype with labels: "Cordova, t.c." [printed on white card]; "Type, Saussure" [handwritten on white paper]; "Oxycoryphus montezuma Sauss., Holotypus ♂, C S Carbonell 1966" [handwritten by Carbonell on red card]; "This specimen was found among duplicates, without an identification label. *Syrbula montezuma* (Sauss.), C S Carbonell - 1966" [handwritten by Carbonell on white card with printed margins for two labels]; "Type series unspecified; treat as syntype. Hollier 2011" [handwritten on red paper]. Specimen set with right wings spread and left wings folded; both antennae, the left front and middle legs and the tibia and tarsi of the left hind leg are missing. Carbonell considered this specimen to be the holotype because the measurements match those given in the description (Carbonell, in litt.). Images on OSF. Box U9.

Syrbula montezuma (Saussure, 1861).

mutus Saussure, 1888a: 161-162 [*Eneremius*].

Africa meridionalis-occidentalis, Angra Pequena. Unspecified number of ♀.

One ♀ syntype with labels: "ANGRA" [printed on pink paper]; "Eneremius mutus Sauss." [handwritten on pink paper]; "Type" [printed on white card disc with red margin]. Both antennae, the last tarsal segment of the left front leg, the tarsi of the right front leg, the tarsi of the left middle leg, the last tarsal segment of the right middle leg and the tarsi of both hind legs are missing. The type label was probably added by Dirsh, who figured the "♀ type" (Dirsh, 1965: 194).

Eneremius mutus Saussure, 1888.

mysteca Saussure, 1861a: 317 [*Stenobothrus*].

Mexico. Unspecified.

One ♀ syntype with labels: "6" [handwritten on white card]; "Orizaba, reg. temp." [handwritten on white paper]; "Saussure Type" [handwritten on white paper]; "Musée de Genève, N° 1" [numeral handwritten on printed white card]; "Stenobothrus mystecus Sauss. = Amblytropida subhyalina Scud." [handwritten on white paper]; "Amblytropida mysteca Sauss." [handwritten by L. Bruner on white card with red printed margin]; "Stenobothrus mystecus Sauss, Holotypus, C. S. C. 1966" [handwritten by Carbonell on red card]; "Type series unspecified: treat as syntype. Hollier 2011" [handwritten on red paper]. Specimen set with wings folded; both antennae, the last tarsal segment of the right middle leg and the right hind leg are missing. Otte (1981: 232) is unjustified in referring to this specimen as the holotype without discussion. Box U13.

Amblytropidia mysteca (Saussure, 1861).

namaquensis Saussure, 1888a: 141-142 [*Batrachornis*].

Africa meridionalis, Terra Namaquensis; in deserto alto nomine Karoo (leg. Peringuey). Unspecified number of ♀.

One ♀ syntype with labels: "Namaqua, land" [handwritten on white card]; "no 253" [handwritten on white card]; "Namaquais, Batrachornis namaquensis, ♀ Sss" [handwritten on red paper]; "Batr. namaquens. Sss." [handwritten on pink paper]; "Holotypus" [printed on red card]; "Type series unspecified: treat as syntype. Hollier 2011" [handwritten on red paper]. Specimen set with left wings spread and right wings folded; most of both antennae, part of the tibia and the tarsi of the right front leg, the tibiae and tarsi of both middle legs, the last tarsal segment of the right hind leg and the tibia and tarsi of the left hind leg are lost. Box W5.

Batrachornis namaquensis Saussure, 1888.

nasicus Saussure, 1899: 651-652, figs 41-42 [*Geloiomimus*].

Africa meridionalis, pagus Orangiensis. Unspecified number of ♀.

One ♀ syntype with labels: "Flumen Oranje" [handwritten on pink paper]; "Geloiomimus nasicus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. The antennae are detached and glued to a piece of card on the original pin. Box Y9.

Geloiomimus nasicus Saussure, 1899.

nasuta Saussure, 1887: 31, 45-46, fig. 6 [*Xiphocera*].

Africa meridionalis, Zulu (coll. Brunn. n° 5268). Unspecified number of ♀.

There is a ♀ syntype that was in the collection of Brunner von Wattenwyl when the description was published in the NHMW (Bruckner, pers. comm.). The MHNG collection includes three specimens, one of which appears to be a syntype of *Lamarckiana ensicornis* (Saussure, 1893) (a junior synonym of *L. nasuta*, see entry under *L. ensicornis*), while the other two have the locality "Transvaal" rather than "Zululand" and are therefore not syntypes. Box Y1.

Lamarckiana nasuta (Saussure, 1887).

nigricornis Saussure, 1899: 636-637, figs 33-35 [*Horaeocerus*].

Madagascar (Mus. Genavense). Unspecified number of ♂ and ♀.

Lectotype ♂ (designated by Dirsh, 1962: 324) with labels: "MADAGASC., SIKORA" [printed on pink paper]; "Horaeocerus nigricornis Sss." [handwritten on pink paper]; "Type" [printed on white card disk with red margin]; "Horaeocerus nigricornis Sauss., V.M. Dirsh. det. 1958, Type!" [handwritten on white card with "V.M. Dirsh. det. 19" printed]. Specimen set with wings folded. There is a series of five ♂ and sixteen ♀ paralectotypes with the same data. Box Z75.

Heteracris nigricornis (Saussure, 1899).

numida Saussure, 1887: 78, 79-80, fig. 26 [*Eunapius*].

Tunisia, Sphax (Mus. Parisiense). Unspecified number of ♀.

The MHNG collection contains four ♂ and four ♀ specimens collected by Alphonse Pictet, apparently after the publication of the description and thus not syntypes. According to the original description the type material should be in the MNHN. Box Y8.

A junior synonym of *Paraeurypanyphes quadridentatus* (Brisout de Barneville, 1852).

occidentalis Saussure, 1861a: 317 [*Stenobothrus*].

America borealis (Tennessee). Unspecified.

One ♂ syntype with labels: "Teness." [printed on white card]; "Saussure Type" [handwritten on white paper]; "Musée de Genève, N° 1" [numeral handwritten on printed white card]; "Stenobothrus occidentalis Sauss." [handwritten on white paper]; "Amblytropida occidentalis Sauss." [handwritten by L. Bruner on white card with red printed margin]; "HOLOTYPUS" [printed on red card]; "Type series unspecified: treat as syntype. Hollier 2011" [handwritten on red paper]. Specimen set with right wings spread and left wings folded; the left antenna and right hind leg are lost. Otte (1981: 232) is unjustified in referring to this specimen as the holotype without discussion. Box U13.

A junior synonym of *Amblytropida mysteca* (Saussure, 1861).

ornatum Saussure, 1859: 393 [*Monachidium*].

Brasilia. Unspecified.

One ♂ and one ♀ syntype. A ♂ with labels: "477/95" [handwritten on disk of white card]; "Antiphon ornatum Sss., Bahia ♂" [handwritten on green paper]; "Monachidium ornatum Sauss, Allotypus ♂, C S Carbonell 1966" [handwritten by Carbonell on red card]; "Referred to as Holotype by Decamps, 1984" [handwritten on red paper]. Specimen set with left wings spread and right wings folded; the right antenna, the last tarsal segment of the left front leg, the right front leg, two tarsal segments of both middle legs, the last tarsal segment of the left hind leg and the right hind leg are lost. A ♀ with labels: "477/96" [handwritten on disk of white card]; "Antiphon ornatum Sss., Bahia ♂" [handwritten on green paper]; "Monachidium ornatum Sauss, Holotypus ♀, C S Carbonell 1966" [handwritten by Carbonell on red card]. Specimen set with left wings spread and right wings folded; the right antenna, the tarsi of the left front leg, the tibia and tarsi of the right front leg and the tarsi of the right hind leg are missing. There is considerable insect feeding-damage to thorax and abdomen.

Carbonell (in litt.) considered the ♀ to be the holotype because the measurements given in the description fit it better (though not well). Descamps (1984: 51) erroneously refers to the ♂ as the holotype without discussion. Images on OSF. Box Z49.

Antiphon ornatum (Saussure, 1859).

patagonus Saussure, 1884: 100-101 [*Pappus*].

Patagonia, Rio Negro (Mus. Genavense, leg. G. Claraz). Unspecified number of ♀.

One ♀ syntype with labels: "Rio Negro, envoi G. Claraz" [handwritten on whitish paper]; "Pappus patagonus Sss. ♀ type" [handwritten on green paper]; "Pappus patagonus Sauss., Holotypus, C. S. Carbonell 1966" [handwritten by Carbonell on red card]; "Type series unspecified: treat as syntype. Hollier 2011" [handwritten on red paper]. Specimen lacks both antennae, the tarsi of the left front leg, the entire right front leg, the tarsi of the left middle leg and the last tarsal segment of the right hind leg. The thorax and right hind femur have suffered insect feeding-damage. Cigliano (1989: 69) is unjustified in referring to this specimen as the holotype without discussion. Images on OSF. Box V6.

Pappacris patagonus (Saussure, 1884).

pedes Saussure, 1859: 392 [*Rhomalea*].

Mexico calida. Unspecified.

Lectotype ♀ designated by Roberts & Carbonell (1982: 49) with labels: "Rhomalea pedes Sss., ♀ type, Mexiq." [handwritten on green paper]; "Rhomalea colorata Serv." [handwritten on green paper]; "Rhomalea pedes Sauss., Allolectotypus [sic] ♀, C S Carbonell 1966" [handwritten by Carbonell on red card]; "Lectotypus designated Roberts & Carbonell, 1982" [handwritten on red paper]. Specimen set with right wings spread and left wings folded; the left antenna and the claw of the right front leg are missing. Two ♂ and one ♀ paralectotypes are also present. Images on OSF. Box Z6.

A junior synonym of *Chromacris colorata* (Serville, 1838).

peringueyi Saussure, 1888a: 140-141 [*Batrachornis*].

Africa meridionalis, Terra namaquensis. One ♀.

Holotype ♀ with labels: "Batrachornis Peringueyi Sss., Namaquais" [handwritten on red paper]; "Holotypus" [printed on red card]. Specimen set with right wings spread and left wings folded, the spread wings being very tattered; both antennae, both front legs, both middle legs and the tibiae and tarsi of both hind legs are lost. Box W5.

Batrachornis peringueyi Saussure, 1888.

peringueyi Saussure, 1888a: 146-147 [*Batrachotettix*].

Africa meridionalis occidentalis, Terra Gricaensis (Griqualand) (Mus. Capense, leg. Peringuey). Unspecified number of ♂ and ♀.

The original description, which treated both sexes, states that the type material was in the SAMC. It is possible that the single ♀ specimen placed under this name in

the MHNG collection with the labels: "Peringuey, Cap 183" [printed on pink paper]; "Batrachot. Peringueyi, Afr. mer. Sss." [handwritten on red paper]; "Syntypus" [printed on red paper], is a syntype since, although the locality is not that given in the description, the label may refer to the Cape Museum (SAMC). Specimen set with wings spread. OSF states that there are syntypes in the SAMC. Box W5.

Batrachotetrix peringueyi Saussure, 1888.

peringueyi Saussure, 1888b: 157-158, fig. 4 [*Xiphocera*].

Africa meridionalis, pagus Namaquensis (leg. Peringuey). Unspecified number of ♂.

No specimens found in the MHNG. The type was considered lost and its taxonomic position undeterminable by Dirsh (1958: 399).

Xiphoceriana peringueyi (Saussure, 1888) (considered *nomen dubium* on OSF).

perlodes Saussure, 1884: 235-236 [*Batrachornis*].

Africa meridionalis; Pron. B. Sp. (coll. Brunn. n° 7780). More than one ♀ (colour variation mentioned).

There is at least one ♀ syntype, from Brunner von Wattenwyl's collection, in the NHMW (Bruckner, pers. comm.). The MHNG collection includes a series under this name but they are labelled with the locality "Namaquis" (in what is now Namibia) and are therefore not types. Box W5.

Batrachornis perlodes Saussure, 1884.

persa Saussure, 1888a: 128-129 [*Eremobia*].

Persia (Mus. Taurinense). Unspecified number of ♀.

No specimens found in the MHNG. According to the original description the type material was in Turin, but the species does not occur in the catalogue of the MRSN (Picciau, pers. comm.)

Iranotmethis persa persa (Saussure, 1888).

peruviana Saussure, 1888a: 30, fig. 8 [*Phrynotettix*].

Peru. Unspecified number of ♂ and ♀ (variations to abdominal rugosity mentioned).

Three ♂ and three ♀ syntypes. A ♂ with labels: "Perou Centrale" [handwritten on white paper]; "peruvianus Sauss., Pérou" [handwritten on green paper]; "Phrynotettix peruviana Sauss., Hololectotypus [sic] ♂, C. S. Carbonell 1966" [handwritten by Carbonell on red card]. A ♂ with labels: "Perou Centrale" [handwritten on white paper]; "Phrynotettix peruvianus Sauss." [handwritten on green paper]; "Phrynotettix peruviana Sauss., Paratypus CSC 1966" [handwritten by Carbonell on red card]. Specimen lacks the last tarsal segment of the right middle leg. A ♂ with labels: "PEROU CENT." [printed on a strip of white paper]; "Phrynotettix peruvianus Sauss." [handwritten on green paper]; "CSC 1133" [handwritten by Carbonell on a strip of white card]; "Phrynotettix peruviana Sauss., Paratypus CSC 1966" [handwritten by Carbonell on red card]. Specimen lacks most of the left antenna, the left hind leg and the tarsi of the right hind leg. A micro-tube containing dissected parts and a

label "1132" handwritten on white card is secured on the original pin. A ♀ with labels: "Perou Centrale" [handwritten on white paper]; "Phrynotettix peruvianus Sauss." [handwritten on green paper]; "Phrynotettix peruviana Sauss., Allolectotypus [sic] ♀, C. S. Carbonell 1966" [handwritten by Carbonell on red card]. Specimen lacks the left front leg, the tarsi of the right middle leg and the tarsi of the left hind leg. A ♀ with labels: "Perou Centrale" [handwritten on white paper]; "Phrynotettix peruvianus Sauss." [handwritten on green paper]; "Mus Geneve" [handwritten on white card]; "Phrynotettix peruviana Sauss., Paratypus CSC 1966" [handwritten by Carbonell on red card]. Specimen lacks the right front leg, the tarsi of the right middle leg and the tarsi of the left hind leg. A ♀ with labels: "PEROU CENT." [printed on a strip of white paper]; "Phrynotettix peruvianus Sauss." [handwritten on green paper]; "Phrynotettix peruviana Sauss., Paratypus CSC 1966" [handwritten by Carbonell on red card]. Specimen lacks both antennae, the tarsi of the left middle leg and both hind legs. This specimen is larger than the others and may not be conspecific (Carbonell, pers. comm.). The species was redescribed by Cigliano (1989: 78) without formally designating a lectotype. Images on OSF. Box V6.

Punacris peruviana (Saussure, 1888).

picta Saussure in Distant, 1892: 261; pl. IV, fig. 2 [*Xiphocera*].

Waterberg. Unspecified number of ♀.

No specimens found in the MHNG. There is a ♀ syntype, referred to as the holotype on OSF, in the BMNH according to their online database.

Transvaaliana picta (Saussure, 1892).

pistrinarius Saussure, 1884: 238 [*Batrachotettix*].

Africa meridionalis (Mus. Vindobonense, leg. Holub). Unspecified number of ♀.

No specimens found in the MHNG. There is a ♀ syntype in the NHMW (Bruckner, pers. comm.).

Batrachotetrix pistrinarius Saussure, 1884.

pygmaea Saussure, 1861a: 156 [*Xiphicera*].

Mexico. Unspecified.

Nine ♂ and four ♀ syntypes. A ♂ with labels: "Xiphicera pygmaea Sss., no 21" [handwritten on bluish paper]; "Type Saussure" [handwritten on white paper]; "Xiphicera pygmaea Sauss., Holotypus, CSC, 1966" [handwritten by Carbonell on red card]; "Type series unspecified: treat as syntype. Hollier 2011" [handwritten on red paper]. The species name label in the insect box has the locality "Mexique" handwritten in the lower left corner. Specimen set with wings spread. A ♂ with labels: "Orizaba, Sumichrast" [handwritten on white paper]; "Syntypus" [printed on red paper]. Specimen set with wings folded; the last tarsal segment of the right front leg is missing. A ♂ with labels: "Mexiq." [printed on white card]; "Syntypus" [printed on red paper]. Specimen set with wings folded. A ♂ with labels: "Mexiq., Sumichrast" [handwritten on white paper]; "Syntypus" [printed on red paper]. Specimen set with wings folded. A ♂ with labels: "9." [handwritten on white paper]; "Orizaba, reg. temp., Sumichrast"

[handwritten on white paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded; the last tarsal segment of the left middle leg and the left hind leg are lost. A ♂ with labels: “Orizaba, Sumichrast” [handwritten on white paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded. A ♂ with labels: “Orizaba, reg. temp., Sumichrast” [handwritten on white paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded. A ♂ with labels: “Mexique, Sumichrast” [handwritten on white paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded, the right fore wing hanging down; both hind legs are missing. A ♂ with labels: “Orizaba, M. H de Saussure” [handwritten on white paper]; “Xiphicera pygmaea Sauss.” [handwritten on white paper]; “Vilerna pygmaea Sauss.” [handwritten by L. Bruner on white card with printed red border]; “Syntypus” [printed on red paper]. Specimen set with wings folded; the left antenna is missing. A hole through the abdomen suggests that the specimen was originally pinned laterally. A ♀ with labels: “Orizaba, Sumichrast” [handwritten on white paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded. A ♀ with labels: “4.” [handwritten on white paper]; “Orizaba, Sumichrast” [handwritten on white paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded. A ♀ with labels: “4.” [handwritten on white paper]; “Orizaba, Sumichrast” [handwritten on white paper]; “Mus. Genève” [handwritten on white card]; “Syntypus” [printed on red paper]. Specimen set with wings folded; the last tarsal segment of the right hind leg is lost. A hole through the abdomen suggests that the specimen was originally pinned laterally. A ♀ with labels: “Mexique, Sumichrast” [handwritten on white paper]; “Syntypus” [printed on red paper]. Specimen set with wings folded; the left middle leg is lost. The hind legs have been reattached with glue. There are further syntypes in the ZMHB and possibly other collections. Descamps & Amedegnato (1989: 27) are unjustified in referring to a ♂ holotype without discussion. Images on OSF. Box Z26.

Vilerna pygmaea (Saussure, 1861).

radamae Saussure, 1899: 629, figs 29-30 [*Acrida*].

Madagaskar. Unspecified number of ♂ and ♀.

Lectotype ♀ (designated by Dirsh, 1952b: 135) with labels: “♀ Madagascar, M. H de Saussure” [handwritten on ruled white card]; “brunneriana Bol., Madagascar” [handwritten on pink paper]; “Musée de Genève, Acrida brunneriana, No.” [name handwritten on printed white card]; “Acrida radamae, Saussure, 1899, Selected type!, V. M. Dirsh det. 1951” [handwritten on white card with “V. M. Dirsh det. 19” printed]; “Chromacrida radamea (Sauss.), V. M. Dirsh det. 1951” [handwritten on white card with “V. M. Dirsh det. 19” printed]; “Type” [printed on white card disk with red margin]; “Lectotypus” [printed on red card]. Specimen set with wings spread. Box U1.

Chromidacrida radamae (Saussure, 1899).

rana Saussure, 1888a: 156 [*Methone*].

Africa meridionalis, Terrae Namaquensis (leg. Peringuey). More than one ♂.

There are no specimens in the MHNG collection under this name, which was used in Saussure’s key to species, nor as *M. fallax* which is the name given in the description. However, there are four ♂ specimens with the appropriate data and

measurements in the collection as “*Methone dubius* Saussure” (an unavailable collection name) which could be syntypes. A ♂ with labels: “Namaquais, Peringuey” [handwritten on red paper]; “*Methone dubius* Sauss.” [handwritten on pink paper]; “Syntype of *M. rana* Sauss.? Hollier, 2010” [handwritten on red paper]. Specimen lacks both antennae, the left front leg, two tarsal segments of the right front leg, the left middle leg, the tarsi of the right middle leg, the last tarsal segment of the left hind leg and the claw of the right hind leg. The head is detached and secured on a separate pin, the underside of the thorax and most of the abdomen has been destroyed by insect feeding. A ♂ with labels: “Damara Land” [handwritten on pink paper]; “*Methone dubius* Sauss.” [handwritten on pink paper]; “Syntype of *M. rana* Sauss.? Hollier, 2010” [handwritten on red paper]. Specimen lacks the last tarsal segment of the left front leg, the last tarsal segment of the right front leg, two tarsal segments of the left middle leg and the tarsi of the right middle leg. A ♂ with labels: “Damara Land” [handwritten on pink paper]; “*Methone dubius* Sauss.” [handwritten on pink paper]; “Syntype of *M. rana* Sauss.? Hollier, 2010” [handwritten on red paper]. Specimen lacks two tarsal segments of the left front leg and the last tarsal segment of the right middle leg. A ♂ with labels: “Damara Land” [handwritten on pink paper]; “*Methone dubius* Sauss.” [handwritten on pink paper]; “Syntype of *M. rana* Sauss.? Hollier, 2010” [handwritten on red paper]. Specimen lacks both antennae, the left front leg, the last tarsal segment of the right front leg and the left middle leg. Saussure (1888a: 158) noted that he had difficulty in defining this species and so the collection name of “*dubius*” is understandable.

A junior synonym of *Trachypetrella anderssonii* (Stål, 1875).

rana Saussure, 1884: 99-100 [*Phrynotettix*].

Chile (coll. Brunner n° 8298). Unspecified number of ♀.

No specimens found in the MHNG. There is a ♀ syntype from Brunner von Wattenwyl's collection, referred to as the holotype on OSF, in the NHMW (Bruckner, pers. comm.). Images on OSF.

A junior synonym of *Moluchacris cinerascens* (Philippi, 1863).

sanguinea Saussure, 1899: 629-630 [*Acrida*].

Madagascar, Antananarivo. More than one ♀ (colour variation mentioned).

Lectotype ♀ (designated by Dirsh, 1952b: 136) with labels: “Madagasc. Anntanariv.” [printed on pink paper]; “*Acrida sanguinea* Sss.” [handwritten on pink paper]; “Musée de Genève, *Acrida sanguinea* S., No.” [name handwritten on printed white card]; “*Acrida sanguinea*, Saussure, 1899, Selected type!, V. M. Dirsh det. 1951” [handwritten on white card with “V. M. Dirsh det. 19” printed]; “*Chromacrida Brunneriana* (Bol.), V. M. Dirsh det. 1951” [handwritten on white card with “V. M. Dirsh det. 19” printed]; “Type” [printed on white card disk with red margin]; “Lectotypus” [printed on red card]. Specimen set with wings spread; the left front leg, two tarsal segments of the right middle leg, the last tarsal segment of the left hind leg and the right hind leg are lost. Box U1.

A junior synonym of *Chromidacrida brunneriana* (Bolívar, 1893).

securicolle Saussure, 1887: 73-74, fig. 23 [*Tropidauchen*].

Syria (Mus. Genavense & Parisiense). Unspecified number of ♂ and ♀.

Lectotype ♀ (designated by Dirsh, 1952a: 101) with labels: "Syrie" [printed on ruled white card]; "Tropidauchen securicollis Sss, type, Syrie" [handwritten on yellow paper]; "Tropid. securicollis Sauss." [handwritten on yellow paper]; "Tropidauchen securicolle Sauss., V. M. Dirsh det. 1951, Type!" [handwritten on white card with "V. M: Dirsh det. 19" printed]; "Type" [printed on a disk of white card with red margins]; "Lectotypus" [printed on red card]. Specimen lacks both antennae, both front legs, two tarsal segments of the left middle leg, the left hind leg and the last tarsal segment of the right hind leg. Box Y4.

Tropidauchen securicolle Saussure, 1887.

septentrionalis Saussure, 1861a: 159-160 [*Pezotettix*].

Labrador. Unspecified number of ♀.

Lectotype ♀ (designated by Gurney & Brooks, 1959: 67) with labels: "Labrador" [handwritten on a strip of white paper]; "Pezotettix septentrionalis Sauss." [handwritten on white paper]; "Musée de Genève, P. septentrionalis Sss. Type, N^o" [determination handwritten on printed white card]; "LECTHOLOTYPE, Pezotettix septentrionalis Sauss., 1957, Ashley B. Gurney" [handwritten on red card with "HOLOTYPE" and "Ashley B. Gurney" printed]. Specimen set with wings folded; the tarsi of the right middle leg and the last tarsal segment of the left hind leg are missing. There are at four ♂ and five ♀ with the same data which are presumably paralectotypes although not labelled as such. Box Z63.

A junior synonym of *Melanoplus borealis borealis* (Fieber, 1853).

spectrum Saussure, 1887: 41-42 [*Xiphocera*].

Africa occidentalis; Terra Angolae, Quango. Unspecified number of ♀.

No specimens found in the MHNG. The ♀ type material was in the collection of Bolívar when the description was published and is now in the MNMS according to Dirsh (1958: 326).

Lobosceliana spectrum (Saussure, 1887).

spinulosa Saussure, 1887: 31, 40-41 [*Xiphocera*].

Africa meridionalis; Natal (Mus. Parisiensis). Unspecified number of ♂.

No specimens found in the MHNG. The type material was considered lost by Dirsh (1958: 399), although according to the original description it ought to be in the MNHN.

Xiphoceriana spinulosa (Saussure, 1887). (Considered a *nomen dubium* on OSF).

stolli Saussure, 1884: 239 [*Batrachotettix*].

Name given to an illustration in Stoll (1787: plate 8, figure 29); the type is presumably in the RMNH. The MHNG collection includes six specimens under this name, but the description refers to the illustration for the measurements and so they cannot be considered syntypes. Box W6.

Batrachotettix stolli Saussure, 1884.

sumichrasti Saussure, 1861a: 160-161 [*Pezotettix*].

Mexico. Unspecified.

Lectotype ♂ (designated by Bruner, 1908: 326) with labels: "Acridium Sumichrasti Sauss., ♂, Mex. n° 50" [handwritten on white paper]; "Melanoplus Sumichrasti Sauus." [handwritten on green paper]; "Melanoplus sumichrasti Sauss. Type." [handwritten by L. Bruner on white card with a printed red border]; "This should be Saussure's Type. The other is a mistake." [handwritten by L. Bruner on white card]; "Pezotettix sumichrasti Sauss, Holotypus ♂ CSC 66" [handwritten by Carbonell on red card]; "Lectotype designated by Bruner, 1908: 326. Hollier 2011" [handwritten on red paper]. Specimen set with left wings spread and right wings folded; both antennae, the tarsi of both middle legs, the tarsi of the left hind leg and the last tarsal segment of the right hind leg are lost. Images on OSF. Box Z63.

Melanoplus sumichrasti sumichrasti (Saussure, 1861).

sumichrasti Saussure, 1861a: 313-314 [*Truxalis*].

Mexico temporata. Unspecified (only ♀ mentioned).

Two ♂ and one ♀ syntype. A ♂ with labels: "Orizaba, M^r H de Saussure" [handwritten on white paper]; "Saussure, Type" [handwritten on white paper]; "Achurum sumichrasti Sauss." [handwritten on white paper]; "Musée de Genève, No 7" [printed on white card with numeral added by hand]; "Truxalis sumichrasti Sauss., Typus, C S Carbonell 1970" [handwritten by Carbonell on red card]. Specimen set with wings folded; the left antenna and left front leg are lost. There is damage to the base of the abdomen. A ♂ with labels: "Orizaba, M^r H de Saussure" [handwritten on white paper]; "Achurum sumichrasti Sauss." [handwritten on green paper]; "Syntypus" [printed on red paper]. Specimen set with wings spread; the right front leg and left hind leg are lost. There is damage to the base of the abdomen. A ♀ with labels: "Mexiq." [printed on white card]; "Truxalis sumichrasti Sss, Type" [handwritten on green paper]; "Holotypus, Truxalis sumichrasti Sauss." [handwritten by T. Hubbell on red card with "Holotypus" printed]; "Syntype not holotype! Hollier 2011" [handwritten on red paper]. Specimen set with right wings spread and left wings folded; the tarsi of the right front leg, the tarsi of both middle legs and the left hind leg are missing. There is another ♂ without a locality label under this name which may also be a syntype. The measurements given in the original description match the ♀, but the other specimens were obviously in Saussure's possession when it was written and Carbonell considers them part of the type series (pers. comm.). Otte (1981: 231) states that the ♀ holotype is in the NHMW, but this is obviously a lapse. Images on OSF. Box U7.

Achurum sumichrasti (Saussure, 1861).

tartara Saussure, 1884: 229 [*Eremobia*].

Turquestania (Fedtschenko). Unspecified number of ♂ and ♀.

Two ♂ and one ♀ syntype. A ♂ with labels: "13" [printed on white card with a red line]; "КНЗНДЪКҮМЪ [?]" [printed on a strip of white card]; "Erem. tartara Sauss." [handwritten on blue paper]; "Syntype of E. tartara Sauss., 1884? Hollier 2010" [handwritten on red paper]. Specimen set with brachypterous wings spread; most of the right antenna, the tarsi of the right front leg, and the tarsi of the left hind

leg are lost. A ♂ with labels: “13” [printed on white card with a red line]; “15” [handwritten on white card]; “372” [printed on white paper]; “*E. tartara* Sauss.” [handwritten on blue paper]; “Syntype of *E. tartara* Sauss., 1884? Hollier 2010” [handwritten on red paper]. Specimen set with wings folded; most of both antennae, the tibia and tarsi of the left front leg, the tarsi of the left middle leg, and the claw of the left hind leg are lost. A ♀ with labels: “13” [printed on white card with a red line]; “14” [handwritten on white card]; “*E. tartara* Sauss.” [handwritten on blue paper]; “Syntype of *E. tartara* Sauss., 1884? Hollier 2010” [handwritten on red paper]. Specimen set with wings folded; the tarsi of the front left leg are missing. Two further ♀ without locality labels may also be syntypes. The species name label in the insect box has the locality “Turkestan” handwritten in the lower left corner. Box W2.

Pezomethis tartarus (Saussure, 1884).

tepanecus Saussure, 1861a: 319 [*Stenobothrus*].

Mexico. Unspecified.

One ♀ syntype with labels: “Musée de Genève, N° 6” [printed on white card with numeral added by hand]; “Saussure, Type” [handwritten on white card]; “*Stenobothrus tepanecus* Sauss.” [handwritten on white paper]; “*Orphulella tepanica* Sauss.” [handwritten by L. Bruner on white card with printed red border]; “Holotypus, *Stenobothrus tepanecus* Sauss.” [handwritten by T. Hubbell on red card with “Holotypus” printed]; “Type series unspecified: treat as syntype. Hollier 2011” [handwritten on red paper]. The species name label in the insect box has the locality “Mexique” handwritten in the lower left corner. Specimen set with right wings roughly spread and left wings folded; most of the right antenna, both front legs, the tarsi of the right middle leg and the tarsi of the right hind leg are missing. Otte (1981: 243) is unjustified in referring to this specimen as the holotype without discussion. Box U11.

A junior synonym of *Orphulella punctata* (De Geer, 1773).

terrea Saussure, 1888a: 27-28 [*Ostracina*].

Africa meridionalis, Prom. B. Sp. Unspecified number of ♀.

One ♀ syntype with labels: “Brady, Cap” [handwritten on pale pink paper]; “*Peloplastus terrea* Sss., ♀, Cap.” [handwritten on red paper]; “*Peloplastus terreus* Sauss.” [handwritten on pink paper]; “*Euryphymus haematoptus* L., V. M. Dirsh det. 1958” [determination and last numeral handwritten on printed white card]; “Holotypus” [printed on red card]; “Type series unspecified: treat as syntype. Hollier 2011” [handwritten on red paper]. Specimen set with wings spread; both antennae, the last tarsal segment of the left front leg, the entire right front leg and the last tarsal segment of the right middle leg are lost. Box V6.

A junior synonym of *Euryphymus haematopus* (Linnaeus, 1758).

testudo Saussure, 1888a: 97-98, fig. 9 [*Phaneroцерus*].

Australia meridionalis. Unspecified number of ♂ and ♀.

One ♂ and one ♀ syntype. A ♂ with labels: “603 34, South Australia (28)” [handwritten on white paper]; “*Phaneroцерus testudo* Sss, N. Holl.” [handwritten on lilac paper]; “*Phaneroцерus testudo* Sauss.” [handwritten on lilac paper]; “Lectotype of

Phaneroцерus testudo Sauss., 1888. Selected by K. H. L. Key, 1958" [handwritten by Key on white card]. The specimen lacks most of the left antenna, both front legs and the left middle leg. A ♀ with labels: "603 34, South Australia (28)" [handwritten on white paper]; "281" [handwritten on white paper]; "*Phaneroцерus testudo* Sss, N. Holl." [handwritten on lilac paper]; "*Phaneroцерus testudo* Sauss." [handwritten on lilac paper]; "Syntypus" [printed on red paper]. The specimen lacks the tarsi of the left front and middle legs, and the entire right hind leg. The lectotype does not seem to have been formally designated. Box V33.

Phaneroцерus testudo Saussure, 1888.

toltecum Saussure, 1861a: 163-164 [*Acridium*].

Mexico temporata. Unspecified.

Two ♀ syntypes. A ♀ with labels: "Huastec., t.t." [printed on white card]; "*Acridium toltecum* sauss., Mexique, M.H.S." [handwritten on white paper]; "*Osmilia toltecum* Sauss." [handwritten on green paper]; "*Acridium toltecum* Sauss., Holotypus, C S Carbonell - 1966" [handwritten by Carbonell on red card]; "Type series unspecified: treat as syntype. Hollier 2011" [handwritten on red paper]. Specimen set with left wings spread and right wings folded; both antennae and the left hind leg are lost. A ♀ with labels: "Potrero, Sumichrast" [handwritten on white paper]; "*Osmilia toltecum* Sauss." [handwritten on green paper]; "Syntypus" [printed on red paper]. Specimen set with wings folded. Roberts & Carbonell (1981: 4) refer to the specimen marked by Carbonell as the holotype without discussion, even though it does not match the measurements given in the original description (Carbonell, pers. comm.). Images on OSF. Box Z66.

A junior synonym of *Abracris flavolineata* (De Geer, 1773).

toltecus Saussure, 1861a: 314 [*Oxycoryphus*].

Mexico altior. Unspecified.

One ♀ syntype with labels: "Mexico, t.f." [printed on white card]; "Type, Saussure" [handwritten on white card]; "Musée de Genève, N° 19" [printed on white card with numeral added by hand]; "*Orphulella tolteca* Sauss." [handwritten by L. Bruner on white card with printed red border]; "Holotypus, *Orphulella tolteca* Sauss." [handwritten by T. Hubbell on red card with "Holotypus" printed]; "Type series unspecified: treat as syntype. Hollier 2011" [handwritten on red paper]. Specimen set with right wings spread and left wings folded; the left middle and hind legs, and the tarsi of the right hind leg are lost. There is insect feeding-damage to the abdomen and right hind leg. Otte (1981: 244) is unjustified in referring to this specimen as the holotype without discussion. Box U11.

Orphulella tolteca (Saussure, 1861).

totonacus Saussure, 1861a: 315-316 [*Oxycoryphus*].

Mexico. Unspecified number of ♀.

No specimens found in the MHNG. The whereabouts of the type material is unknown.

A junior synonym of *Orphulella punctata* (De Geer, 1773).

turrata calaeata Saussure in Distant, 1892: 256 [*Acrida*].

Pretoria [leg. Distant]. Unspecified.

No specimens found in the MHNG. This subspecies was listed, but there was no description, making the name a *nomen nudum* (Dirsh, 1952b: 138). Dirsh (loc. cit.) described the specimens collected by Distant and seen by Saussure as a new genus and new species (*Brachyacrida distanti* Dirsh, 1952), and the ♂ holotype is in the BMNH.

Replaced by *Brachyacrida distanti* Dirsh, 1952.

unguiculatus Saussure, 1888a: 73-74 [*Leptoscirtus*].

Senegalis. Unspecified.

No specimens found in the MHNG. The whereabouts of the type material is unknown.

Leptoscirtus unguiculatus Saussure, 1888.

vaucherianus Saussure, 1887: 79, 81-82, fig. 28 [*Eunapius*].

Marocco; prope Tingem (leg. Vaucher). Unspecified number of ♂ and ♀ (size range of ♀ mentioned).

Seven ♂ and four ♀ syntypes. A ♂ with labels: "620 61, Maroc., M^r Vaucher" [handwritten on ruled white card]; "Maroc, Vaucher" [printed on pink paper]; "Eunapius vaucherianus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. A ♂ with labels: "620 61, Maroc., M^r Vaucher" [handwritten on ruled white card]; "Maroc, Vaucher" [printed on pink paper]; "Eunapius vaucherianus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. A ♂ with labels: "620 61, Maroc., M^r Vaucher" [handwritten on ruled white card]; "Maroc, Vaucher" [printed on pink paper]; "Eunapius vaucherianus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. Specimen lacks the last tarsal segment of the left hind leg. A ♂ with labels: "620 61, Maroc., M^r Vaucher" [handwritten on ruled white card]; "Maroc, Vaucher" [printed on pink paper]; "Eunapius vaucherianus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. Specimen lacks the left antenna. A ♂ with labels: "620 61, Maroc., M^r Vaucher" [handwritten on ruled white card]; "MAROC" [printed on a strip of white paper]; "Eunapius vaucherianus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. A ♂ with labels: "620 61, Tanger, Maroc., M^r Vaucher" [handwritten on ruled white card]; "TANGER" [printed on a strip of pink paper]; "10" [handwritten on green card]; "Eunapius vaucherianus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. A ♂ with labels: "620 61, Maroc., M^r Vaucher" [handwritten on ruled white card]; "Maroc, Vaucher" [printed on pink paper]; "Eunapius vaucherianus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. A ♀ with labels: "620 61, Maroc., M^r Vaucher" [handwritten on ruled white card]; "Maroc, Vaucher" [printed on pink paper]; "Eunapius vaucherianus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. Specimen lacks the right antenna, right middle leg and the claw of the left hind leg. A ♀ with labels: "620 61, Maroc., M^r Vaucher" [handwritten on ruled white card]; "MAROC" [printed on a strip of white paper]; "Eunapius vaucherianus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. Specimen lacks the last tarsal segment of the right front leg. A ♀ with labels: "620 61,

Maroc., M^r Vaucher" [handwritten on ruled white card]; "Maroc, Vaucher" [printed on pink paper]; "Eunapius vaucherianus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. A ♀ with labels: "620 61, Maroc., M^r Vaucher" [handwritten on ruled white card]; "Maroc, Vaucher" [printed on pink paper]; "Eunapius vaucherianus Sauss." [handwritten on pink paper]; "Syntypus" [printed on red paper]. Specimen lacks two tarsal segments of the left middle leg, the tarsi of the right middle leg and the last tarsal segment of the left hind leg. Several other specimens in the series lack locality labels and could also be syntypes, as could a number of specimens in the duplicates box 41. Box Y8.

A junior synonym of *Euryparyphytes bolivarii* (Stål, 1876).

viatorius Saussure, 1861a: 317-318 [*Stenobothrus*].

In tota Mexico. Unspecified (gregarious behaviour mentioned).

Lectotype ♂ (designated by Otte, 1981: 247) with labels: "Plectrophorus viatorius Sauss., type!" [handwritten on green paper]; "Scyllina viatoria Sss., type ♂" [handwritten on green paper]; "Scyllina viatoria Sauss., Hololectotypus [sic] ♂, C S Carbonell 1970" [handwritten by Carbonell on red card]; "Plectrophorus viatorius" [handwritten on white card]. The species name label in the insect box has the locality "Amer. cent." handwritten in the lower left corner. Specimen set with wings folded; the right antenna is missing. There are another 4 ♂ and 8 ♀ specimens from Mexico which could be paralectotypes although not labelled as such. Images on OSF. Box U25.

Rhammatocerus viatorius viatorius (Saussure, 1861).

virescens Saussure, 1861a: 157-158 [*Pedies*].

Mexico. Unspecified number of ♂.

Lectotype ♂ (designated by Ronderos & Carbonell, 1994: 84) with labels: "Cordova, t.c." [printed on white card]; "Type, Saussure" [handwritten on white paper]; "Pedies virescens Sauss, n^o 22. ♂" [handwritten on white paper]; "Pedies virescens Sss" [handwritten on green paper]; "CSC 1150" [handwritten by Carbonell on a strip of white card]; "Pedies virescens Sauss., Hololectotypus [sic] ♂, C S Carbonell 1966" [handwritten by Carbonell on red card]. Specimen lacks the right antenna. There is one ♂ and one ♀ specimen labelled as paralectotypes. Images on OSF. Box Z64.

Pedies virescens Saussure, 1861.

volitans Saussure, 1861a: 319-320 [*Pegasidion*].

Mexico orientalior. Unspecified.

No specimens found in the MHNG. The whereabouts of the type material is unknown.

Pegasidion volitans Saussure, 1861.

vorax Saussure, 1861a: 162 [*Caloptenus*].

Brasilia. Unspecified number of ♂.

No specimens found in the MHNG. The whereabouts of the type material is unknown.

Stenopola vorax (Saussure, 1861).

walkeri Saussure, 1888a: 136-137 [*Eremotettix*].

The ♀ holotype is in the BMNH and the specimens placed under this name in the MHNG collection are not types. Saussure described this species based upon the specimen identified as “*Trachypetra bufo* White, 1846” by Walker (1871: 795). Box W5.

Eremotettix walkeri Saussure, 1888.

whiti Saussure, 1888a: 148-149 [*Batrachotettix*].

No specimens found in the MHNG. The holotype is in the BMNH. Saussure identified a specimen in the BMNH as the type of “*Trachypetra bufo* White, 1846” and thought that it had been placed in the BMNH collection as *T. scutellaris* Walker due to a confusion of labels. He regarded *T. bufo* White, 1846 as a junior homonym of *B. bufo* Burmeister, 1838, and so provided a replacement name.

A junior synonym of *Batrachoterix scutellaris* (Walker, 1870).

yersini Saussure, 1859: 394 [*Ommatolampis*].

America meridionalis? Unspecified number of ♀.

One ♀ syntype with labels: “478/7” [handwritten on white card disk]; “Ophthalmolampis yersini Sss.” [handwritten on green paper]; “Ophthalmolampis yersini Sauss, Holotypus ♀, C S Carbonell 1966” [handwritten by Carbonell on red card]; “Genre Phalaca, M. Descamps det. 1975” [determination and last two numerals handwritten on printed white card]. Specimen set with left wings spread and right wings folded; the left antenna, the last tarsal segment of the right middle leg and the tarsi of both hind legs are missing. It is probable that Saussure found a single specimen without provenance in the collection of Alexandre Yersin and that the holotype label is correct. Yersin’s collection came to the MHNG after his death in 1863 (Hollier, 2007). Images on OSF. Box Z17.

Phalaca yersini (Saussure, 1859).

zapotecus Saussure, 1861a: 316 [*Oxycoryphus*].

Mexico. Unspecified.

One ♀ syntype with labels: “Cordova, t.c.” [printed on white card]; “Oxycoryphus (Chortopana) zapotecus Sauss.” [handwritten on white paper]; “Type, Saussure” [handwritten on white paper]; “Orphuella zapoteca Sauss.” [handwritten by L. Bruner on white card with a printed red border]; “Oxycoryphus zapotecus Sauss” [handwritten by T. Hubbell on red card]. Specimen set with wings folded; both antennae, both front legs, the tarsi of the right middle leg, the left hind leg and the tibia and tarsi of the right hind leg are lost. Otte (1979: 61, 1981: 243) was unjustified in referring to this specimen as the holotype. It is possible that some of the fourteen ♂ and ten other ♀ collected by Saussure or Sumichrast present in the collection under this name are also syntypes, but that only the example sent to Bruner for examination was labelled as a type. Images on OSF. Box U11.

A junior synonym of *Orphulella punctata* (De Geer, 1773).

zimmermanni Saussure, 1861a: 159 [*Pezotettix*].

Carolina. Unspecified number of ♀.

One ♀ syntype with labels: “Carol. S” [printed on white card]; “Type, Saussure” [handwritten on white paper]; “Poepedatus Zimmermanni Ss., ♀, n° 24” [handwritten on bluish paper]; “Melanoplus Zimmermanni Sauss. [handwritten on brown paper]; “Holotypus” [printed on red card]; “Type series unspecified: treat as syntype. Hollier 2011” [handwritten on red paper]. Specimen lacks the left front leg, two tarsal segments of the right front leg and the left middle leg. Box Z63.

Dendrotettix zimmermanni (Saussure, 1861).

Other names

The name *Methone fallax* Saussure, 1888a: 158 is regarded as a junior synonym of *Methone rana* Saussure, 1888a: 156, but it is actually a lapse; the species is called *rana* in the key to species but *fallax* in the text of the description.

The name *Ochrophlebia caffra* Saussure in Riley, 1893: 581 is regarded as a junior synonym of *Zonocerus variegates* (Linnaeus, 1758), but in the original publication the species is attributed to Linnaeus. There is no description and so *O. caffra* would be a *nomen nudum* anyway.

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***Draconectes narinusus*, a new genus and species of cave fish from an island of Halong Bay, Vietnam (Teleostei: Nemacheilidae)**

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***Draconectes narinusus*, a new genus and species of cave fish from an island of Halong Bay, Vietnam (Teleostei: Nemacheilidae).** - *Draconectes narinusus*, new genus and species, is described from a cave in Van Gio island in Halong Bay, Vietnam. Besides characters commonly observed in cave fishes such as absence of eyes and pigmentation, it is distinguished by having the pores of the lateral line system on body and head situated at the tip of small papillae, a row of papillae along each side of the base of the dorsal fin, 7+6 branched caudal-fin rays; and the nostrils adjacent, posterior one broader than anterior one, anterior one broad and situated at the tip of a short tube. The relations of this species are not known but it has some similarity with several species described from caves of Guangxi (China) that had been placed in the genus *Oreonectes*.

Keywords: loach - *Oreonectes*.

INTRODUCTION

Loaches of the family Nemacheilidae are one of the important component of the fish fauna of fast flowing water bodies of Southeast Asia. Some 140 valid species are already known from mainland Southeast Asia (e.g. Kottelat, 1990a, 1998, 2000, 2001 a-b, 2012, in press; Freyhof & Serov, 2001; Nguyen, 2005). Most species inhabit hill and foothill streams where they are usually found under stones and rocks. This usual habitat certainly explains that many species have been able to penetrate into caves. In areas with karstic formations, they are a frequent feature of the subterranean fauna. Several species are already known from caves of the Indochinese Peninsula (*Schistura spekuli* Kottelat, 2004 in Vietnam, *S. kaysonei* Vidthayanon & Jaruthanin, 2002 in Laos, *S. oedipus* Kottelat, 1988, *Nemacheilus troglodactaractus* Kottelat & Géry, 1989, *S. jarutanini* Kottelat, 1990b, *S. spiesi* Vidthayanon & Kottelat, 2003 and *S. deans-marti* Vidthayanon & Kottelat, 2003 in Thailand) and several are already known that await description. I describe here a new species collected in Halong Bay in northern Vietnam.

Halong Bay [Vin Ha Long] is a large area (about 1500 km²) of submerged limestone landscape. It is occupied by about 2000 islands that form one of the best known karstic landscape and it is one of the main tourist attraction of Vietnam. In 1994, Halong Bay was listed among UNESCO World Heritage Site. This extensive karst

hosts a very diverse and unique fauna and flora, terrestrial, marine, freshwater, epigeal as well as subterranean. In 1999, within 10 days of sampling, a team obtained more than 100 new species of snails, crabs, fish and other animals (Vermeulen & Whitten, 1999: 56; pers. obs.). In 2003, Boris Sket and Peter Trontelj surveyed the fauna of a number of caves within Halong Bay for Fauna and Flora International Vietnam Programme. A new species of cave loach was obtained and is described in the present study.

MATERIAL AND METHODS

Methods for counts and measurements follow Kottelat (1990a). Note that head length is dorsal head length, not lateral head length. Abbreviations used are: MHNG, Muséum d'Histoire Naturelle, Genève; OBBFUL, Zoological Collection, Oddelek za Biologijo, Biotehniška Fakulteta, Univerza v Ljubljani, Ljubljana; SL, standard length.

Draconectes new genus

TYPE SPECIES: *Draconectes narinosus*, new species.

DIAGNOSIS: *Draconectes* is distinguished from the other genera of the family by having pores of the lateral line system on body and head situated at the tip of small papillae, and a row of papillae (apparently with pores) along each side of the base of the dorsal-fin. Other characters, not unique to the genus, are: 7+6 branched caudal-fin rays; conspicuous dorsal and ventral crests on caudal peduncle; nostrils adjacent, posterior one broader than anterior one, anterior one broad and situated at the tip of a short tube; lips thin and smooth; body without scales; eye absent.

ETYMOLOGY: From the Greek δράκων (*drakon*; a dragon), and νήκτης (*nectes*; a swimmer); a reference to the habitat of the only known species of the genus, on an island of Halong Bay. Halong means 'descending dragon' and is derived from the local legend that dragons created the landscape of the bay. Gender masculine.

Draconectes narinosus new species

Figs 1-3

HOLOTYPE: MHNG 2730.080, 24.7 mm SL; Vietnam: Quang Ninh Province: Ha Long Bay: island Đáo Van Giò: phreatic lake in cave Đông Dục Tiên, 20°50.34'N 107°16.77'E; B. Sket, 17 June 2003.

PARATYPE: OBBFUL uncat., 20.8 mm SL; same data as holotype.

DIAGNOSIS: *Draconectes narinosus* is the only known species of the genus; see diagnosis of genus.

DESCRIPTION: See Figure 1 for general appearance and Table 1 for morphometric data of holotype and paratype. The specimens are quite soft and uneasy to handle, and consequently the description of the soft anatomy uneasy and sometimes approximate. A moderately elongate nemacheilid with body depth about equal from head to dorsal-fin origin. Behind dorsal fin, body depth decreasing to caudal-fin base. Head slightly depressed, anterior half conspicuously depressed. Body rounded anteriorly to compressed posteriorly. Genital papilla very large (compared to other species of nemacheilids). Conspicuous dorsal and ventral crests on caudal peduncle, starting very close to posterior extremity of dorsal- and anal-fin bases, outline of dorsal crest



FIG. 1

Draconectes narinosus, MHNG 2730.080, 24.7 mm SL; Vietnam: Ha Long Bay: Dao Van Gio island, Dong Duc Tien cave; right side, reversed. Photographs by Tan Heok Hui.

continuous with dorsal outline of caudal fin. Caudal peduncle 1.7-2.0 times longer than deep (depth including crest). Largest recorded size 24.7 mm SL.

Dorsal fin with 4 simple and 7 branched rays (a single ray articulating on last pterygiophore); distal margin straight. Pectoral fin with 11 rays, reaching about halfway to $\frac{3}{5}$ of distance to pelvic-fin base. No pelvic axillary lobe. Pelvic fin with 6 rays, reaching about $\frac{3}{4}$ of distance to anal-fin origin, not reaching anus which is situated immediately in front of anal fin; origin slightly in front of vertical through dorsal-fin origin. Anal fin with 3 simple and 5 branched rays (a single ray articulating on last pterygiophore). Caudal fin forked, with 7+6 branched rays, with very narrow interradi membranes resulting in an elongated appearance; procurrent rays difficult to count, at least 8 dorsal and 7 ventral.

No scales on body. Lateral line indistinct but complete, marked by a series of 30-40 papillae along its course, apparently each with a pore at its tip. Four and six

TABLE 1. Morphometric data of holotype and paratype of *Draconectes narinosus*.

	holotype	paratype
Standard length (mm)	24.7	20.8
Total length (mm)	29.0	24.7
In percent of standard length		
Total length	117.4	118.8
Head length (dorsal)	22.3	23.6
Head length (lateral)	28.3	27.9
Predorsal length	57.9	59.6
Prepelvic length	55.5	56.7
Preanal length	70.0	72.6
Head depth	13.0	12.5
Body depth at dorsal-fin origin	13.4	13.0
Depth of caudal peduncle	10.5	12.5
Length of caudal peduncle	21.1	21.2
Maximum head width	15.8	15.9
Body width at dorsal-fin origin	7.7	11.5
Length of dorsal fin	19.0	19.2
Length of upper caudal-fin rays	17.4	21.6
Length of lower caudal-fin rays	17.4	20.2
Length of anal fin	17.8	17.8
Length of pelvic fin	15.0	12.5
Length of pectoral fin	18.2	17.8

similar papillae on each side of dorsal-fin base of holotype, possibly with a pore; apparently 2 papillae in paratype. Pores of cephalic lateral line system also situated at tip of papillae (Fig. 2), difficult to count with accuracy because of state of fixation and because of presence of other, unpored papillae. 9 (?) supraorbital, 13 (?) preoperculo-mandibular (large, organised in a regular canal until angle of mouth) and 3 (?) hardly distinct supratemporal pores. Infraorbital row present, difficult to distinguish, about 9-12 (?) papillae/pores along anterior part of canal. Supraorbital canals almost meeting anteriorly.

Nostrils adjacent, posterior opening larger than anterior one; anterior nostril at tip of a short and broad tube; olfactory rosette slightly protruding through posterior opening. Mouth gape about 2 times wider than long (Fig. 1). Lips thin but fleshy, apparently smooth. No median incision in upper lip. A median notch in lower lip, shallow but long. No processus dentiformis. A median concavity in lower jaw. Inner rostral barbel reaching about to corner of mouth; outer one reaching about $\frac{1}{2}$ of lateral head length. Maxillary barbel reaching about $\frac{2}{3}$ of lateral head length. Shape of intestine unknown (specimens not dissected).

SEXUAL DIMORPHISM: No external character observed that would be indicative of sexual dimorphism.

COLORATION: When preserved, body background pale yellowish. Dark brown pigments on upper half of flank, giving a pale brownish appearance, denser along mid-lateral axis and on back in front of dorsal fin. Papillae of lateral line and along base of dorsal fin with dark brown pigments. Head pale yellowish, darker along posterior edge of skull, around rim of posterior nostril and at possible position of a foramen.

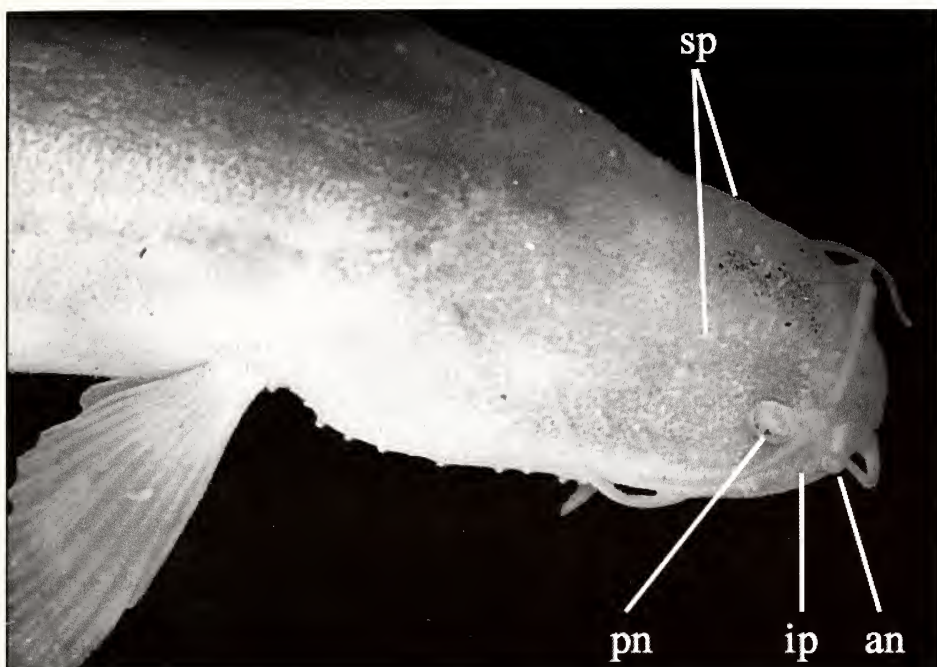


FIG. 2

Draconectes narinosus, OBBFUL, uncat., 20.8 mm SL; dorsal view of head. an, anterior nostril; ip, pores of infraorbital row; pn, posterior nostril; sp, pore of supraorbital row. Photograph by Boris Sket.

Difference between brownish dorsal and white ventral parts of head very contrasted. Dorsal crest and posterior half of ventral crest brownish. Two darker brown patches at base of caudal-fin rays. Fins hyaline.

In life (based on photographs, Fig. 3): Body pale reddish brown. A faint roundish greyish mark at end of caudal peduncle. Papillae along base of dorsal fin blackish.

DISTRIBUTION: Presently known only from the type locality, in Dong Duc Tien cave, on Dao Van Gio island, in Halong Bay. Dao Van Gio is located in the eastern part of Ha Long Bay, about 15 km off the coast.

NOTES ON BIOLOGY: The following information are provided by the collector, Boris Sket (in litt, 31 Oct. 2004). The only water body of a phreatic (not anchihaline) character that could be reached on a small island of Ha Long Bay was inside Dong Duc Tien cave on Dao Van Gio island, a very dissected karst island. Altitude was not measured but is estimated to have been at about sea level. At the time of the visit it was a 'lake' approximately 100 x 20 m, fragmented by large boulders into a system of interconnected basins with loamy bottom and up to 1.5 m deep. The water was totally stagnant. As can be inferred from its fauna, this body of water is, at least during highest water levels, connected and included into a general phreatic water body of the island. Its water is nearly limnic (4-5 ppt salinity). The island is slightly over 1 km² and

extremely ramified, the width of the branches reaching a maximum of 400 m, and only at a few locations.

Five fish individuals have been sighted, but only two of them caught. Another interesting and exceptional animal from this lake is the moderately dense population of a tiny troglomorphic amphipod of the family Sebiidae (*Seborgia vietnamica* Jaume, Sket & Boxshall, 2009); it most probably serves as the main food supply for the fish. Copepods and oligochaetes were extremely scarce.

ETYMOLOGY: The Latin *narinosus* means 'who has large nostrils'. An adjective.

REMARKS: It is not possible to determine the relationships of *D. narinosus* and it is not possible to place it in any of the recognised genera, and therefore it is placed in a new genus. Some of the characters used to diagnose the genus (absence of eye and scales, pale body) are obviously related with the cave habitat and as such reductive and not informative about relationships. The pores of the cephalic and body lateral line system situated at the tip of papillae is apparently unique in nemacheilids; this character too is possibly an adaptation to cave habitat. The relatively large nostrils and their wide openings are apparently unique in the family, as are the papillae along the base of the dorsal fin.

Schistura papulifera Kottelat *et al.*, 2007, a cave species from Assam, India, also has projections on the head, but in this species the head is covered by small skin projections, the pores of the cephalic lateral line system are not situated at the tip of papillae and there are 5 pores in the supratemporal canal (vs. 3 in *Draconectes*).

Most Southeast Asian species of nemacheilids have 9+8 branched caudal-fin rays. This number is sometimes reduced by 1 or 2 in some species (8+8, 8+7); in such cases it is usually a reliable diagnostic character (e.g. Kottelat, 1990a, 2000). The reduced number of caudal-fin rays is usually associated with small size in nemacheilids (e.g., *Schistura paucicincta* Kottelat, 1990a, *S. rikiki* Kottelat, 2000, *S. diminuta* Ou *et al.*, 2011) and other fishes (e.g. *Paedocypris*, see Kottelat *et al.*, 2006, Britz & Conway, 2011), but small size is not always associated with reduced number of caudal rays (e.g. *Sundadanio*, see Conway *et al.*, 2011).

Many genera and species of East Asian nemacheilids have a lower number of branched caudal-fin rays. The reduced number of caudal-fin rays (13) in *Draconectes*, is shared with the genera *Oreonectes* (12-16; Du *et al.*, 2008) and *Lefua* (13-15; Sawada, 1982). *Draconectes* is distinguished from *Lefua* and *Oreonectes* in having the anterior and posterior nostrils adjacent (vs. widely separated, posterior one at short distance of anterior margin of orbit); the anterior nostril situated at the tip of a short and wide tube (vs. on a short and narrow tube whose posterior rim is produced in a long filament, the 'nasal barbel'); a complete lateral line (vs. absent or up to 18 pores, not reaching vertical of pelvic fin); and the dorsal-fin origin slightly behind a vertical through pelvic-fin origin (vs. conspicuously behind the base of the pelvic fin in some *Oreonectes*). *Oreonectes* occurs in southeastern China and northern Vietnam; and *Lefua* in the Amur drainage, Korea, northeastern China and Japan.

As presently understood, *Oreonectes* includes eleven valid species (Kottelat, in press), several of them known from cave habitats. They can be separated into two groups. The first group includes five species (*O. anophthalmus* Zheng, 1981, *O. guananensis* Yang *et al.*, 2011a, *O. luochengensis* Yang *et al.*, 2011b, *O. platycephalus*



FIG. 3

Draconectes narinosus, MHNG 2730.080, 24.7 mm SL; Vietnam: Ha Long Bay: Dao Van Gio island, Dong Duc Tien cave; immediately after capture. Photograph by Boris Sket.

Günther, 1868, *O. polystigmus* Du *et al.*, 2008) that have, among other characters, a rounded caudal fin and the dorsal-fin origin clearly behind the pelvic-fin origin; this group includes *O. platycephalus*, the type species of the genus. This first group is present in Guangxi and Guangdong provinces in China and in coastal streams of Vietnam (northeast of Halong; Kottelat, 2001). According to Tang *et al.* (2012), all but *O. platycephalus* are known from caves. Du *et al.* (2008) and Huang *et al.* (2009) considered that a sixth species, *O. retrodorsalis* Lan *et al.*, 1996, also belongs to this first group, in which it is the only species with an emarginate caudal fin; the figure in the original description (Lan, Yang & Chen, 1996) shows a forked caudal fin with rounded lobes.

The second group includes species that have, among other characters, a forked caudal fin, the dorsal-fin origin in front of the pelvic-fin origin, a more slender body and a distinct dorsal crest on the caudal peduncle. This second group includes five named species (*O. elongatus* Tang *et al.*, 2012, *O. furcocaudalis* Zhu & Cao, 1987, *O. macrolepis* Huang *et al.*, 2009, *O. microphthalmus* Du *et al.*, 2008, *O. translucens* Zhang *et al.*, 2006), all known only from Guangxi, China. All have been collected inside caves (Tang *et al.*, 2012). These species do not seem congeneric with *O. platycephalus*, but in the absence of material I cannot comment on their status. It is further not clear whether all species in this second group are closely related; the illustration in the original description of *O. macrolepis* (Huang *et al.*, 2009) shows a fish with a more rounded body (vs. compressed in the other species), rounded head (vs. pointed) and rounded caudal-fin lobes (vs. pointed). *Draconectes* potentially could have relationships with some of them but is distinguished from all by the adjacent anterior and posterior nostrils.

The nemacheilid fauna of northern Vietnam and coastal drainages of Guangxi is still poorly known (Kottelat, 2001, pers. obs.; Freyhof & Serov., 2001); the recent poor descriptions of several species (Nguyen, 2005) has compounded the situation. The species reported from adjacent areas of the mainland include *Oreonectes platycephalus*, *Traccatichthys taeniatus* and various species of *Schistura* (Kottelat, 2001a).

The epigean relatives of *Draconectes* probably await discovery. It is remarkable that the species managed to survive on such a small island and at such low altitude within a maze of sunken karst landscape.

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On the Scaphisomatini (Coleoptera: Staphylinidae: Scaphidiinae) of the Philippines, III: the genus *Baeocera* Erichson

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On the Scaphisomatini (Coleoptera: Staphylinidae: Scaphidiinae) of the Philippines, III: the genus *Baeocera* Erichson - The Philippine species of *Baeocera* Erichson, 1845 are reviewed. Currently, seven species are known from the archipelago, twelve additional species are described as new in the present study: *B. alticola* sp. nov., *B. danielae* sp. nov., *B. fortis* sp. nov., *B. hypomeralis* sp. nov., *B. jejuna* sp. nov., *B. jankodadai* sp. nov., *B. jeani* sp. nov., *B. louisii* sp. nov., *B. mindanaosa* sp. nov., *B. procerula* sp. nov., *B. profana* sp. nov., and *B. wolfgangi* sp. nov. A key to species is provided. Illustrations of aedeagi are given for *B. globosa* (Pic), *B. palawana* (Löbl), and *B. simoni* (Pic), known previously in females only, and more detailed illustrations of the internal sacs of the aedeagi are given for some of the species described by Löbl, 1972.

Keywords: Coleoptera - Staphylinidae - Scaphidiinae - *Baeocera* - taxonomy - Philippines.

INTRODUCTION

Overviews of several genera of Philippine Scaphisomatini were recently given in two of my papers (Löbl, 2011a and 2011b). The present paper deals with an additional Scaphisomatini genus, *Baeocera* Erichson, 1845. *Baeocera* is with 247 species currently recognized as valid one of the more diverse genera of staphylinoid beetles feeding on slime molds and fungi, and almost world-wide in distribution. Although members of *Baeocera* are often common in floor litter of Asian tropical and subtropical forests (personal observations), they were not adequately sampled in the Philippines. Currently, seven species are reported from that archipelago, all known only by their respective type material (Löbl, 1972). The diagnostic important male characters remained unknown in three of them (see Löbl, 1971b, 1972). As expected, newly examined collections revealed a number of additional species and other new data providing a more adequate insight of the diversity and distribution of the group, in spite of obvious major gaps in sampling. With the present study the number of the known Philippine species of *Baeocera* increases to nineteen. Still, this may be just a fraction of the number of species that actually occur in the Philippine archipelago.

MATERIAL AND METHODS

The length of specimens is measured from the anterior pronotal margin to the inner apical angle of the elytra. The width of body is measured at the widest point of the elytra. The lateral margin carinae of pronotum and elytra are given as seen in dorsal

view. The basal striae may be very shallow and inconspicuous in humeral areas of the elytra: they are better to be observed in diffused light. The length and width of mesepimera and metanepisterna refer to their exposed portion. The number of abdominal ventrites is that of the free visible ventrites. The length of the aedeagi is measured without eventually extruded parts of the internal sacs. The aedeagi were cleared in isopropanol and mounted in Canada balsam on acetate slides fixed on the same pins as the specimens. The aedeagi are "lying on side", i.e. rotated to 90°. Their respective sides as given refer to the morphological sides, with the ostium situated dorsally.

Most of the examined specimens were extracted from litter in winkler-moczarski devises (see Löbl, 1992) and in berlese funnels. Material collected by L. Deharveng and J. Orousset in 1979/1980 was unfortunately kept too long in an inappropriate way and is in poor condition, hardly suitable for study.

The primary types and other examined material are housed in the following collections:

- EUMJ Ehime University Museum, College of Agriculture, Matsuyama, Japan.
 FMNH Field Museum of Natural History, Chicago, USA.
 MHNG Muséum d'histoire naturelle, Geneva, Switzerland.
 MNHN Muséum National d'Histoire Naturelle, Paris, France.
 SMNS Staatliches Museum für Naturkunde, Stuttgart, Germany.
 ZMUB Zoologisches Museum, Museum für Naturkunde, Berlin, Germany.
 ZMUK Zoological Museum, University, København, Denmark.

TAXONOMY

Baeocera Erichson, 1845

Several informal species groups were recognized within the genus (see Löbl, 1992, 2012, Löbl & Stephan, 1993). They were based mainly on aedeagal characters that exhibit conspicuous variations, compared to other genera of Scaphidiinae, with the notable exception of *Scaphisoma* Leach, 1815. Four species groups are represented among the Philippine collections: the *B. brevicornis* group, the *B. lenta* group, the *B. ceylonensis* group, and the *B. monstrosa* group. These groups were defined by Löbl, 1971a, 1979, and 1992. The members of the *B. brevicornis* group have simple aedeagi that do not provide diagnostic characters easy to use. It is with five species comparatively species-rich in the Philippines, and includes both species that have reduced hind wings, *B. bicolorata* Löbl and *B. profana* sp. nov. The species of the other three groups possess highly derived aedeagi. As elsewhere in south-east Asia, the more species-rich is the *B. lenta* group. The *B. ceylonensis* and *B. monstrosa* groups are represented in the Philippines only by one or two species, respectively.

KEY TO THE PHILIPPINE SPECIES OF *BAEOCERA*

- 1 Elytron with sutural stria shorten, starting posterior level of pronotal lobe, basal stria absent *B. mindanaosa* sp. nov.
 - Elytron with sutural stria not shorten, starting at base, curved along pronotal lobe and usually extended along basal margin of elytron to form basal stria 2

- 2 Elytron with sutural stria curved along basal margin to form complete basal stria extended to sides and joined with lateral stria 3
- Elytron with sutural stria curved at base to form short, incomplete basal stria, not reaching sides and not joined with lateral stria 14
- 3 Basal area of hypomeron distinctly punctate. Metanepisternal suture indistinct *B. hypomeralis* sp. nov.
- Hypomeron impunctate, or with even, very fine punctation. Metanepisternal suture often distinct 4
- 4 Lateral parts of metaventrite, submesocoxal punctures excepted, very finely punctate or impunctate. Larger species, body about 1.9 to 2.2 mm long 5
- Most of metaventrite conspicuously coarsely punctate. Smaller species, body about 1.0 to 1.8 mm long 6
- 5 Antennomere XI much longer than antennomere X, about 4.5 times as long as wide *B. alticola* sp. nov.
- Antennomere XI slightly longer than antennomere X, about 3 times as long as wide *B. fortis* sp. nov.
- 6 Elytra darken apically. Antennae conspicuously short, antennomeres IX ad X each about 1.3 times as long as wide *B. bicolorata* Löbl
- Elytra uniformly reddish-brown to black, or becoming lighter near apical margins. Antennae long, antennomeres IX and X each much longer than wide 7
- 7 Metanepisterna distinct, clearly separated by deep suture. Sides of metaventrite with coarse punctures irregularly spaced, at least some puncture intervals larger than puncture diameters 8
- Metanepisterna indistinct, not separated by clearly visible suture, with inner margin indicated by outer row of coarse punctures, eventually by fine stria. Sides of metaventrite very densely punctate, puncture intervals smaller than, or about as large as puncture diameters 11
- 8 Elytron with coarse discal punctation extended apically to, or almost to, apical margin 9
- Elytron with coarse discal punctation restricted onto smaller surface, areas near basal margin, along suture and at least entire apical third of disc very finely punctate, often appearing impunctate 10
- 9 Sides of metaventrite conspicuously irregularly punctate. Abdominal ventrite 1 lacking distinct punctures, or with few scattered, variably large punctures posterior basal puncture row. Hind wings not reduced *B. brunnea* (Löbl)
- Sides of metaventrite almost regularly punctate, except for smooth area near apical margin. Sides of abdominal ventrite 1 distinctly punctate. Hind wings reduced *B. profana* sp. nov.
- 10 Fairly large species, body 1.50-1.80 mm long. Lateral parts of metaventrite with punctation conspicuously irregular *B. palawana* (Löbl)
- Small species, body 1.15-1.35 mm long. Lateral parts of metaventrite with punctation regular *B. simoni* (Pic)

- 11 Larger species, body 1.5 mm long. Coarse elytral punctures about as large as puncture intervals and in anterior two thirds of disc extended up to sutural stria. Aedeagus with parameres narrowed apically . *B. boettcheri* (Löbl)
- Smaller species, body 1.2-1.3 mm long. Coarse elytral punctures either much smaller than puncture intervals, or restricted onto lateral part of disc 12
- 12 Abdominal ventrite 1 usually with distinct basal longitudinal wrinkles. Distinctly punctate area of elytron extending to, or almost to, sutural stria. Aedeagus with parameres straight and slightly widened apically in dorsal view *B. procerula* sp. nov.
- Abdominal ventrite 1 lacking wrinkles. Distinctly punctate area of elytron restricted onto outer surface, eventually few coarse punctures situated also on inner part of elytral disc. Aedeagus with parameres slightly arcuate, not widened apically in dorsal view 13
- 13 Antennomeres VII and VIII each about 4 times as long as wide. Aedeagus with parameres distinctly widened in middle *B. louisi* sp. nov.
- Antennomeres VII and VIII each about 2.5 to 3 times as long as wide. Aedeagus with parameres not widened in middle *B. danielae* sp. nov
- 14 Entire surface of elytral disc with even, coarse punctation. Abdominal ventrite 1 not rugulose at base, with coarse, irregular punctation, basal punctures not elongate *B. wolfgangi* sp. nov.
- Large surface of elytral disc very finely punctate, coarse punctures restricted onto smaller surface 15
- 15 Most of abdominal ventrite 1 coarsely punctate *B. globosa* (Pic)
- Abdominal ventrite 1 very finely punctate posterior basal punctures, appearing impunctate 16
- 16 Aedeagus with parameres notched mesally, in level of tip of median lobe . . 17
- Aedeagus with parameres not notched, abruptly narrowed posterior mid-length *B. jeani* sp. nov.
- 17 Internal sac of aedeagus with basal tuft of spine-like structures . *B. dilutior* Löbl
- Internal sac of aedeagus without spine-like structures 18
- 18 Parameral notches situated posterior mid-third of parameres, section of parameres posterior notch distinctly narrower than section anterior notch *B. jankodadai* sp. nov.
- Parameral notches situated in mid-third of parameres, section of parameres posterior notch hardly narrower than section anterior notch *B. jejuna* sp. nov.

Baeocera serendibensis group

Baeocera bicolorata Löbl, 1979

Figs 1-3

Eubaeocera bicolor Löbl, 1972: 80; holotype ♂, ZMUB, type locality: "Heightspe".

Baeocera bicolorata Löbl, 1979: 86, replacement name for *Eubaeocera bicolor* Löbl, 1972 (nec *Baeocera bicolor* Achard, 1920).

MATERIAL EXAMINED: 1 ex., LUZON, Mountain Prov., Sogong Cave Valley, 21.XII. 1979, leg. L. Deharveng & J. Orousset #79 (MHNG). – 1 ex., Mountain Prov., Mt. Nangaoto,

2240m, 27.VII.1985, leg. M. Sakai (MHNG). – 6 ex., Ifougao Prov., Mount Data Lodge, 2200-2300m, 23-24.XII.1979, leg. L. Deharveng & J. Orousset #85, 97, 105, 106 (MHNG). – 4 ex., Mount Data, near Lodge, 8.I.90, J. Orousset #165 (MHNG). – 1 ex., Ifougao Prov., Mt. Pangao, 2350m, nr. Data, 14.VII.1985, leg. M. Sakai (EUMJ). – 7 ex., Benguet Prov., Paoy 2400 nr. Sayangan, 11.VII.1985, leg. M. Sakai (EUMJ, MHNG). – 2 ex., Banguio Prov., 1500 near Crystal Caves, 1-2.I.1980, leg. L. Deharveng & J. Orousset #128 (MHNG). – 3 ex., Banguio, Mt. Santo Thomas, ca. 2150m, 14.I.80, leg. L. Deharveng & J. Orousset #188, 190, 196 (MHNG).

HABITAT: Moderately and very moist moss on rocks, moss on trunks, forest floor humus, various vegetation debris.

DISTRIBUTION: Philippines, Luzon.

COMMENTS: The species was previously reported only from two localities, Heightspe and Dallalasan. It may be easily separated from its Philippine congeners by the colour pattern of the elytra and the conspicuously short antennae. "Heightspe" is possibly a misspelling of Heights Place, which is according to Preliminary Gazetteer, 1953, at 16°38' N and 120°44' E.

***Baeocera brunnea* (Löbl, 1972)**

Figs 4, 5

Eubaocera brunnea Löbl, 1972: 82; holotype ♂, ZMUB, type locality: SIARGAO, Surigao del Norte Prov., Dapa.

MATERIAL EXAMINED: 8 ex., LUZON, Lagunas Prov., Banahaw above Kinabuhayan, 800m, 25.XI.95, leg. I. Löbl (MHNG). – 5 ex., Lagunas Prov., Mt. Makiling above Mad Springs, 400-700m, 19-22.XI.1995, leg. J. Kodada (MHNG). – 1 ex., Lagunas Prov., Mt. Makiling, 450-550m, 20.XI.1995, leg. I. Löbl (MHNG). – 1 ex., Lagunas Prov., Los Banos, Watt. Weston (FMNH). – 1 ex., LEYTE, Visca N Baybay, prim. forest 200-500m, 22.II.-10.III.1991, leg. W. Schawaller & al. (SMNS).

HABITAT: Leaf litter and other floor debris, in primary forest and on slope of degraded rainforest.

DISTRIBUTION: Philippines, Luzon, Leyte, Siargao.

COMMENTS: The species was previously known only from the type locality, which has been mislocated in Mindanao. In addition to characters given in the key, the shape of the parameres is diagnostic (Figs 4, 5).

***Baeocera palawana* (Löbl, 1971)**

Figs 6-9

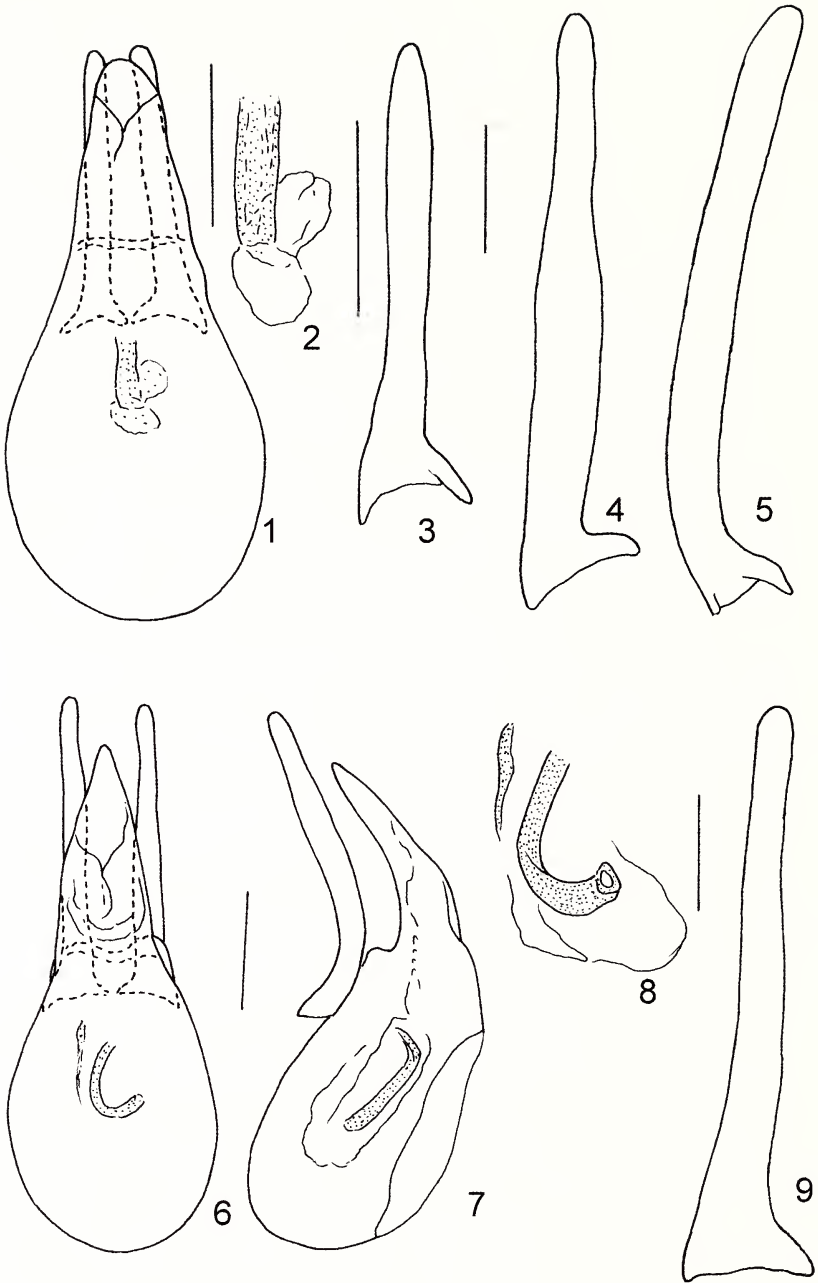
Eubaocera palawana Löbl, 1971b: 249; holotype ♀, ZMUK, type locality: PALAWAN, Brookes Point, Uring Uring.

MATERIAL EXAMINED: 1 ex., PALAWAN, Central Prov., Sadang, 30.XI.1995, leg. I. Löbl. – 1 ex., Central Prov., above San Rafael, 300m, 4.XII.1995, I. Löbl and 2 ex. with the same data but leg. J. Kodada (all MHNG).

HABITAT: Leaf litter, in primary forest and at edge of secondary, degraded forest, near sea level and on hills at low elevation.

DISTRIBUTION: Philippines, Palawan.

COMMENTS: The description of *B. palawana* was based on a single female from Uring Uring, Palawan. The newly examined specimens are smaller than the holotype, with the body 1.50-1.60 mm long and 1.05-1.15 mm wide. The aedeagus of *B. palawana* (Figs 6-9) is 0.45 mm long and similar to that in other species of the *B. serendibensis* group. In particular, it reminds that of *B. brunnea* (Löbl), although the shape of



FIGS 1-9

(1-3) *Baeocera bicolorata* Löbl, aedeagus (1), internal sac (2) and paramere (3) in dorsal view; scale bar = 0.1 mm for aedeagus, = 0.05 mm for internal sac and paramere. (4, 5) *Baeocera brunnea* (Löbl), paramere in dorsal and lateral views; scale bar = 0.05 mm. (6-9) *Baeocera palawana* (Löbl), aedeagus (6, 7) in dorsal and lateral views, internal sac (8), paramere in ventral view (9); scale bar = 0.1 mm for the aedeagus, = 0.05 mm for internal sac and paramere.

the parameres is different. These two species may be distinguished by the pattern of the coarse elytral punctation which is limited onto a strongly reduced surface of the disc in *B. palawana*.

***Baeocera profana* sp. nov.**

Figs 10-13

HOLOTYPE: ♂, LUZON, Mountain Prov., Sagada, 15-19.XII.1979, leg. L. Deharveng & J. Orousset #49 (MHNG).

PARATYPES: 1 ♂, LUZON, Mountain Prov. N & NE of Sagada 15-19.XII.1979, leg. L. Deharveng & J. Orousset #68. – 2 ♂ with the same data but #39. – 1 ♀, with the same data but #43. – 1 ♂ with the same data but #49. – 1 ♂, with the same data but # 50. – 1 ♀, with the same data but #51. – 1 ♀, with the same data but #53. – 1 ♀ with the same data but #55. – 1 ♂ with the same data but #143 (all MHNG).

DESCRIPTION: Length 1.40-1.55 mm, width 0.95-1.05 mm. Body, femora and tibiae uniformly reddish-brown to blackish, apex of abdomen, antennae and tarsi lighter than body. Body moderately convex dorsally. Eyes large. Length ratio of antennomeres as: III 7: VI 10: V 13: VI 11: VII 15: VIII 11: IX 13: X 13: XI 15. Antennomeres III to V almost evenly narrow, VI slightly wider than V; VII moderately wide, about 4 times as long as wide; VIII about as wide as VI, about 4 times as long as wide; IX to XI distinctly wider than VII, XI about 2.5 times as long as wide. Pronotum and elytra without microsculpture, with lateral contours almost continuously arcuate; pubescence visible at 50 times magnification. Pronotum very finely punctate, with lateral margins strongly convex, lateral margin carinae concealed in dorsal view. Scutellum concealed. Elytra not covering apex of abdomen. Elytron with sutural stria fairly deep, curved at base to form basal stria joined with lateral stria, adsutural area flat or slightly raised. Elytral punctation similar to pronotal punctation on humeral area and along lateral margin; remaining surface fairly coarsely punctate, with puncture intervals about as large to 3 times as large as puncture diameters. Hind wings reduced. Hypomera impunctate. Mesepimera flat, about 2.5 to 3 times as long as wide and about 3 times as long as interval to mesocoxa. Metaventrite somewhat convex in middle, with centre impunctate, around centre distinctly punctate. Lateral parts of metaventrite impunctate in front of metacoxa, coarsely punctate on remaining surface; some coarse punctures about as large as or larger than puncture intervals. Submesocoxal lines parallel or somewhat arcuate, with very coarse marginal punctures extended along anapleural suture. Submesocoxal area about 0.03 to 0.04 mm long, shortest interval between its margin and metacoxa about 0.09-0.10 mm. Metanepisterna flat, 0.08-0.10 mm wide, weakly narrowed anteriorly, with coarsely punctate suture. Metepimera striate along inner margin. Abdominal ventrite 1 lacking microsculpture, with basal punctures coarse and slightly elongate, interrupted in middle and extended to lateral margins. Punctation very fine on entire mesal area and along apical margin up to lateral margins, distinct and irregular on lateral surface posterior basal punctures row. Tibiae slightly curved.

Male characters: Tarsomeres 1 to 3 of forelegs barely widened. Aedeagus as in Figs 10-13, 0.36-0.38 mm long. Median lobe moderately sclerotized.

HABITAT: The specimens were in samples of soil, humus, sieved litter, and moss on trunks.

DISTRIBUTION: Philippines, Luzon.

ETYMOLOGY: The species epithet is a Latin adjective meaning common.

COMMENTS: This species may be readily distinguished from other Philippine members of the *B. serendibensis* group by its punctuation pattern. It shares with *B. bicolorata* Löbl reduced hind wings and comparatively short metaventrite, but it may be easily separated from latter by the larger body, much longer antennae that are similar to and still longer than those in *B. procerula*, and much coarser elytral punctuation covering almost entire disc. The elytral punctuation is similar in the widely distributed *B. serendibensis* (Löbl) and in the Taiwanese *B. sauteri* Löbl. These two species have, however, fully developed hind wings and comparatively longer metaventrite. *Baeocera serendibensis* may be distinguished also by the mesal part of abdominal ventrite 1 distinctly punctate.

***Baeocera simoni* (Pic)**

Figs 14-16

Scaphosoma simoni Pic, 1920: 5; holotype ♀, MNHN; type locality: LUZON, Antipolo.
Eubaeocera simoni; Löbl, 1971a: 248.

MATERIAL EXAMINED: 2 ♂, LUZON, Lagunas Prov., Mt. Banahaw above Kinabuhayan, 800m, 26.XI.95, leg. I. Löbl for. litter. – 1 ♂, Lagunas Prov., Mt. Banahaw above Kinabuhayan, 600m, 24.XI.95, leg. I. Löbl, degraded rainforest, fungi on log. – 1 ♂, 1 ♀, Lagunas Prov., Mt. Banahaw ca 1 km Kinabuhayan, 500m, 26.XI.95, leg. I. Löbl, litter degr. forest. – 1 ♂, Lagunas Prov., Mt. Makiling, 450-550 m, 20.XI.1995, leg. I. Löbl, leaf litter. – 1 ♂, Lagunas Prov., Mt. Makiling above Mad Springs, 400-700m, 19.-22.XI.1995, leg. J. Kodada (all MHNG).

COMMENTS: This species was previously known only by the female holotype, and it was redescribed by Löbl, 1972. The basal wrinkles of the first abdominal ventrite are variably long, always distinct. The aedeagus is illustrated for the first time in the present paper.

REDESCRIPTION: Length 1.15-1.32 mm, width 0.80-0.95 mm. Body, femora and tibiae uniformly reddish-brown, apex of abdomen, antennae and tarsi lighter. Body moderately convex dorsally. Eyes fairly large. Length ratio of antennomeres as: III 6: VI 8: V 10: VI 10: VII 11: VIII 8: IX 10: X 11: XI 12. Antennomeres III and IV almost evenly narrow; V and VI almost even, each slightly wider than IV; VII moderately wide, about 3.5 times as long as wide; VIII distinctly wider than VI, slightly narrower than VII, about 3 times as long as wide; IX to XI distinctly wider than VII, XI about 2.5 times as long as wide. Pronotum and elytra without microsculpture, with lateral contours separately arcuate; pubescence visible at 50 times magnification. Pronotum very finely punctate, with lateral margins strongly convex, lateral margin carinae concealed in dorsal view. Scutellum concealed. Elytra not covering apex of abdomen, with lateral carinae concealed or shortly exposed near base. Elytron with sutural stria fairly deep, curved at base to form basal stria joined with lateral stria, adsutural area flat. Elytral punctuation almost evanescent or very fine and similar to pronotal punctuation on areas along base, sutural stria, lateral margin, and on apical third to half of discal surface; remaining surface fairly finely punctate, with puncture intervals about 2 to 3 times as large as puncture diameters. Hind wings not reduced. Hypomera impunctate. Mesepimera flat, about 2.5 times as long as wide and about twice as long as interval to mesocoxa. Metaventrite somewhat convex in middle, with centre

impunctate, around centre distinctly punctate. Lateral parts of metaventricle impunctate on large basal area, rather coarsely punctate on remaining surface; coarse puncture about as large as, or smaller than, puncture intervals. Submesocoxal lines somewhat arcuate, with fairly coarse marginal punctures extended along anapleural suture. Submesocoxal area about 0.03-0.04 mm long, shortest interval between its margin and metacoxa about 0.10 mm. Metanepisterna flat, 0.04-0.07 mm wide, weakly narrowed anteriorly, with distinct, punctate suture. Metepimera deeply sulcate. Abdominal ventrite 1 lacking microsculpture, with basal puncture row not or barely interrupted in middle and extended to lateral margin, consisting of fairly coarse and elongate punctures. Punctuation posterior basal puncture row very fine, few additional distinct punctures sometimes present. Tibiae straight.

Male characters: Tarsomeres 1 to 3 of forelegs barely widened. Aedeagus as in Figs 14-16, 0.32-0.38 mm long. Median lobe moderately sclerotized.

HABITAT: Specimens were found in sieved leaf and other forest floor debris and in moss on logs, in degraded rainforests, at altitudes ranging from 400 to 800m above s. l.

DISTRIBUTION: Philippines, Luzon.

COMMENTS: This species is a member of the *B. serendibensis* group. In addition to the distinguishing characters given in the key above, it may be separated from *B. palawana* (Löbl) and *B. brunnea* (Löbl) by the smaller size of the body, and by the aedeagus with angulate ventral wall of the median lobe, at base of the apical process (seen in lateral view).

Baeocera lenta group

Baeocera boettcheri (Löbl)

Figs 17, 18

Eubaeocera boettcheri Löbl, 1972: 83; holotype ♂, ZMUB, type locality: LUZON, Nueva Vizcaya Prov., Imugan.

DISTRIBUTION: Philippines, Luzon.

COMMENTS: This species is 1.5 mm long. Thus, it is large compared to other Philippine members of the group, and well characterized by the entire basal striae and extended coarse punctuation of the elytra. The shape of parameres and of the structures of the internal sac of the aedeagus (Figs 17, 18) are diagnostic. The species was not found in the new collections and remains known only by its holotype.

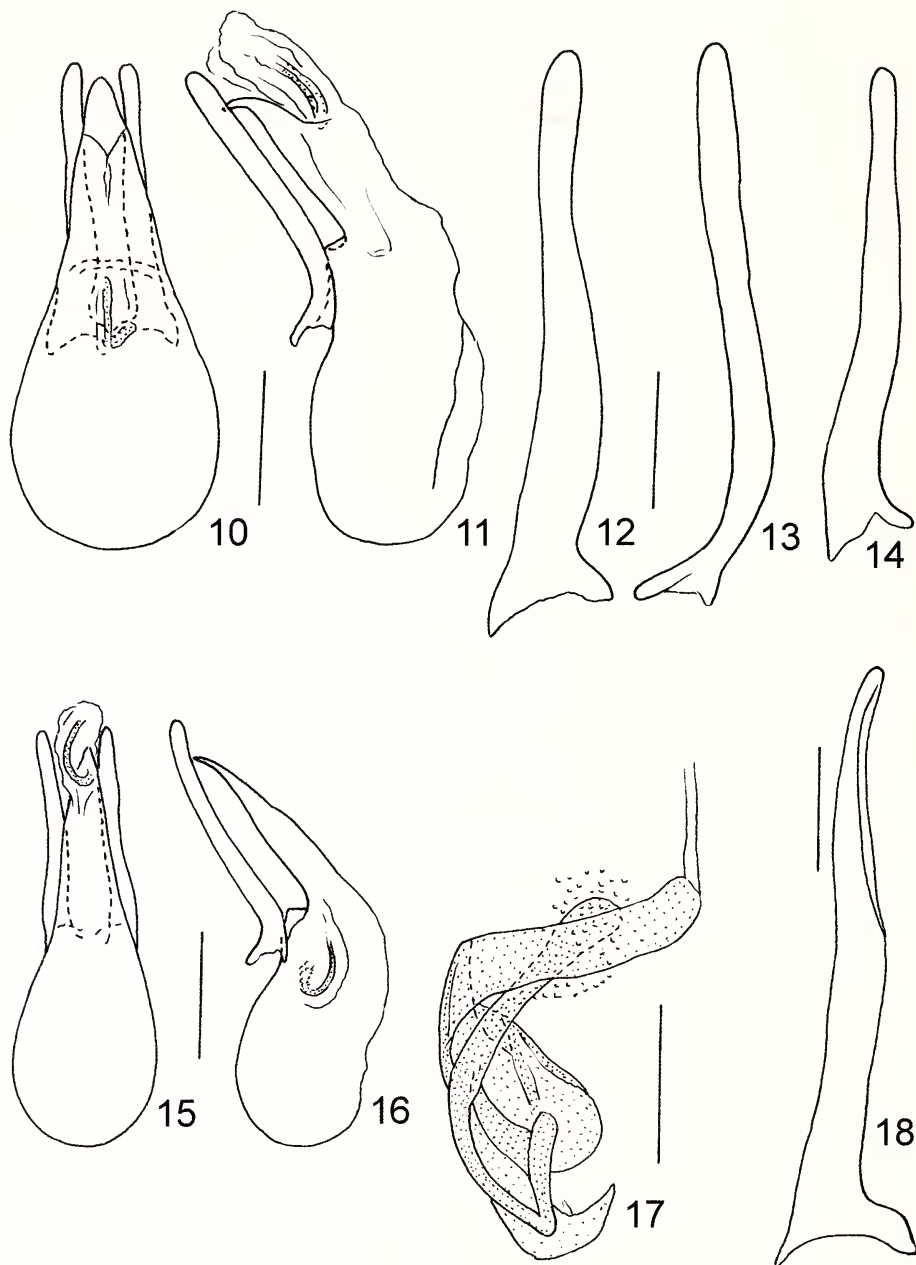
Baeocera danielae sp. nov.

Figs 19-22

HOLOTYPE: ♂, LUZON, Lagunas Prov., Mt. Banahaw above Kinabuhayan, Cristalino trail, 600-700m, 24.XI.95, leg. I. Löbl, forest litter (MHNG).

PARATYPES: 2 ♂, 1 ♀, LUZON, Lagunas Prov., Mt. Makiling 4 km SE Los Banos, 8.IV.1977 / berlese forest litter, leg. L. Watrous (all MHNG).

DESCRIPTION: Length 0.92-0.96 mm, width 0.60-0.68 mm. Body convex dorsally, dark brown, apices of elytra slightly lighter, femora and tibiae reddish-brown, tarsi and antennae almost yellowish. Eyes large. Length ratio of antennomeres as: III 8: VI 7: V 7: VI 6: VII 8: VIII 7: IX 10: X 10: XI 11. Antennomeres III to VI evenly



FIGS 10-18

(10-13) *Baeocera profana* sp. n., aedeagus (10, 11) in dorsal and lateral views, paramere (12, 13) in dorsal and lateral views; scale bar = 0.1 mm for aedeagus, = 0.05 mm for paramere. (14-16) *Baeocera simoni* (Pic), paramere (14) in dorsal view, aedeagus (15, 16) in dorsal and lateral views; scale bar = 0.1 mm for aedeagus, = 0.05 for paramere. (17-18) *Baeocera boettcheri* (Löbl), internal sac (17) and paramere (18) in dorsal view; scale bars = 0.05 mm.

narrow; VII about 3 times as long as wide, much wider than VI; VIII distinctly wider than VI, about 2.5 times as long as wide; IX to XI each distinctly wider than VII, XI about 2.5 times as long as wide. Pronotum and elytra without microsculpture, with lateral contours almost continuously arcuate; pubescence visible at 50 times magnification. Pronotum extremely finely punctate, with lateral margins strongly convex, lateral margin carinae concealed in dorsal view. Scutellum concealed, or its minute tip visible. Elytra almost covering apex of abdomen, with lateral carinae concealed in dorsal view. Elytron with sutural stria fine, curved along basal margin to form basal stria. Latter very shallow and hardly visible in outer half of basal width. Elytral punctation very fine on most of surface, narrow patch of less fine punctures situated on lateral area, starting somewhat posterior base and extended about to elytral mid-length. Hind wings not reduced. Hypomera impunctate. Mesepimera flat, comparatively large, about 3 times as long as wide and about 4 times as long as interval to mesocoxa. Metaventrite slightly convex in middle, with fairly large impunctate central area, around centre distinctly, rather finely punctate. Lateral parts of metaventrite impunctate near metacoxae, rather finely, irregularly punctate on remaining surface, punctures becoming somewhat larger toward anterior part of metanepisterna. Submesocoxal lines parallel, with marginal punctures about as large as those around smooth centre of metaventrite, not extended along anapleural suture. Submesocoxal area about 0.02 to 0.03 mm long, shortest interval between its margin and metacoxa about 0.07 mm. Metanepisterna flat, fused to metaventrite, suture indicated by outer row of puncture lying in somewhat impressed stria. Metepimera with slightly carinate inner margin. Abdominal ventrite 1 lacking microsculpture, with basal punctures moderately coarse, not elongate, contiguous in middle, extended to lateral margins; basal rugosity absent. Punctuation very fine posterior basal puncture row. Tibiae straight.

Male characters: Tarsomeres 1 to 3 of forelegs hardly widened. Aedeagus as in Figs 19-22, 0.24-0.27 mm long. Median lobe moderately sclerotized.

DISTRIBUTION: Philippines, Luzon.

ETYMOLOGY: The species is named in honour of my wife Daniela, in acknowledgement to her efficient assistance under difficult field conditions.

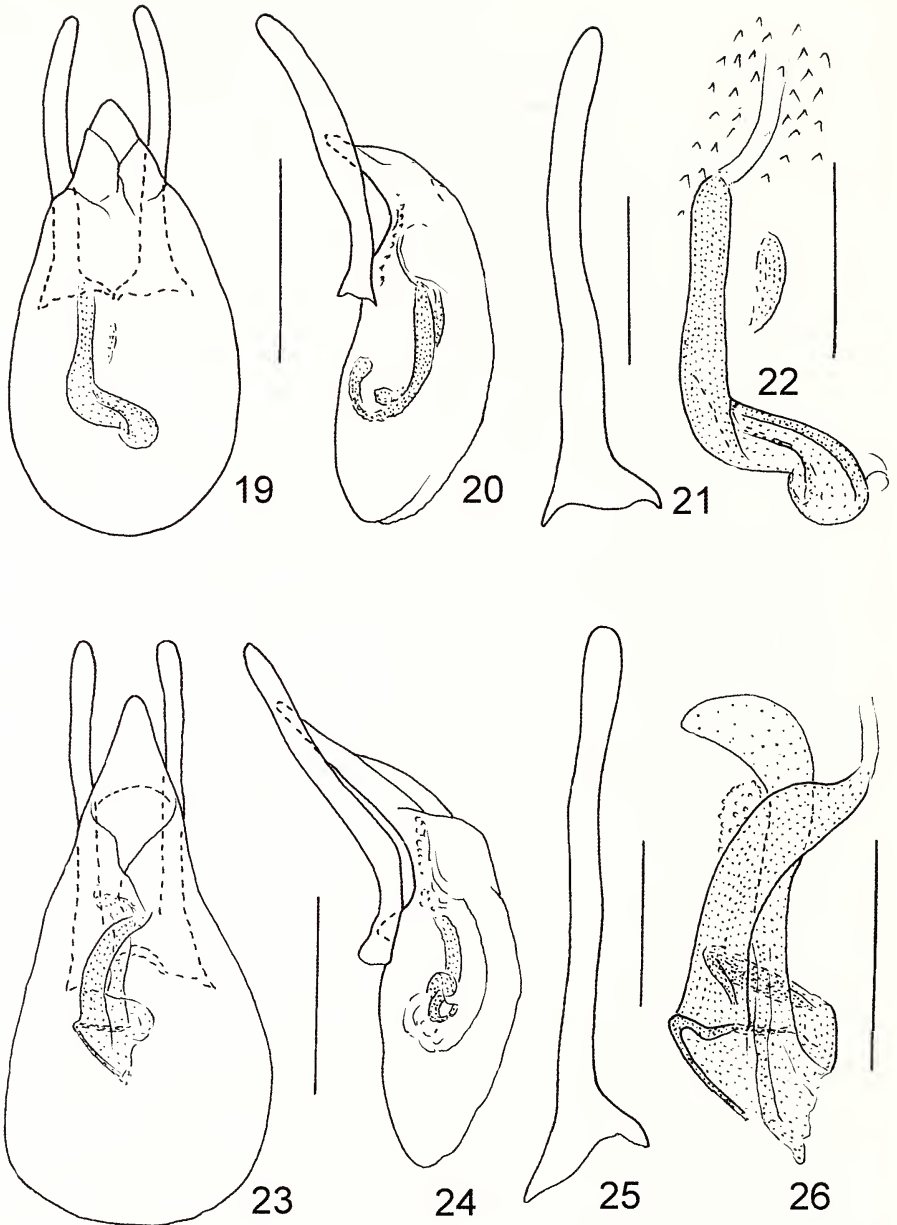
COMMENTS: This species may be distinguished from other members of the *B. lenta* group by its elytral punctation distinct only on a very small lateral surface, in combination with the short antennae, the entire sutural striae of the elytra, and the parameres not widened in middle.

***Baeocera globosa* (Pic, 1926)**

Figs 23-26

Scaphosoma globosum Pic, 1926: 1; lectotype ♀, MNHN; type locality: LUZON, Balbalan.
Eubaeocera globosa; Löbl, 1971a: 248.

MATERIAL EXAMINED: 4 ex., LUZON, Lagunas Prov., Mt. Makiling, 450-550m, 20.IX.1995, leg. I. Löbl. – 1 ex., same but 400m, summit road, 19.XI.1995. – 1 ex., same but near Mad Springs, 400-450m, 19.XI.95. – 30 ex., Lagunas Prov., 4 km SE Los Banos, 8., 9., and 11. IV.1977, leg. L.E. Watrous. – 11 ex., Lagunas Prov., Mt. Makiling above Mad Springs, 400-700m, 19.-22.XI.1995, leg. J. Kodada. – 22 ex., Lagunas Prov., Mt. Banahaw above Kinabuhayan, Cristalino trail, 600-700m, 24.XI.95, leg. I. Löbl. – 2 ex., Lagunas Prov., Mt. Banahaw near school about 1 km from Kinabuhayan, 600m, 28.IX.1995, leg. J. Kodada. –



FIGS 19-26

(19-22) *Baeocera danielae* sp. n., aedeagus (19, 20) in dorsal and lateral views, paramere (21) and internal sac (22) in dorsal view; scale bar = 0.1 mm for aedeagus, = 0.05 mm for paramere and internal sac. (23-26) *Baeocera globosa* (Pic), aedeagus (23, 24) in dorsal and lateral views, paramere (25) and internal sac (26) in dorsal view; scale bar = 0.1 mm for aedeagus, = 0.05 mm for paramere and internal sac.

27 ex., Mountain Prov. N. & NE Sagada, 15-19.XII.1979, leg. L. Deharveng & J. Orousset #39, 41, 44, 53, 68, 143. – 1 ex., Mountain Prov., Mount Data Lodge, 2200-2300m, 23-24.XII.79, leg. L. Deharveng & J. Orousset #168. – 1 ex., Mountain Prov., Ambasing, 1440m, 16.XII.1979, leg. L. Deharveng & J. Orousset # 18. – 1 ex., Banguio Prov., Banguio, 1500m near Crystal Caves, 1-2.I.1980, leg. L. Deharveng & J. Orousset #128 (all MHNG).

HABITAT: Leaf litter and other forest floor debris in evergreen rainforest and mountain forest, ranging from 400 to about 2300m above sea level.

DISTRIBUTION: Philippines, Luzon.

COMMENTS: The description of this species was based on a female from "Balbalan, Luzon" (MNHN), originally placed in *Scaphisoma* Leach. Löbl (1971b) transferred it to *Eubaocera* Cornell, 1967 (a junior synonym of *Baeocera* Erichson, 1845), and provided its redescription (Löbl, 1972). The aedeagal characters of *B. glabosa* are illustrated in Figs 23-26.

***Baeocera hypomerilis* sp. nov.**

Figs 27-30

HOLOTYPE: ♂, LUZON, Lagunas Prov., Mt. Banahaw above Kinabuhayan, Cristalino trail, 600-700m, 24.XI.95, I. Löbl, forest litter (MHNG).

PARATYPES: 4 ♀, with the same data as the holotype (MHNG). – 1 ♀, same data but 500m, litter, degraded rainforest (MHNG). – 1 ♀, LUZON, Lagunas Prov., Mt. Banahaw 1 km from Kinabuhayan 600m, 26.XI.95, I. Löbl, litter, degraded rainforest (MHNG). – 1 ♀, with the same data but near school. – 2 ♂, 1 ♀, with same data as holotype but 600-700m, trail to Cristalino, leg. J. Kodada and B. Rygová (MHNG). – 1 ♀, Lagunas Prov., Mt. Banahaw 1 km from Kinabuhayan 600m, 26.XI.95, leg. J. Kodada and B. Rygová (MHNG). – 1 ♂, LEYTE, Visca N Baybay cultiv. land, 3.3.1991, leg. W. Schawaller & al. (SMNS). – 7 ♂, 14 ♀, MINDANAO, Davao Prov., 25 km W of New Batan, 1200m, 20-22.V.1996, leg. Bolm (SMNS, MHNG).

DESCRIPTION: Length 1.40-1.70 mm, width 0.98-1.20 mm. Body fairly strongly convex, dark reddish-brown, pronotum usually slightly darker than elytra, abdomen, femora and tibiae slightly lighter than elytra, tarsi and antennomeres I and II light reddish-brown, antennomeres III to XI light, yellowish. Eyes large. Length ratio of antennomeres as: III 14: IV 14: V 15: VI 14: VII 17: VIII 14: IX 18: X 17: XI 19. Antennomeres III to VI narrow, evenly narrow, each about 6 to 7 times as long as wide; VII distinctly wider than VI, about 5 times as long as wide; VIII somewhat narrower than VII, almost 5 times as long as wide; IX to XI wider than VII, XI about 4 times as long as wide. Pronotum and elytra lacking microsculpture, pubescence indistinct at 50 times magnification. Lateral contours of pronotum and elytra almost continuously rounded. Pronotum with lateral margin carina concealed in dorsal view, punctation fine and dense. Hypomeron with fairly coarse punctures on lower area of its posterior half, appearing impunctate on remaining surface. Tip of scutellum exposed. Elytra moderately narrowing apically, with lateral margin carina visible near base in dorsal view, lateral margins almost evenly arcuate, sutural striae deep, curved basally to form shallow basal striae reaching sides and joined with lateral striae. Basal halves of elytra coarsely punctate, most puncture diameters somewhat smaller than puncture intervals. Adsutural areas of elytra flat, in basal halves with very dense and fairly coarse punctures. Apical third to half of elytra very finely punctate. Hind wing not reduced. Mesepimeron about twice as long as interval between its tip and mesocoxa, and about

3 times as long as wide. Metaventrite flattened in middle, impunctate on small central area, with rather coarse and dense punctures on remainder of median surface, conspicuously coarsely punctate laterally, in particular near anterior margins. Metacoxal process flat, punctate. Submesocoxal lines parallel, with coarse, not elongate marginal punctures. Submesocoxal areas 0.03 mm long. Metanepisternum very narrow, its margin indicated by impressed puncture row. Metepimeron impressed and flat along inner margin. Abdominal ventrite 1 lacking obvious microsculpture, with basal punctures coarse and somewhat elongate, not rugulose; remaining punctation very fine. Following ventrites very finely punctate, with barely visible punctulate microsculpture. Protibiae and mesotibiae barely curved, metatibiae straight.

Male characters: Protarsomeres barely widened. Aedeagus as in Figs 27-30, 0.38-0.43 mm long, moderately sclerotized.

HABITAT: Forest floor litter, mainly moist leaves, found in evergreen, degraded forests.

DISTRIBUTION: Philippines, Luzon, Leyte, Mindanao.

ETYMOLOGY: The species epithet refers to the prothoracic hypomera.

COMMENTS: This species may be easily separated from its Philippine congeners by the presence of distinct hypomeral punctures. Other species of the group possessing distinctly punctate hypomera are *B. cribrata* Löbl, 1992, *B. puncticollis* Löbl, 1977, and *B. microptera* Löbl, 1986, known from Pakistan, northern India and Nepal, and an undescribed species from Thailand (see Löbl, 1990, 1997). *Baeocera hypomeralis* may be easily distinguished from these species by the entire basal striae of the elytra. *Baeocera puncticollis* and the Thai species differ conspicuously by the comparatively coarse pronotal punctation, and *B. cribrata* and *B. puncticollis* differ by strongly shortened sutural striae. In addition, *B. cribrata* has the entire hypomera coarsely punctate, and *B. microptera* has also the mesanepisterna distinctly punctate.

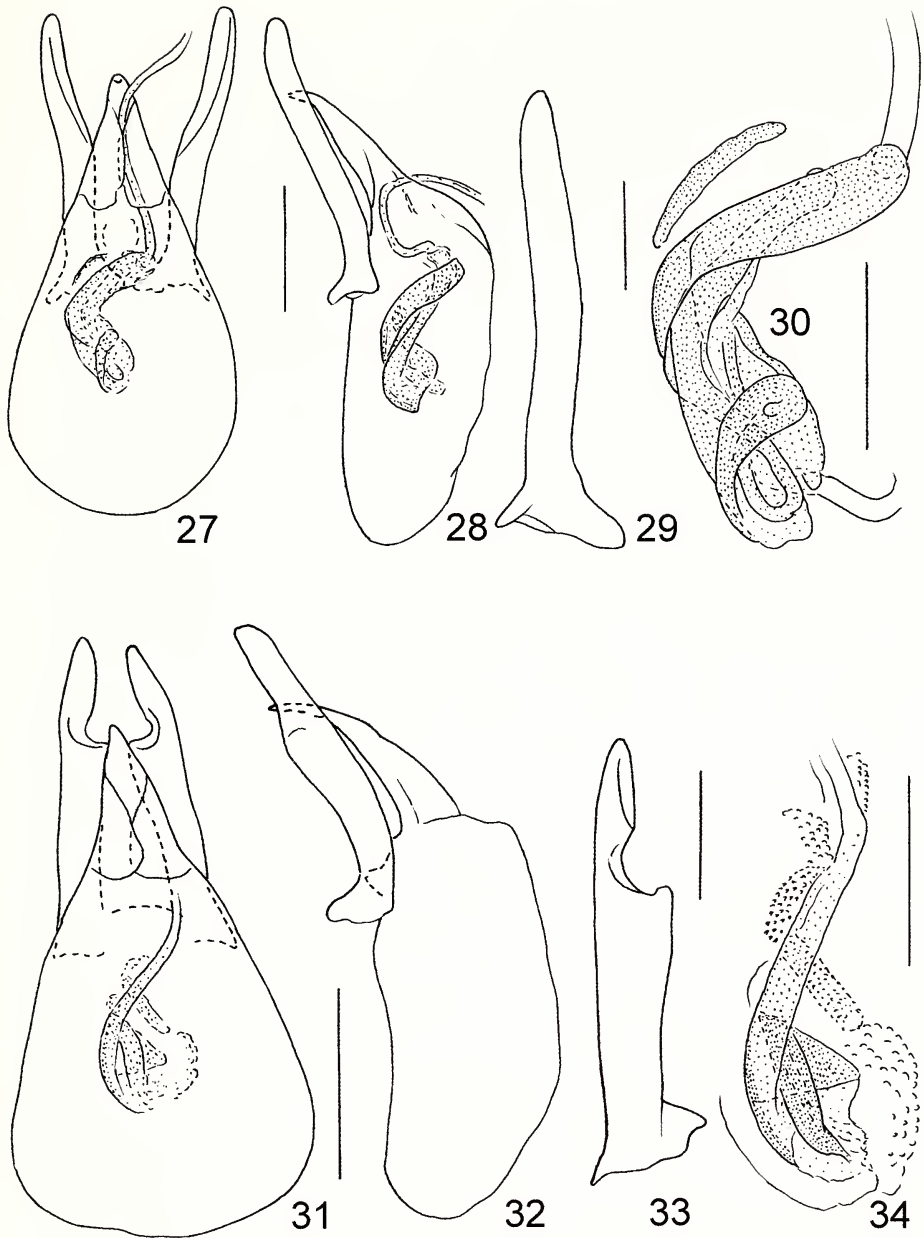
***Baeocera jankodadai* sp. nov.**

Figs 31-34

HOLOTYPE: ♂, PALAWAN, Central Prov., San Rafael, 300m, leaf litter sec. forest, leg. I. Löbl, 4.XII.95 (nr. 13) (MHNG).

PARATYPES: 3 ♂, 3 ♀, with the same data as the holotype. – 7 ♂, 5 ♀, PALAWAN, Central Prov., above San Rafael, ca 300m, degraded forest on slope, 4.XII.1995, leg. J. Kodada. – 2 ♀, Central Prov., Sabang, prim. forest nr. sea 30.XI.1995, leaf litter, leg. I. Löbl. – 5 ♂, 2 ♀, Central Prov., Conception, large logs across Conception river, NE San Rafael, ca 20m, 8.XII.1995, leg. J. Kodada & B. Rygová (all MHNG).

DESCRIPTION: Length 1.0-1.20 mm, width 0.65-0.80 mm. Body convex dorsally, dark brown or dark reddish-brown, femora and tibiae lighter, apex of abdomen, tarsi and antennae yellowish. Eyes large. Length ratio of antennomeres as: III 5: IV 6: V 7: VI 7: VII 10: VIII 6: IX 9: X 10: XI 11. Antennomeres III, IV and VI evenly narrow, V slightly wider than IV, about 4 times as long as wide, VI about 5 times as long as wide; VII comparatively narrow, slightly wider than V, about 4 times as long as wide; VIII distinctly narrower than VII, about 3 times as long as wide; IX to XI each distinctly wider than VII, XI about 3 times as long as wide. Pronotum and elytra without microsculpture, with lateral contours separately arcuate; pubescence visible at 50



FIGS 27-34

(27-30) *Baeocera hypomerilis* sp. n., aedeagus (27, 28) in dorsal and lateral views, paramere (29) and internal sac (30) in dorsal view; scale bar = 0.1 mm for aedeagus, = 0.05 mm for paramere and internal sac. (31-34) *Baeocera jankodadai* sp. n., aedeagus (31, 32) in dorsal and lateral views, paramere (33) and internal sac (34) in dorsal view; scale bar = 0.1 mm for aedeagus, = 0.05 mm for paramere and internal sac.

times magnification. Pronotum very finely punctate, with lateral margin carinae concealed in dorsal view. Scutellum concealed. Elytra almost covering apex of abdomen, with lateral carinae concealed or shortly exposed near base. Elytron with sutural stria deep, curved at base to form basal stria reaching about basal mid-width, adsutural area flat. Elytral punctation almost evanescent or very fine, similar to pronotal punctation along base, on narrow strip along sutural stria and on entire apical third. Remaining surface of elytral disc with fairly coarse punctures, puncture intervals about 2 to 3 times as large as diameters of coarse punctures. Hind wings not reduced. Hypomera impunctate. Mesepimera flat, about 3 times as long as wide and about 4 times as long as interval to mesocoxa. Metaventrite somewhat convex in middle, with impunctate central surface small, around centre distinctly punctate. Lateral parts of metaventrite impunctate on posterior area; remaining surface with irregular, fairly coarse punctures. Punctures on lateral parts of metaventrite larger than those around centre, usually slightly elongate and larger than, or about as large as puncture intervals. Submesocoxal lines parallel, with marginal punctures about as large as those around centre of metaventrite, not extended along anapleural suture. Submesocoxal area about 0.02 to 0.03 mm long, shortest interval between its margin and metacoxa about 0.10 mm. Metanepisterna flat, with suture indistinct, indicated by outer row of coarse punctures. Metepimera with carinate inner margin. Abdominal ventrite 1 lacking microsculpture, with basal punctures fairly coarse, not or barely interrupted in middle, extended almost to lateral margins, elongate laterally, and with 0.02-0.04 mm long wrinkles. Punctuation posterior basal puncture row very fine on side of ventrite, distinct on mesal area. Tibiae straight.

Male characters: Tarsomeres 1 to 3 of forelegs barely widened. Aedeagus as in Figs 31-34, 0.30-0.35 mm long. Median lobe moderately sclerotized.

HABITAT: The specimens were found at low elevation, from sea level to about 300 m above sea level. They come from both, primary forest as strongly degraded secondary forest, and were found in accumulation of rotten leaf samples and on a rotten trunk.

DISTRIBUTION: Philippines, Palawan.

ETYMOLOGY: The species is named in honour of my friend Jan Kodada, Bratislava, Slovakia, who collected most of the specimens of this new species.

COMMENTS: This species is similar to *B. dilutior* in external characters and shares with it the notched parameres. It may be distinguished from *B. dilutior* by the elytral punctation distinct on a broad surface of the disc and the internal sac of the aedeagus lacking basal tuft of spine-like structures.

***Baeocera jeani* sp. nov.**

Figs 35-38

HOLOTYPE: ♂, LUZON, Lagunas Prov., Mt. Makiling, 450-550m, 20.XI.1995, I. Löbl (MHNG).

PARATYPES: 4 ♂, 2 ♀, with the same data as the holotype. – 1 ♂, 1 ♀, LUZON, Lagunas Prov., Mt. Makiling, 400m, 19.IX.1995, leg. I. Löbl. – 3 ex., Lagunas Prov., Mt. Makiling summit rd 500m, 20.IX.1995, leg. I. Löbl. – 4 ♂, Lagunas Prov., Mt. Banahaw near school about 1 km from Kinabuhayan, 600m, 28.IX.1995, leg. J. Kodada and 2 ♀, with the same data but

500m, leg. I. Löbl. – 1 ♂, 2 ♀, Lagunas Prov., Mt. Banahaw above Kinabuhayan, Cristalino trail, 600-700m, 24.XI.95, leg. I. Löbl. – 1 ♂, 1 ♀, Lagunas Prov., Mt. Banahaw about 1 km from Kinabuhayan, 500m, 26.XI.95, leg. I. Löbl. – 1 ♂, 1 ♀, the same data but 800m, 25.XI.95 (all MHNG).

DESCRIPTION: Length 1.10-1.28 m, width 0.70-0.82 mm. Body convex dorsally, dark brown or dark reddish-brown, femora and tibiae lighter, apex of abdomen, tarsi and antennae yellowish. Eyes large. Length ratio of antennomeres as: III 7: IV 7: V 9: VI 7: VII 11: VIII 7: IX 10: X 9: XI 11. Antennomeres III to VI almost evenly narrow, V hardly wider than IV; VII comparatively narrow, distinctly wider than VI, about 3 times as long as wide; VIII distinctly narrower than VII, about as narrow as VI; IX to XI each distinctly wider than VII; XI about twice as long as wide. Pronotum and elytra without microsculpture, with lateral contours continuously arcuate; pubescence visible at 50 times magnification. Pronotum very finely punctate, with lateral margins strongly convex, lateral margin carinae concealed in dorsal view. Scutellum concealed or its minute tip exposed. Elytra almost covering apex of abdomen, with lateral carinae concealed or shortly exposed near base. Elytron with sutural stria deep, curved at base to form basal stria ending in outer half of basal width, adsutural area somewhat raised. Elytral punctation almost evanescent or very fine, similar to pronotal punctation along base, on fairly wide strip along sutural stria and on almost entire apical third. Remaining surface of elytral disc coarsely punctate, intervals between coarse punctures about 2 to 3 times as large as punctures diameters. Hind wings not reduced. Hypomera impunctate. Mesepimera flat, almost 3 times as long as wide and about 4 times as long as interval to mesocoxa. Metaventricle somewhat convex in middle, with impunctate central surface small, around centre distinctly punctate. Lateral parts of metaventricle impunctate on posterior area; remaining surface with irregular, coarse punctures. Punctures on lateral parts of metaventricle larger than those around centre, usually elongate and larger than, or about as large as puncture intervals. Submesocoxal lines convex, with marginal punctures about as large as those around centre of metaventricle, not extended along anapleural suture. Submesocoxal area about 0.03 to 0.04 mm long, shortest interval between its margin and metacoxa about 0.08-0.09 mm. Metanepisterna flat, with suture indicated by impressed row of outer coarse punctures. Metepimera with carinate inner margin. Abdominal ventrite 1 lacking microsculpture, with basal punctures coarse, extended by wrinkles. Lateral wrinkles usually 0.04-0.06 mm long, mesal wrinkles short; basal puncture row contiguous in middle, reaching to or almost to lateral margins; punctures near lateral margins moderately elongate. Punctuation posterior basal puncture row very fine on sides of ventrite, distinct on mesal area. Tibiae straight.

Male characters: Tarsomeres 1 to 3 of forelegs barely widened. Aedeagus as in Figs 35-38, 0.36-0.40 mm long. Median lobe moderately sclerotized.

HABITAT: Degraded rainforest, in leaf litter, mostly on slope and in ravine.

DISTRIBUTION: Philippines, Luzon.

ETYMOLOGY: The species is named in honour of Jean Orousset, Paris, France, who collected together with Louis Deharveng.

COMMENTS: The parameres abruptly narrowed at level of the tip of the median lobe are similar to those in *B. incisa* Löbl, 1973 from Sabah, and *B. manasensis* Löbl,

1984 and *B. pseudincisa* Löbl, 1984 from northern India. *Baeocera jeani* shares with *B. incisa* sinuate parameres (in lateral view) and the shape of the median lobe, but the shape of the sclerotized complex of the internal sac is distinctive. These two species may be readily distinguished by the elytral punctation that is restricted onto a small surface in the new species, while it covers most of the disc in *B. incisa*, and by the abdominal sternite 1 having conspicuous basal wrinkles in *B. jeani*, lacking in *B. incisa*. Both, *B. manasensis* and *B. pseudincisa*, have the internal sac of the aedeagus similar to that in *B. jeani*. These two species share rugulose base of the first abdominal ventrite, with wrinkles significantly shorter, and the lateral surfaces posterior wrinkles are distinctly punctate in *B. pseudincisa*. Both, *B. pseudincisa* and *B. manasensis*, differ notably from *B. jeani* by their elytral punctation that is coarse on almost entire discal surface in the former, and coarse on most of the basal half of the disc in the latter species.

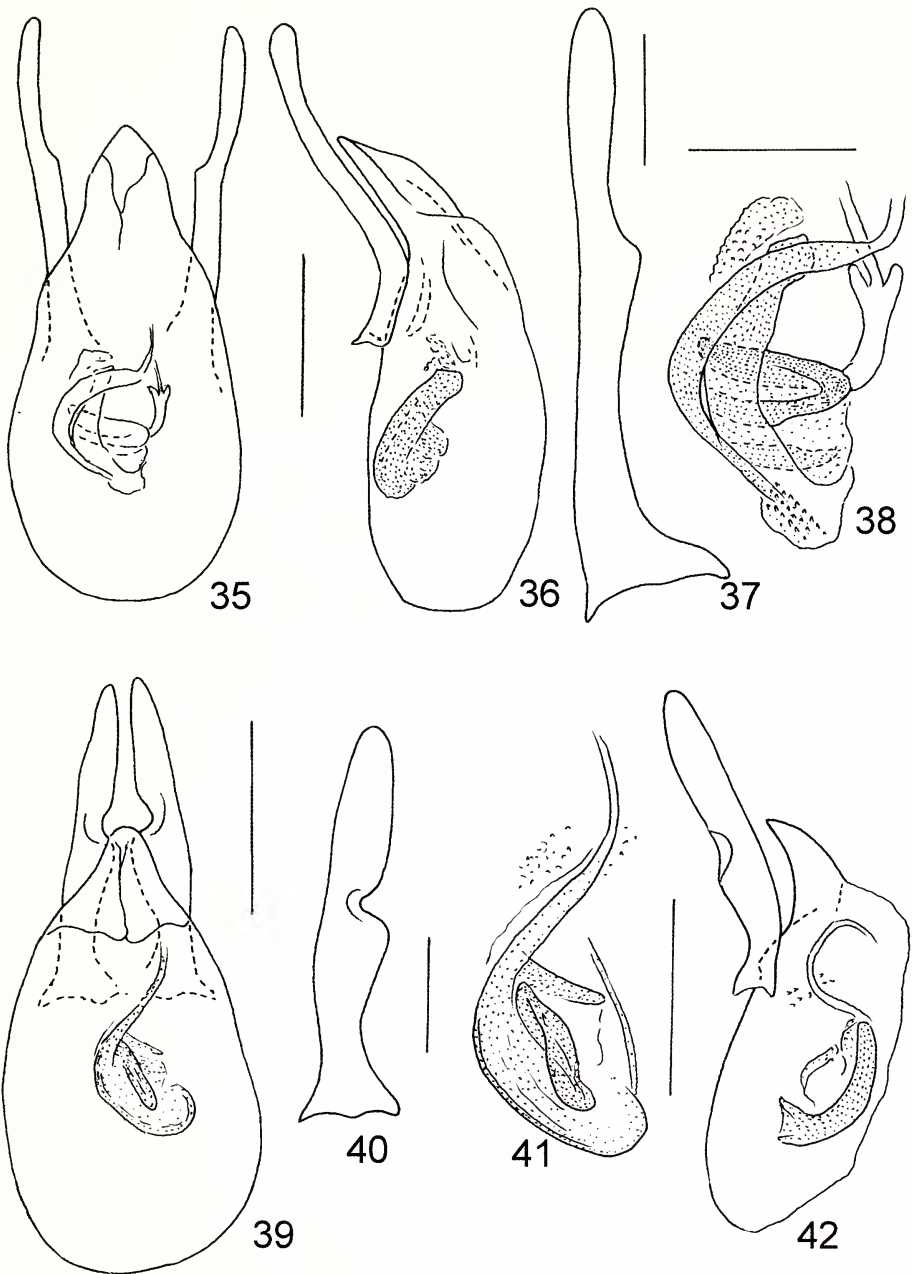
***Baeocera jejuna* sp. nov.**

Figs 39-42

HOLOTYPE: ♂, PALAWAN, Central Prov., Conception, 50 m degr. forest leaf litter, 2.XII.1995, leg. I. Löbl (MHNG).

PARATYPES: 4 ♂, 3 ♀, PALAWAN, with the same data as the holotype. – 1 ♂, Central Prov., Sadang, prim. forest nr sea, 30.XI.1995, leg. I. Löbl, leaf litter (all MHNG).

DESCRIPTION: Length 1.05-1.15 mm, width 0.65-0.81 mm. Body uniformly reddish-brown, appendages and apex of abdomen lighter. Body convex dorsally. Eyes large. Length ratio of antennomeres as: III 7: IV 8: V 9: VI 9: VII 12: VIII 9: IX 12: X 12: XI 15. Antennomeres III to VI almost evenly narrow; VII moderately wide, about 4 times as long as wide; VIII about as narrow as VI, distinctly narrower than VII, about 4 times as long as wide; IX to XI each distinctly wider than VII, XI about 3 times as long as wide. Pronotum and elytra without microsculpture, with lateral contours continuously arcuate; pubescence visible at 50 times magnification. Pronotum very finely punctate, with lateral margins strongly convex, lateral margin carinae concealed in dorsal view. Tip of scutellum exposed. Elytra almost covering apex of abdomen, with lateral carinae concealed. Elytron with sutural stria fairly deep, curved at base to form basal stria reaching about elytral mid-width, clearly separated from lateral stria, ad-sutural area somewhat raised. Elytral punctation almost evanescent or very fine and similar to pronotal punctation on areas along base, along lateral margin, and on apical third to half of discal surface, fairly coarse on remaining surface, with puncture intervals mostly larger than puncture diameters. Hind wings not reduced. Hypomera impunctate. Mesepimera flat, about 3-4 times as long as wide and about 5 times as long as interval to mesocoxa. Margin of mesanepisterna carinate along mesepimera. Metaventrte flat in middle, with impunctate central surface small, around centre distinctly punctate, with long pubescence. Lateral parts of metaventrte impunctate on area along metacoxae; remaining surface with irregular, coarse punctures. Coarse punctures on lateral parts of metaventrte larger than those around centre and not or barely elongate, usually smaller than puncture intervals. Submesocoxal lines somewhat arcuate, with marginal punctures about as large as those around centre of metaventrte, not extended along anapleural suture. Submesocoxal area about 0.03 mm long, shortest interval between its margin and metacoxa about 0.08-0.09 mm. Metanepisterna very



FIGS 35-42

(35-38) *Baeocera jeani* sp. n., aedeagus (35, 36) in dorsal and lateral views, paramere (37) and internal sac (38) in dorsal view; scale bar = 0.1 mm for aedeagus, = 0.05 mm for paramere and internal sac. (39-42) *Baeocera jejuna* sp. n., aedeagus (39, 42) in dorsal and lateral views, paramere (40) and internal sac (41) in dorsal view; scale bar = 0.1 mm for aedeagus, = 0.05 mm for paramere and internal sac.

narrow, fused to metaventricle, with suture indicated by outer row of coarse punctures. Metepimera striate along inner margin. Abdominal ventrite 1 lacking microsculpture, with basal punctures fairly coarse, elongate, not interrupted in middle, extended almost up to lateral margins; with wrinkles about 0.02-0.04 mm long. Punctuation very fine posterior basal puncture row. Tibiae straight.

Male characters: Tarsomeres 1 to 3 of forelegs barely widened. Aedeagus as in Figs 39-42, 0.24-0.30 mm long. Median lobe moderately sclerotized.

HABITAT: Leaf litter in fairly dry primary and secondary forests, near sea level.

DISTRIBUTION: Philippines, Palawan.

ETYMOLOGY: The species epithet is a Latin adjective, referring to the comparatively poor external characters that separate the species from its allied.

COMMENTS: This species shares with *B. dilutior* most of its external diagnostic characters, including the elytral punctuation. As *B. jankodadai*, it differs drastically from *B. dilutior* by the internal sac of the aedeagus lacking basal tuft of spine-like structures. It differs from *B. jankodadai* by the shape of the parameres and the distinct elytral punctuation extended to, or almost to, the sutural striae.

***Baeocera louisi* sp. nov.**

Figs 43-46

HOLOTYPE: ♂, LUZON, Banguio Prov., Banguio, 1500m near Crystal Caves, 1-2.I.1980, leg. L. Deharveng & J. Orousset litter # 128 (MHNG).

PARATYPES: 22 ♂, 9 ♀, with the same data as the holotype. – 2 ♂, LUZON, Mt. Santo Thomas, 1850m, 14.I.80, leg. L. Deharveng & J. Orousset, #191, 192. – 1 ♀, Mountain Prov., Sagada, Suoy nr. Tataya-An 20.I.80 litter, #201, leg. L. Deharveng & J. Orousset (all MHNG).

DESCRIPTION: Length 1.02-1.15 mm, width 0.75-0.80 mm. Body and femora very dark brown to blackish, tibiae, tarsi and antennae lighter. Body convex dorsally. Eyes large. Length ratio of antennomeres as: III 7: IV 10: V 12: VI 12: VII 14: VIII 11: IX 13: X 13: XI 17. Antennomeres III and IV evenly narrow, V and VI almost even, each slightly wider than IV; VII moderately wide, about 4 times as long as wide; VIII about as narrow as VI, distinctly narrower than VII, about 4 times as long as wide; IX to XI each distinctly wider than VII, XI about 3 times as long as wide. Pronotum and elytra without microsculpture, with lateral contours almost continuously arcuate; pubescence visible at 50 times magnification. Pronotum very finely punctate, with lateral margins strongly convex, lateral margin carinae concealed in dorsal view. Scutellum concealed. Elytra almost covering apex of abdomen, with lateral carinae concealed or shortly exposed near base. Elytron with sutural stria fairly deep, curved at base to form basal stria joined with lateral stria, adsutural area flat. Elytral punctuation almost evanescent or very fine and similar to pronotal punctuation on areas along base, on entire or almost entire inner half of disc, along lateral margin, and on apical half of discal surface, distinctly coarser and irregular on latero-anterior surface, with puncture intervals mostly larger than puncture diameters. Hind wings not reduced. Hypomera impunctate. Mesepimera flat, about 2.5 times as long as wide and about 3 times as long as interval to mesocoxa. Metaventricle somewhat convex in middle, with impunctate central surface small, around centre distinctly punctate. Lateral parts of metaventricle impunctate on narrow area along metacoxae; remaining surface with irregular, fairly

coarse punctures. Punctures on lateral parts of metaventrite only moderately larger than those around centre and not elongate, usually distinctly smaller than puncture intervals. Submesocoxal lines somewhat arcuate, with marginal punctures about as large as those around centre of metaventrite, not extended along anapleural suture. Submesocoxal area about 0.03 to 0.04 mm long, shortest interval between its margin and metacoxa about 0.08 mm. Metanepisterna flat, 0.03-0.04 mm wide, not or hardly widened posteriad, with suture indistinct or indicated by impressed stria and outer row of coarse punctures. Metepimera striate along inner margin. Abdominal ventrite 1 lacking microsculpture, with basal punctures fairly coarse, not elongate, not or barely interrupted in middle, extended to lateral margins. Punctuation very fine posterior basal puncture row. Tibiae straight.

Male characters: Tarsomeres 1 to 3 of forelegs barely widened. Aedeagus as in Figs 43-46, 0.29-0.34 mm long. Median lobe moderately sclerotized.

HABITAT: Most specimens were taken from vegetation debris accumulated in a depression, a few were found in a moist ravine, in and under fallen leaves.

DISTRIBUTION: Philippines, Luzon.

ETYMOLOGY: The species is named in honour of one of its collectors, Louis Deharveng, Paris, France.

COMMENTS: This species is another member of the *B. lenta* group. It is very similar to *B. danielae* from which it may be distinguished by the longer antennae with the antennomere III shorter than the antennomere IV and the antennomere VII and VIII each about 4 times as long as wide. In addition, the middle part of the parameres is widened in *B. lousi*, providing a distinctive character.

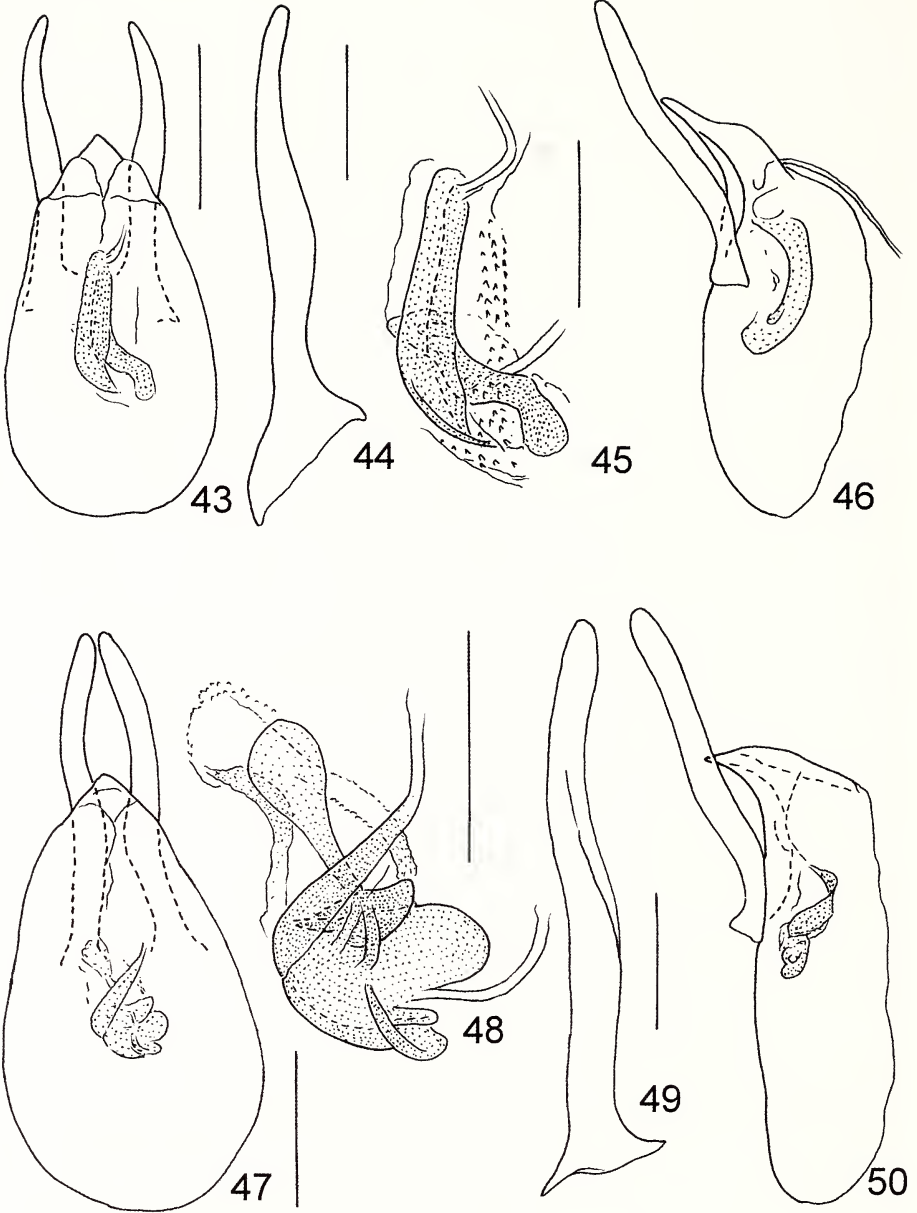
***Baeocera mindanaosa* sp. nov.**

Figs 47-50

HOLOTYPE: ♂, MINDANAO, Misamis Occ., 1700m, Don Victoriano, 1.-3.V.1996, leg. Bolm (SMNS).

PARATYPES: 1 ♀, MINDANAO, with the same data as the holotype (SMNS). – 3 ♂, MINDANAO, 30 km NW of Maramag, Bagongsilang, 1700m, 13.-17.V.1996, leg. Bolm, (SMNS, MHNG). – 2 ♀, MINDANAO, 30 km E of Malaybalay, Busoi, 1000m, 5.-9.V.1996, leg. Bolm, (SMNS, MHNG).

DESCRIPTION: Length 1.10-1.20 mm, width 0.76-0.84 mm. Body dark brown to blackish, elytra sometimes becoming lighter apically, abdomen, femora and tibiae dark reddish-brown, tarsi and antennae lighter. Body convex dorsally. Eyes large. Length ratio of antennomeres as: III 8: IV 9: V 10: VI 9: VII 11: VIII 8: IX 12: X 11: XI 17. Antennomeres III to VI almost evenly narrow; VII almost 4 times as long as wide, much wider than VI; VIII slightly wider than VI, about 4 times as long as wide; IX to XI each distinctly wider than VII, XI somewhat more than 3 times as long as wide. Pronotum and elytra without microsculpture, with lateral contours continuously arcuate; pubescence hardly visible at 50 times magnification. Pronotum very finely punctate, with lateral margins strongly convex, lateral margin carinae concealed in dorsal view. Scutellum concealed. Elytra almost covering apex of abdomen, with lateral carinae concealed in dorsal view. Elytron with sutural stria fine, starting more or less posterior level of margin of pronotal lobe, not curved anteriorly. Elytral punc-



FIGS 43-50

(43-46) *Baeocera louisi* sp. n., aedeagus (43, 46) in dorsal and lateral views, paramere (44) and internal sac (45) in dorsal view; scale bar = 0.1 mm for aedeagus, = 0.05 mm for paramere and internal sac. (47-50) *Baeocera mindanaosa* sp. n., aedeagus (47, 50) in dorsal and lateral views, internal sac (48) and paramere (49) in dorsal view; scale bar = 0.1 mm for aedeagus, = 0.05 mm for internal sac and paramere.

tation very fine on fairly short and variably wide humeral area, coarse and dense on remaining surface, including base near suture; punctures about as large as or smaller than puncture intervals. Hind wings not reduced. Hypomera impunctate. Mesepimera hardly impressed, about 3 times as long as wide and about twice as long as interval to mesocoxa. Margin of mesanepisterna not carinate along mesepimera. Metaventrite flat in middle, with impunctate central surface small, around centre coarsely punctate. Lateral parts of metaventrite almost entirely coarsely punctate; with punctures partly elongate, coarser than those on central area or on elytra, often distinctly larger than punctures intervals. Submesocoxal lines parallel, with marginal punctures about as large as those around centre of metaventrite, not extended along anapleural suture. Submesocoxal area about 0.02 to 0.03 mm long, shortest interval between its margin and metacoxa about 0.08 mm. Metanepisterna flat, fused to metaventrite, suture indicated by outer coarse puncture row. Metepimera lacking stria along inner margin. Abdominal ventrite 1 lacking microsculpture, with basal punctures coarse, laterally somewhat elongate, not or barely interrupted in middle and extended to lateral margins. Punctuation coarse and irregular posterior basal puncture row. Tibiae straight.

Male characters: Tarsomeres 1 to 3 of forelegs weakly widened. Aedeagus as in Figs 47-50, 0.33-0.37 mm long. Median lobe moderately sclerotized.

DISTRIBUTION: Philippines, Mindanao.

ETYMOLOGY: The species epithet refers to the island Mindanao.

COMMENTS: This species may be easily distinguished from the remaining Philippine congeners by the short sutural striae of the elytra. Several females possessing this character state were found in Leyte and are housed in the collections of SMNS and MHNG. These specimens may represent a distinct species. In absence of males they remain unidentified.

***Baeocera procerula* sp. nov.**

Figs 51-54

HOLOTYPE: ♂, LUZON, Lagunas Prov., Mt. Makiling, 400m, 19.IX.1995, leg. I. Löbl summit road, litter (MHNG).

PARATYPES: 4 ♂, LUZON, Lagunas Prov., 4 km SE Los Banos, 11. IV.1977, leg. L. E. Watrous. - 3 ♂, Lagunas Prov., Mt. Banahaw above Kinabuhayan, Cristalino trail, 600-700m, 24.XI.95, leg. I. Löbl. - 7 ♂, Lagunas Prov., Mt. Banahaw near school about 1 km from Kinabuhayan, 600m, 28.IX.1995, leg. J. Kodada. - 3 ♂, 1 ♀, Lagunas Prov., Mt. Banahaw about 1 km from Kinabuhayan, 500m, 26.XI.95, leg. I. Löbl. - 20 ♂, 10 ♀, Mountain Prov., N. & NE Sagada, 15-19.XII.1979, leg. L. Deharveng & J. Orousset #38, 39, 43, 44, 51, 52, 53, 54, 55, 68, 69, 72. - 1 ♀, Mountain Prov., env. Sagada, near Latan Cave, 15-19.XII.1979, leg. L. Deharveng & J. Orousset #55. - 1 ♂, Mountain Prov., Vallon de Sogong Cave, 21.XII.79, leg. L. Deharveng & J. Orousset #79. - 2 ♂, 3 ♀, Banguio, 1500m, near Crystal Caves, 1-2.I.1980, leg. L. Deharveng & J. Orousset #128. - 2 ♂, 2 ♀, Mountain Prov., Sagada, 4-5.I.1980, leg. L. Deharveng & J. Orousset #143, 144. - 1 ♀, Mountain Prov., above Sagada, 9.I.1980, leg. L. Deharveng & J. Orousset #173. - 1 ♀, Mountain Prov., Sagada, near entry of Latipan Cave, 15.XII.79, leg. L. Deharveng & J. Orousset #222 (all MHNG).

DESCRIPTION: Length 1.02-1.23 mm, width 0.70-0.84 mm. Body very dark brown to black, apices of elytra narrowly lighter, abdomen entirely or only its apical segments reddish-brown, femora and tibiae reddish-brown, tarsi and antennae lighter than tibiae. Body convex dorsally. Eyes large. Length ratio of antennomeres as: III 7:

IV 7: V 10: VI 10: VII 11: VIII 9: IX 12: X 11: XI 13. Antennomeres III to VI very narrow, V and VI each about 5.5 times as long as wide, slightly wider and IV; VII narrow, about 3.5 times as long as wide; VIII slightly wider than VI, narrower than VII, almost 4 times as long as wide; IX to XI each distinctly wider than VIII, XI about 3 times as long as wide. Pronotum and elytra without microsculpture, with lateral contours almost continuously arcuate; pubescence visible at 50 times magnification. Pronotum very finely punctate, with lateral margins strongly convex, lateral margin carinae concealed in dorsal view. Scutellum concealed. Elytra not covering apical abdominal tergites, with lateral carinae concealed. Elytron with sutural stria curved at base to form basal stria reaching sides and joined to lateral stria; basal stria often very shallow, adsutural area flat. Elytral punctation distinct although often fairly fine on most of anterior half to two thirds of discal surface, with puncture intervals mostly much larger than puncture diameters, apical third of elytron very finely punctate. Hind wings not reduced. Hypomera impunctate. Mesepimera flat, about 3 times as long as wide and about 3 to 4 times as long as interval to mesocoxa. Metaventrite somewhat convex in middle, with impunctate central surface fairly small, around centre coarsely punctate. Lateral parts of metaventrite with irregular, coarse punctures larger than those around centre, not or slightly elongate and often larger than puncture intervals. Narrow area along metacoxae impunctate. Submesocoxal lines parallel, with marginal punctures about as large as those around centre of metaventrite, not extended along anapleural suture. Submesocoxal area about 0.02 mm long, shortest interval between its margin and metacoxa about 0.08 to 0.10 mm. Metanepisterna indistinct, fused with metaventrite. Metepimera striate at inner angle. Abdominal ventrite 1 lacking microsculpture, with basal punctures elongate, often extended by wrinkles, reaching to, or almost to lateral margins, interrupted in middle; punctation posterior basal punctures very fine, usually hardly visible. Tibiae straight.

Male characters: Tarsomeres 1 to 3 of forelegs barely widened. Aedeagus as in Figs 51-54, 0.28-0.35 mm long. Median lobe moderately sclerotized.

HABITAT: In samples of forest floor litter in both, shady and exposed sites, in degraded evergreen forest, in pine debris, in moss on trunks and on rocks.

DISTRIBUTION: Philippines, Luzon.

ETYMOLOGY: The species epithet is a Latin adjective meaning slightly elongate, referring to the elongate basal punctures of first abdominal ventrite.

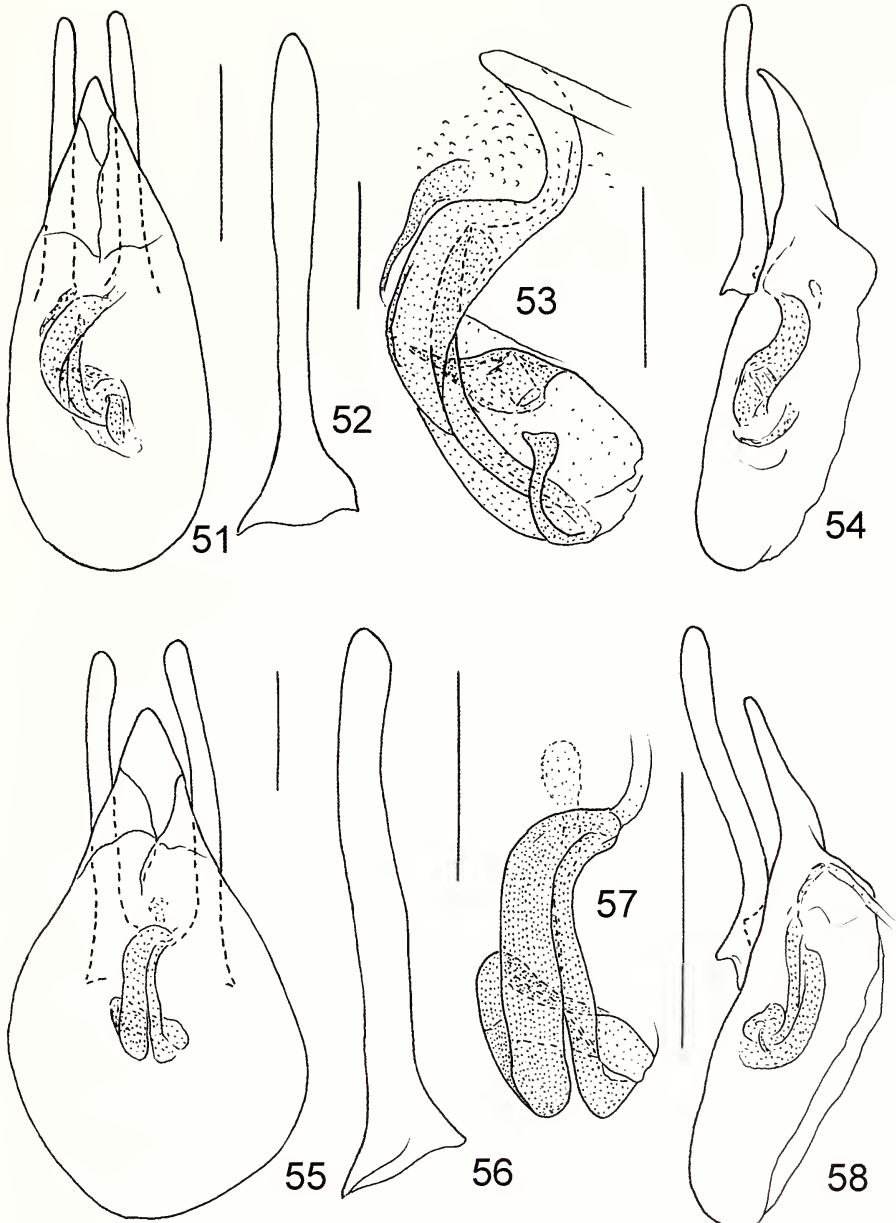
COMMENTS: This species is variable, particularly in size, elytral and meta-ventral punctation, and the basal striae of the elytra that may become very shallow. It may be distinguished from the similar *B. louisi* and *B. danielae* by the elytra with distinctly punctate surface reaching to, or almost to, sutural striae. In addition, it may be separated from these two species, as from other members of the group, by the shape of the parameres and sclerites of the internal sac.

***Baeocera wolfgangi* sp. nov.**

Figs 55-58

HOLOTYPE: ♂, LEYTE, Visca N Baybay prim. forest, 200-500m, 22.2.-10.3.1991, leg. W. Schawaller & al. / (SMNS).

PARATYPES: 2♂, with the same data as the holotype (SMNS, MHNG). – 2♀, LEYTE, SW Abuyog, 8.III.1991, forest, 100-300m, leg. W. Schawaller et al. (SMNS). – 2♂, 1♀, LEYTE, Lake Danao, 19.2.-8.3.1991 forest edge, 500m, leg. W. Schawaller & al. (SMNS, MHNG).



FIGS 51-58

(51-54) *Baeocera procerula* sp. n., aedeagus (51, 54) in dorsal and lateral views, paramere (52) and internal sac (53) in dorsal view; scale bar = 0.1 mm for aedeagus, = 0.05 mm for paramere and internal sac. (55-58) *Baeocera wolfgangi* sp. n., aedeagus (55, 58) in dorsal and lateral views, paramere (56) and internal sac (57) in dorsal view; scale bar = 0.1 mm for aedeagus, = 0.05 mm for paramere and internal sac.

OTHER MATERIAL EXAMINED: 6 additional specimens likely conspecific but in poor condition, with the same locality data but 100-200m, 21. and 27.II.1991 (SMNS, MHNG).

DESCRIPTION: Length 1.0-1.09 mm, width 0.70-0.78 mm. Body and femora dark brown, tibiae lighter reddish-brown, tarsi and antennae lighter than tibiae, yellowish. Body convex dorsally. Eyes large. Length ratio of antennomeres as: III 7: IV 8: V 9: VI 9: VII 12: VIII 11: IX 12: X 12: XI 14. Antennomeres III, V and VI evenly narrow, V and VI each about 5 times as long as wide; IV slightly narrower than VI; VII moderately wide, about 4 times as long as wide; VIII slightly wider than VI, distinctly narrower than VII, about 4.5 times as long as wide; IX to XI each distinctly wider than VIII, XI about 3 times as long as wide. Pronotum and elytra without microsculpture, with lateral contours separately arcuate; pubescence hardly visible at 50 times magnification. Pronotum very finely punctate, with lateral margins strongly convex, middle section of lateral margin carinae usually visible in dorsal view. Scutellum concealed. Elytra almost covering apex of abdomen, with lateral carinae concealed, or shortly exposed near base. Elytron with sutural stria shallow, curved at base to form basal stria reaching about mid-width of elytral base. Elytral punctation coarse and dense on entire discal surface, with puncture intervals mostly larger than puncture diameters, often some punctures about as large as intervals. Hind wings not reduced. Hypomera impunctate. Mesepimera flat, about 4 times as long as wide and about 3 times as long as interval to mesocoxa. Metaventrite somewhat convex in middle, with impunctate central surface small, around centre coarsely punctate. Lateral parts of metaventrite with irregular, coarse punctures larger than those around centre, not or slightly elongate and mostly smaller than puncture intervals. Submesocoxal lines parallel, with marginal punctures about as large as those around centre of metaventrite, not extended along anapleural suture. Submesocoxal area about 0.02 to 0.03 mm long, shortest interval between its margin and metacoxa about 0.08 mm. Metanepisterna indistinct. Metepimera impressed at inner angle. Abdominal ventrite 1 lacking microsculpture, with punctation coarse on entire surface, basal punctures not or barely elongate, contiguous in middle, basal rugosity absent. Tibiae straight.

Male characters: Tarsomeres 1 to 3 of forelegs barely widened. Aedeagus as in Figs 55-58, 0.25-0.28 mm long. Median lobe moderately sclerotized.

DISTRIBUTION: Philippines, Leyte.

ETYMOLOGY: The species is named in honour of my colleague and one of its collectors, Wolfgang Schawaller, Stuttgart, Germany.

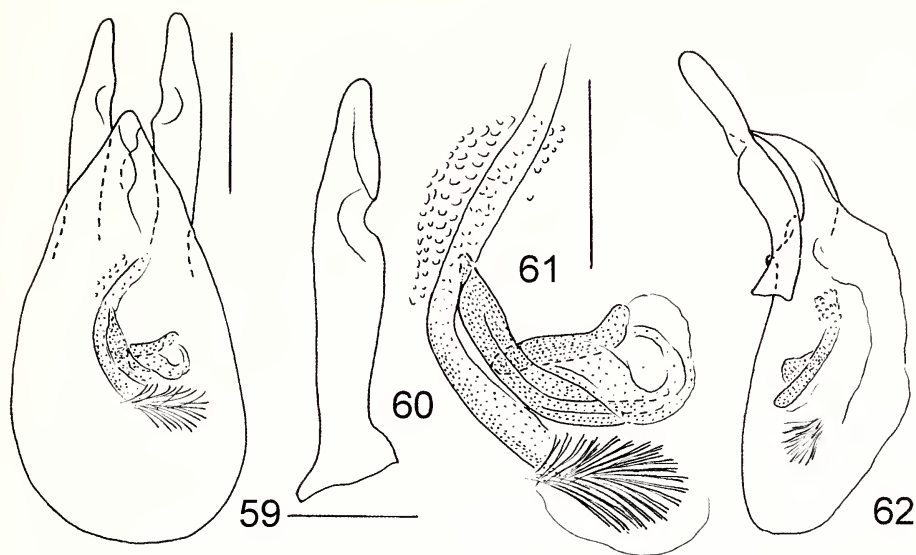
COMMENTS: The aedeagal characters of this species suggest close relationship with *B. louisii*. These species may be however readily distinguished by the elytra entirely coarsely punctate and the basal striae ending about at basal mid-width in *B. wolfgangi*, while the coarse elytral punctation is restricted onto a lateral surface and the basal striae are complete, joined with the lateral striae in *B. louisii*.

Baeocera ceylonensis group

Baeocera dilutior Löbl, 1979

Fig 59-62

Eubaeocera diluta Löbl, 1972: 85; holotype ♂, ZMUB, type locality: LUZON, Prov. Nueva Vizcaya, Bambang.



FIGS 59-62

(59-62) *Baecocera dilutior* Löbl, aedeagus (59, 62) in dorsal and lateral views, paramere (60) and internal sac (61) in dorsal view; scale bar = 0.1 mm for aedeagus, = 0.05 mm for paramere and internal sac.

Baecocera dilutior Löbl, 1979: 86, replacement name for *Eubaecocera diluta* Löbl, 1971 (nec *Baecocera diluta* Achard, 1920).

MATERIAL EXAMINED: 8 ex., LEYTE, Visca N Baybay, prim. forest 200-500m, 22.II.-10.III.1991, leg. W. Schawaller & al. (SMNS, MHNG). – 1 ex., Visca N Baybay, 100-200m, 22.II.1991, leg. W. Schawaller & al., (SMNS). – 1 ex., Leyte, SW Abuyog, 8.III.1991, forest, 100-300m, leg. W. Schawaller & al. (MHNG). – 5 ex., LUZON, Lagunas Prov., Mt. Makiling, summit road, 450-550m, 20.XI.1995, leg. I. Löbl and 1 ex. with the same data but 400m, 19.XI.1995 (MHNG). – 1 ex., Lagunas Prov., Mt. Makiling 4 km SE Los Banos, 8.IV. 1977, leg. L. Watrous (MHNG). – 2 ex., Lagunas Prov., Mt. Makiling above Mad Springs 400-700m, 19.-22.XI.1995, leg. J. Kodada (MHNG). – 2 ex., Lagunas Prov., Mt. Banahaw above Kinabuhayan, 500 and 800m, 24. and 25.XI.95, leg. I. Löbl (MHNG). – 2 ex., Lagunas Prov., Mt. Banahaw above Kinabuhayan, Cristalino trail, 600-700m, 24.XI.95, leg. I. Löbl (MHNG). – 1 ex., Lagunas Prov., Mt. Banahaw near school above Kinabuhayan, 600m, 26.XI.1995, leg. J. Kodada (MHNG).

HABITAT: Specimens were found in primary and secondary rainforest, in leaf litter and under rotten bamboo debris.

DISTRIBUTION: Philippines, Leyte, Luzon.

COMMENTS: This species is difficult to distinguish by the external characters from *B. jankodadai*, *B. insolita* and *B. jeani*, while it is separated unambiguously from these species, as from other Philippine congener, by the aedeagal characters, in particular by the presence of a tuft of spine-like structures situated in the proximal part of the internal sac (Figs 59-62). All species of the *B. ceylonensis* group are similar in both, external and aedeagal characters. *Baecocera dilutior* differs clearly from the Taiwanese *B. semiglobosa* (Achard, 1921) by the distally narrowed flagellar guide-sclerite and

proximally parallel flagellar sclerite of the internal sac of the aedeagus. *Baeocera dilutior* may be separated from *B. franzi* (Löbl, 1973), known from Thailand and China, by the elytral punctation restricted onto smaller surface of the disc, and by the internal sac with patch of apico-lateral scale-like structures, while the latter consists of denticulate structures in *B. franzi*. *Baeocera ceylonensis* (Löbl, 1971), known from Sri Lanka and southern India, and *B. ventralis* (Löbl, 1973), distributed from Pakistan to Thailand, have the parameral notch situated more proximally than in *B. dilutior*. In addition, the sclerites of the internal sac are smaller in *B. ceylonensis* than those in *B. dilutior*, and *B. ventralis* has the apex of the flagellar guide-sclerite broadly rounded.

Baeocera monstrosa group

Baeocera alticola sp. n.

Figs 63-66

HOLOTYPE: ♂, LUZON, Benguet Prov., Pacay, 2400m, nr. Sayangan, 11.VII.1985, leg. M. Sakai (MHNG).

OTHER MATERIAL EXAMINED: 1 ♂ in poor state, LUZON, Mountain Prov., Mount Data Lodge, 2200-2300m, 23-24.XII.79, leg. L. Deharveng & J. Orousset (MHNG).

DESCRIPTION: Length 2.20 mm, width 1.50 mm. Body black, abdomen somewhat reddish, apical abdominal segments lighter. Antennomeres I to III reddish-brown, IV to VI slightly darker, VII to XI distinctly darker. Femora and tibiae dark reddish-brown, tarsi lighter. Body convex dorsally. Eyes large. Length ratio of antennomeres as: III 10: IV 11: V 13: VI 10: VII 21: VIII 17: IX 22: X 24: XI 34. Antennomere III about 3 times as long as wide, segment IV about as wide as III, not quite 4 times as long as wide; V wider than segment IV, about 3 times as long as wide; VI notably wider than segment V, not quite twice as long as wide; VII much wider than VI, 3 times as long as wide; VIII slightly wider than VI, distinctly narrower than VII, about 3 times as long as wide; IX barely larger than VII; X and XI somewhat wider than IX, X somewhat more than 3 times as long as wide, segment XI about 4.5 times as long as wide. Lateral contours of pronotum and elytra separately rounded. Pronotum with lateral margin carina concealed in dorsal view, pronotal punctation very fine. Hypomera impunctate. Exposed part of scutellum large. Elytra weakly narrowing apically, with lateral margin carina visible throughout in dorsal view, lateral margins straight in middle third, sutural striae deep, curved basally to form basal striae extending to sides and joined with lateral striae; adsutural areas flat in basal third, slightly raised posterior basal third. Elytral punctation very fine in both, basal and apical fourth, irregular, fairly fine and scarce on large middle area, puncture diameters there much smaller than puncture intervals. Exposed parts of abdominal tergites very finely punctate. Mesoventrite with very fine median stria, lacking coarse punctures. Mesepimeron large, about 5 times as long as interval to mesocoxa and 4 times as long as wide. Median part of metaventrite convex, densely and finely punctate near metacoxal process, in middle impunctate, with fine punctures at each side of impunctate area. Lateral parts of metaventrite very finely and sparsely punctate, appearing impunctate. Metacoxal process horizontal. Submesocoxal areas 0.03 mm long, with marginal punctures fine, not elongate, reaching laterally level of tip of mesepimera. Metanepisterna flat, about 0.15 mm wide, weakly narrowing anteriad, with inner suture deep, slightly sinuate, impunctate, abruptly ending before reaching level of mesepimeron and not curved toward lateral

margin. Abdominal ventrite 1 lacking obvious microsculpture, with basal punctures fine, not elongate, without basal rugosity. Following ventrites very finely punctate and with barely visible punctulate microsculpture. Protibiae almost straight. Mesotibiae and metatibiae weakly curved.

Male characters: Protarsus and mesotarsus each with segment 1 strongly widened, wider than apex of tibia, segment 2 distinctly narrower than segment 1, segment 3 weakly widened. Apical lobe of abdominal ventrite 6 small, blunt, about 0.07 mm long. Aedeagus as in Figs 63-66, 0.82 mm long, strongly sclerotized.

DISTRIBUTION: Philippines, Luzon.

ETYMOLOGY: The species epithet refers to the high altitude at which the species was found.

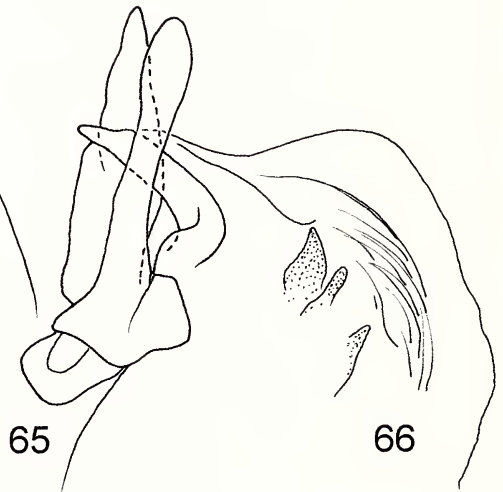
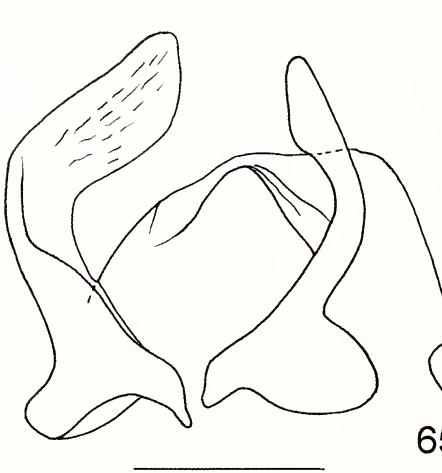
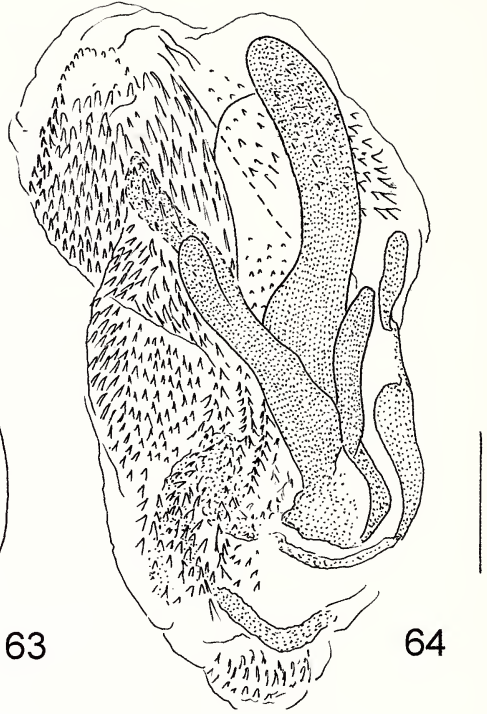
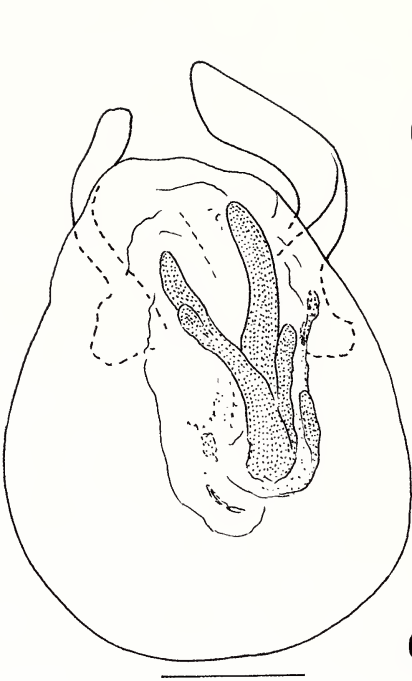
COMMENTS: This species shares with *B. robertiana* Löbl, 1990 the shape of the median lobe, in particular the apical process short, strongly inflexed, and in dorsal view completely overlapped by the basal bulb. Both species have the left paramere simple, lacking denticles and apophyses. *Baeocera alticola* differs drastically from *B. robertiana* by the right paramere narrower, almost evenly curved, and lacking inner membranous lobe and subapical tooth. It may be easily distinguished from *B. fortis* by its dark body colour and elongate apical antennomere.

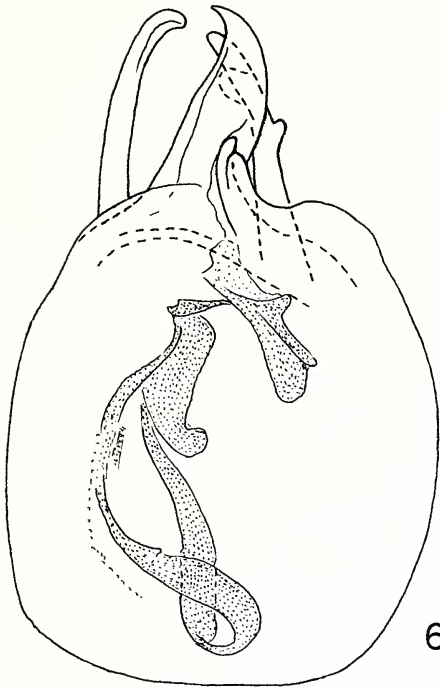
Baeocera fortis sp. nov.

Figs 67-70

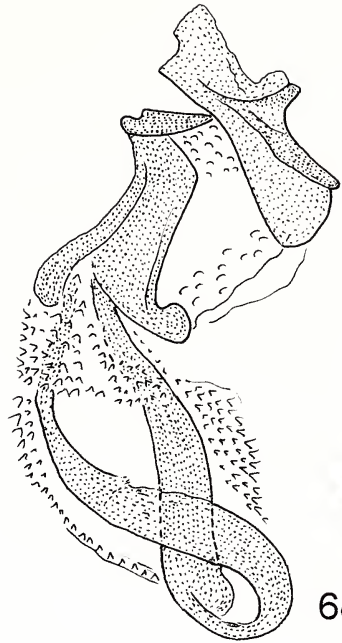
HOLOTYPE: ♂, LUZON, Lagunas Prov., Los Banos, 10.VII.1970, leg. M. Satô (MHNG).

DESCRIPTION: Length 1.95 mm, width 1.37 mm. Body reddish-brown. Antennomeres I to VI light reddish-brown, following antennomeres darkened, legs reddish-brown. Body convex dorsally. Eyes large. Length ratio of antennomeres as: III 11: IV 15: V 15: VI 16: VII 18: VIII 15: IX 18: X 18: XI 22. Antennomeres III to VI narrow, almost even in width, VI about six times as long as wide, following conspicuously wider; VII about twice as wide as VI and 3.5 times as long as wide; VIII slightly narrower than VII, about 4 times as long as wide; XI distinctly larger than preceding, 3 times as long as wide. Lateral contours of pronotum and elytra separately rounded. Pronotum with lateral margin carina concealed in dorsal view, punctation very fine. Hypomera impunctate. Exposed part of scutellum large. Elytra weakly narrowing apically, with lateral margin carina visible throughout in dorsal view, lateral margins straight in middle third, sutural striae deep, curved basally to form basal striae reaching sides and joined with lateral striae; adsutural areas flat. Elytra very finely punctate on basal sixth, punctation posterior basal sixth fairly fine and dense, with puncture diameters much smaller than puncture intervals, punctation becoming again very fine near apices. Propygidium and pygidium exposed. Propygidium with punctation dense and fairly coarse near base, irregular and sparse on remaining surface. Pygidium with distinct punctulate microsculpture and fairly coarse, irregular punctation. Mesoventrite with two parallel admesal striae, somewhat convex in between; punctate posterior mesoventral margin. Mesepimera about twice as long as interval to mesocoxa. Metaventrite convex in middle, impressed and coarsely punctate along margin of metacoxal process, with two admesal rows of fairly coarse punctures, on remaining surface very finely punctate. Lateral parts of metaventrite very finely punctate,

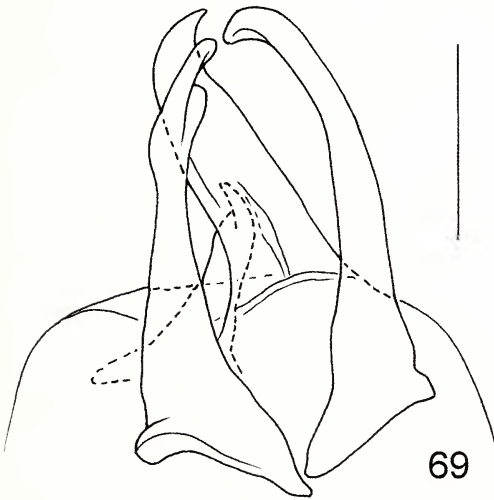




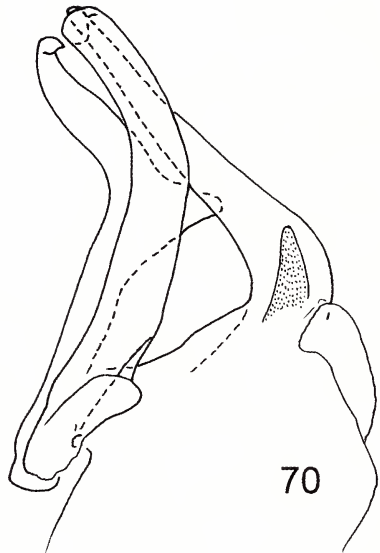
67



68



69



70

FIGS 63-70

(63-66) *Baeocera alticola* sp. n., aedeagus (63) in dorsal view, internal sac (64) in dorsal view, (65, 66) apical part of median lobe with parameres in ventral and lateral views; scale bars = 0.2 mm for aedeagus, = 0.1 mm for internal sac. (67-70) *Baeocera fortis* sp. n., aedeagus (67) in dorsal view, internal sac (68) in dorsal view, (69, 70) apical part of median lobe with parameres in ventral and lateral views; scale bars = 0.2 mm.

appearing impunctate. Submesocoxal areas about 0.03 mm long, with coarse marginal punctures becoming elongate laterally and extended almost to mid-width of mesepimera. Metacoxal process oblique. Metanepisterna almost flat, about 0.12-0.13 mm wide, narrowed anteriorly, with suture deep, straight except at slightly rounded anterior angles, impunctate. Abdominal ventrite 1 lacking obvious microsculpture, with coarse basal punctures and short wrinkles; remaining punctation very fine. Following ventrites very finely punctate, with barely visible punctulate microsculpture. Meso- and metatibiae straight near base, curved posterior basal fifth.

Male characters: Protarsus with segment 1 strongly widened, wider than apex of tibia, segment 2 distinctly narrower than segment 1, segment 3 barely widened. Mesotarsus with segment 1 strongly widened, narrower than apex of mesotibia, segments 2 and 3 similar to those of protarsi. Ventrite 6 with apical margin widely arcuate, barely prominent in middle. Aedeagus as in Figs 67-70, 0.97 mm long, strongly sclerotized.

DISTRIBUTION: Philippines, Luzon.

ETYMOLOGY: The species epithet refers to the robust (= strong) diagnostic characters defining the taxon.

COMMENTS: This species shares with *B. innocua* Löbl, 1990 the median lobe with a long, moderately inflexed apical process. It may be readily distinguished from *B. innocua* by the shape of the process that is wider and truncate at apex in the latter species, and by the shape of the parameres and sclerotized structures of the internal sac. See also comments under *B. alticola*.

ACKNOWLEDGEMENTS

I am particularly indebted to Louis Deharveng and Jean Orousset, both from Paris, France, Jan Kodada from Bratislava, Slovakia, late Masataka Satô from Nagoya, Japan, and Larry E. Watrous from Ballwin, MO, USA, for the generously donated specimens from their collections. My thanks are also due to Johannes Frisch, Berlin, Germany and Alexey Solodovnikov, København, Denmark, for loans of type material housed in collections they are responsible for. Late Henry S. Dybas and Alfred F. Newton, Jr. from Chicago, USA, and Wolfgang Schawaller from Stuttgart, Germany, provided additional unidentified material.

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A review of the Palearctic species of *Rhamphomyia* subgenus *Holoclera* (Diptera: Empididae) with description of 5 new species

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A review of the Palearctic species of *Rhamphomyia* subgenus *Holoclera* (Diptera: Empididae) with description of 5 new species - Palearctic species of the *Rhamphomyia* subgenus *Holoclera* are revised. *Rhamphomyia* (*Holoclera*) *bistriatella* sp. n. (Spain), *Rhamphomyia* (*Holoclera*) *bohemica* sp. n. (Czech Republic, Slovak Republic, Switzerland, Austria, Romania, Finland, Sweden), *Rhamphomyia* (*Holoclera*) *helvetica* sp. n. (Spain, Switzerland), *Rhamphomyia* (*Holoclera*) *portugalica* sp. n. (Portugal), and *Rhamphomyia* (*Holoclera*) *subvariabilis* sp. n. (Russia - Caucasus) are described and illustrated. A key to the Palearctic species of *Rhamphomyia* (*Holoclera*) is provided.

Keywords: *Rhamphomyia* (*Holoclera*) - new species - West Palearctic - taxonomy - key.

INTRODUCTION

Holoclera Schiner, 1860 (Wiener entomologische Monatschrift, 4: 53), was described as a genus (type species: *Holoclera pulchra* Egger, 1860 = *Rhamphomyia nigripennis* (Fabricius, 1794), by subsequent monotypy of Egger 1860), however, all authors treat it as a subgenus of a large heterogeneous assembly: *Rhamphomyia*. Schiner (l.c.) included a single species in his genus *Holoclera* which was apparently undescribed at that time (see also Coquillett, 1902: 251). However, when applying ICZN article 69.3., this genus was validated by the subsequent inclusion of the species *Holoclera pulchra* by Egger (1860).

Species of *Rhamphomyia* (*Holoclera*) are usually small- to middle- sized (wing length from 2.4 to 6.6 mm), and yellow to black in colour. Labrum usually longer than head is high, axillary angle slightly acute to slightly obtuse, prosternum with no setae. Acrostichals are either absent or present (in the latter case legs and palpus are yellow). Legs are slender, and never pennate in females. Postpedicel at least twice as long as broad, stylus shorter than postpedicel. Male eyes holoptic or narrowly dichoptic, female frons relatively narrow. Male 8th tergite often modified: either partially fused with 8th sternite or desclerotized medially. Biology is poorly known, adults are flower visitors, and they have never been observed hunting prey.

The *Rhamphomyia* subgenus *Holoclera* may be easily divided into two groups (see also Barták, 1982). The *R. nigripennis* group: fore femur with specialised anterior somewhat spine-like setae, intrahumeral seta absent, hind tibia without a long seta in the posteroapical comb (sometimes with very short and poorly distinct seta present), cell dm small and narrow, palpus black except *R. caliginosa* Collin, 1926, and female thorax brown to black. The *R. flava* group: fore femur without specialised anterior setae, intrahumeral seta present, hind tibia with a long seta in the posteroapical comb, cell dm more truncate, palpus yellow, and female thorax mostly yellow (except *R. culicina* (Fallén, 1816)).

Altogether 19 species are recognized in this paper, two additional species are arranged in the key but not described, because the available specimens do not enable them to be described formally (and funding of field collecting trips is currently all but impossible). All formerly known species were properly described and illustrated by Collin (1961) or Barták (1982), with the exceptions of *R. trigemina* Oldenberg, 1927 and *R. variabilis* (Fallén, 1816) illustrated herewith. More recently, *R. tenuipes* Becker, 1907 was recognized as a distinct species and redescribed alongside *R. lamellata* Collin, 1926 and *R. biserialis* (Collin, 1960) by Barták & Kubík (2009). *R. umbripennis* var. *morenae* Strobl, 1899 was described on a basis of two females (Cardenas, Spain), with only a single characteristic mentioned in the original description differentiating it from *R. umbripennis* Meigen, 1822 (“Schwinger gelbbraun”). There are two females in Strobl’s collection in Admont, apparently syntypes, which are very similar to *R. umbripennis* or *R. trigemina*, only halter is somewhat paler, yellowish brown. *R. umbripennis* var. *morenae* is not considered here as distinct species until more specimens (including males) are available. This is due to fact that differences among females of these three nominal forms are very slight.

Empis subgenus *Rhadinempis*, with only a single known species, *Empis bazini* Collin, 1926, is strikingly similar to species of the *R. (Holoclera) nigripennis* group. Both share a similar shape, colour and body chaetotaxy, including an irregular row of spine like anterior setae on the fore femur, slender and short setose legs, absence of seta in posteroapical comb on hind tibia, absence of acrostichal setae and uniserial dorsocentrals. However, *Rhadinempis* has forked vein R4+5 and somewhat different antenna with a short 1st flagellomere scarcely twice as long as broad as well as a very long apical stylus (three times as long as postpedicel).

All known palaeartic *R. (Holoclera)* species are distributed in the West Palaeartic region (ranging from the British Isles to the Caucasus and from Scandinavia to the Canary Islands, North Africa and Israel), with at least two other species inhabiting the Nearctic region.

MATERIAL AND METHODS

The material studied is deposited in the following collections (all specimens without registration number):

CULSP Czech University of Life Sciences, Prague

MHNG Muséum d'Histoire Naturelle, Geneva

NHMH Natural History Museum, Helsinki

UZMC University Zoological Museum, Copenhagen

ZMLU Zoological Museum, Lund University

ZMMU Zoological Museum, Moscow University

The genitalia were macerated in 10 % KOH (24 hours, room temperature) and later stored together with specimens in plastic glycerine filled microvials. The morphological terms used here follow Merz & Haenni (2000) and Sinclair (2000). Abbreviations: fl_{1,2,3} = fore, mid, hind femur, t_{1,2,3} = fore, mid, hind tibia, bt_{1,2,3} = fore, mid, hind basitarsus (metatarsus); M₂/D = length of vein M₂: greatest length of discal medial cell (discal cell); CuA₁ ratio = length of apical: preapical sections of vein CuA₁; lw: ww = greatest length of wing (from basicosta to apex): greatest width of wing. Length of antennal segments = length of first segment (scape): 2nd (pedicel): 3rd (1st flagellomere): stylus (in 0.01 mm scale). All measurements (including body length) were taken from dry specimens (therefore the actual length may differ). Male body length were measured from antennal base to the hind margin of 8th tergite (without genitalia) and female body length from base of antenna to the tip of cerci.

SYSTEMATIC TREATMENT

Rhamphomyia (Holoclera) bistratella sp. n.

Fig. 1

HOLOTYPE: CULSP; 1 ♂; Spain, Pr. Cadiz, Hozgarganta, Tal bei Jimena, 200 m; 18.iv.1979; leg. W. Schacht.

PARATYPES: CULSP; 1 ♂; same data as the Holotype.

DISTRIBUTION: Spain.

DATE OF OCCURRENCE: April.

DESCRIPTION

Male: Eyes dichoptic, facets in dorsal half of eye smaller than in ventral half. Frons black, light grey microtrichose, 0.07 mm broad in the middle and 0.10 mm just above antenna, 0.24 mm long, with 4 pairs of fine setae about 0.10 mm long. Ocellar setae black, half as long as frons, ocellar triangle not much prominent and without additional setae. Face black, light grey microtrichose, 0.20 mm long and 0.10 mm broad ventrally, without setae. Occiput black, light grey microtrichose, sparsely and short setose, black setae arranged in two rows, postocular row complete, subparallel to hind eye margin, second row confined to dorsal half. Antenna black, both basal antennomeres brown, length of antennal segments (in 0.01 mm scale) = 10: 8: 25: 17, both basal antennomeres short setose (the longest setae about 0.08 mm long). Labrum brownish yellow, lustrous, 1.4 times as long as head is high. Palpus yellow with several short black setae. Gena very narrow, clypeus microtrichose. Thorax black to brownish black, mesoscutum with two somewhat darker stripes between rows of acrostichals and dorsocentrals. All thoracic setae dark. Chaetotaxy: proepisternum with 2-3 fine setae; prosternum and proepisternal depression without setae; 11 short (0.10 mm) and narrowly biserial (almost uniserial in front) acrostichals (in the paratype damaged by a pin); 5-8 uniserial dorsocentrals up to 0.20 mm long, 1-2 prescutellar pairs longer; intrahumeral present and strong; 1 long and strong posthumeral (no additional setae outside dorsocentrals in posthumeral area); 1 postpronotal and 2 shorter setae; 2-3 no -

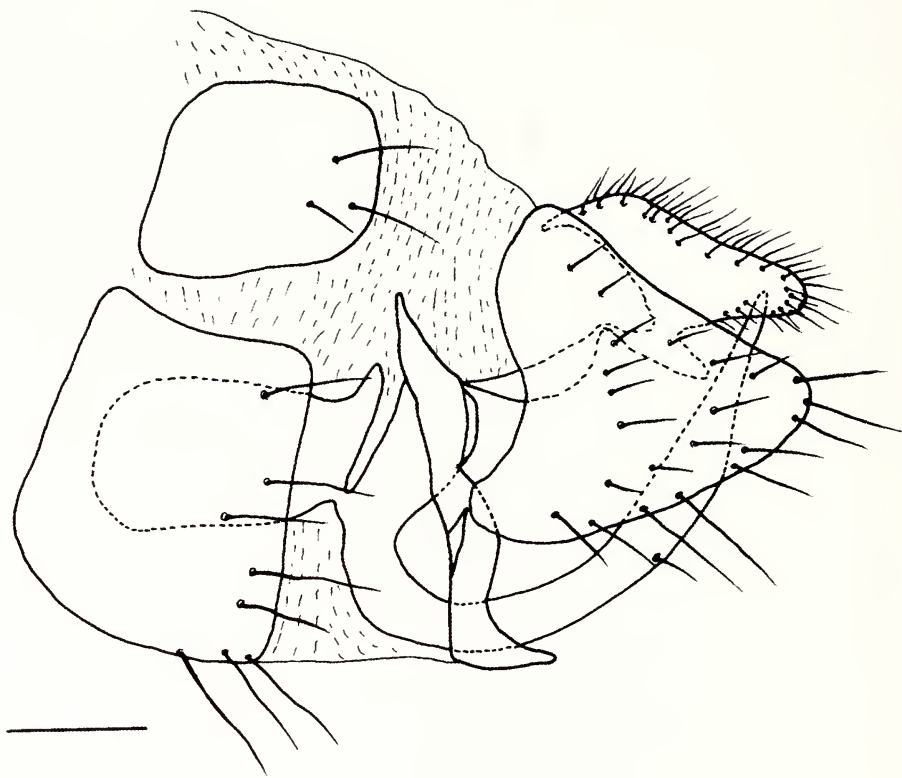


FIG. 1

Rhamphomyia (Holoclera) bistriatella sp. n., male terminalia (macerated), lateral view. Scale 0.1 mm.

topleurals (anterior part of notopleuron with 0-1 seta); 1 strong supraalar and 0-1 seta in prealar area; 1 long and 1 short and fine postalars; 4 scutellars (apical pair inserted wide apart); laterotergite with dark setae. Legs including coxae yellow (proximal parts clear yellow and more distal parts brownish yellow). Legs microtrichose (femora sublustrous), covered with dark setae. One long seta present in posteroapical comb on hind tibia. Both fore and mid femora and tibiae short setose, preapicals on tibiae unusually short. Hind femur with three short but distinct setae in apical third (in anterior, antero- and posterodorsal position). Hind tibia with 4-5 pairs of setae dorsally, not longer than tibia is deep. Basal tarsomeres of all legs thin and short setose, with short spines ventrally. Measurements (in 0.01 mm scale): length: f1 (148-155), f2 (176-182), f3 (228-236), t1 (158-163), t2 (168), t3 (222-230), bt1 (98-104), bt2 (82-88), bt3 (116-120), width: bt1 and bt2 (5), bt3 (9). Wing clear, stigma light brown, veins brown, anal vein (A1) incomplete, absent in apical third. Costal seta present, axillary angle right. M2/D = 1.6-1.8, CuA1 ratio = 2.1-2.3, lw: ww = 3.2-3.4. Halter grey with yellow stem, calypter yellow with dark fringes. Abdomen brown, yellowish on basal segments and

ventrally, microtrichose or slightly sublustrous, dark setose. Hind marginal setae on sides of tergites 2-3 subequally long as their segments, on remaining segments half as long, discal setae very short. The 8th tergite desclerotized dorsally. Terminalia (Fig. 1): phallus rather thick but narrowed apically; cercus bilobate, straight dorsally; epanandrium simple, triangle shaped. Length of body 3.9-4.4 mm, wing 4.1-4.6 mm.

Female: Unknown.

DIFFERENTIAL DIAGNOSIS: *Rhamphomyia (Holoclera) bistriatella* sp. n. belongs to the *R. flava* group of *Holoclera* and it is most similar to and allied with *R. bistriata* Strobl. The main characteristics distinguishing these two species are as follows: halter yellow, fore and mid tibiae with dorsal setae at least as long as the tibia is deep and cercus with dorsobasal swelling (trilobate in lateral view) in *R. bistriata*, but halter grey, fore and mid tibiae without dorsal setae and cercus without dorsobasal swelling (bilobate in lateral view) in *R. bistriatella* sp. nov. Moreover, hypandrium is shorter and ejaculatory apodeme is larger in *R. bistriatella* than in *R. bistriata*. Differences in male genitalia are obvious when comparing Fig. 1 with Fig. 17f of *R. bistriata* (as *R. pallidiventris* (Fallén)) by Barták (1982). The female remains unknown; however, if it has a yellow thorax, it may go in the key to *R. sciarina* (Fallén, 1816).

DERIVATIO NOMINIS: the specific name refers to its similarity to *R. bistriata*.

***Rhamphomyia (Holoclera) bohemica* sp. n.**

Fig. 2

HOLOTYPE: CULSP; 1 ♂; the Czech Republic, Kozlov, 2km E, meadow near picetum, 49°24'N, 15°41'E, 340 m; 22.vi.1986; M. Barták.

PARATYPES: CULSP. CZECH REPUBLIC. 17 ♂, 8 ♀; same data as the holotype.- 3 ♂, 4 ♀; Božejovice near Jistebnice, Jezviny; 17.vii.1987; sweeping.- 1 ♂; same locality; 22.vii.1987.- 2 ♂, 2 ♀; same locality; 26.vi.1977.- 1 ♂; same locality; 4.viii.1990.- 2 ♂; same locality; 6.vii.1991.- 1 ♀; same locality; 15.vii.2008.- 1 ♀; same locality; 4.vii.1988; all leg. M. Chvála.- 1 ♂, 1 ♀; Lhenice, 48°59'N, 14°11'E; 2.vii.1981; M. Barták.- 1 ♀; Albeř, nr. Pond; 24.vi.1977.- 1 ♂; same locality; 18.vi.1981; both M. Chvála.- 1 ♂; Hůrka u Nové Bystřice; 16.vi.1977.- 1 ♂; O. Surovátka; Šumava, Prášily near Křemelná river; 27.viii.2000; M. Barták.- 6 ♂, 4 ♀; Šumava, Antýgl; 2.viii.1975; M. Barták.- 1 ♂; Kašperské hory, 2 km SW, near Losenice river, 49°08'N, 13°33'E, 600 m; 1.vii.1995; M. Barták.- 1 ♀; Šumava, Nová Hůrka, peat bog, 49°09'N, 13°20'E, 870 m; 20.viii.-24.ix.1999; Malaise trap; M. Barták & Š. Kubík.- 1 ♀; Šumava, Popelná, along brook, 880 m, 49°06'N, 13°38'E; 7.vii.1988; M. Barták.- 1 ♂; Šumava, Malá Niva, peat bog, 48°55'N, 13°49'E, 780 m; 5.vii.1988; M. Barták.- 1 ♂; Šumava, Volary-Nová Pec; car net; 22.vii.1992; M. Barták.- 1 ♂, 1 ♀; Šumava, Horská Kvilda- Horní Vltavice; car net; 21.vii.1992; M. Barták.- 1 ♂; Šumava, Spálenec, damp meadow, 48°56'N, 13°57'E, 800 m; 28.vi.1992; M. Barták.- 1 ♂; same locality; 15.viii.1994; M. Barták.- 2 ♂; Šumava, Chalupská slat, peat bog, 49°01'N, 13°39'E; 28.vi.1992; M. Barták.- 1 ♀; same locality; 17.viii.1994; M. Barták.- 3 ♂; Šumava, Pěkná, peat bog, 49°21'05"N, 13°54'44"E, 730 m; sweeping; 17.vii.1997; leg. M. Barták & J. Roháček.- 1 ♂, 2 ♀; same locality; 20.viii.1997; leg. M. Barták & J. Roháček.- 1 ♂; Šumava, Kyselovský les, peat bog, emerged from dead wood, 48°41'28"N, 14°03'18"E, 730 m; M. Barták & J. Roháček.- 1 ♂; Nová Hut'-Prachaticce; car net; 22.vii.1992; M. Barták.- 3 ♀; Vyšší Brod, near river, 48°37'N, 14°20'E; 1.vii.1981; M. Barták.- 1 ♀; Purkarec, near brook, 49°08'N, 14°26'E, 400 m; 26.vii.1995; M. Barták.- 1 ♂; Vráž near Písek, 49°24'N, 14°7'E, 410 m; 18.vi.-18.vii.2009; Malaise trap; M. Barták.- 1 ♂; same locality; 18.-22.vi.2007; M. Barták.- 1 ♂; Jizerské hory, Bukovec NR, damp meadow, 900 m; pan trap; 2.-21.vii.2010; P. Vonička.- 1 ♂; Krkonoše, Labský důl near Labe river, 1040 m, 50°45'48"N, 15°33'05"E; Malaise trap; 7.-13.vi.2006; J. Vaněk.- 1 ♂; Krkonoše, Slunečná stráň, 645 m, near pond, 50°38'12.5"N, 14°49'23.6"E; Malaise trap; 2.-30.vi.2009; J. Vaněk.- 2 ♂; Rokytno; vii.1964; J. Macek.- 1 ♂; Horní Lomná, 3 km N, meadow near brook, 49°33'N,

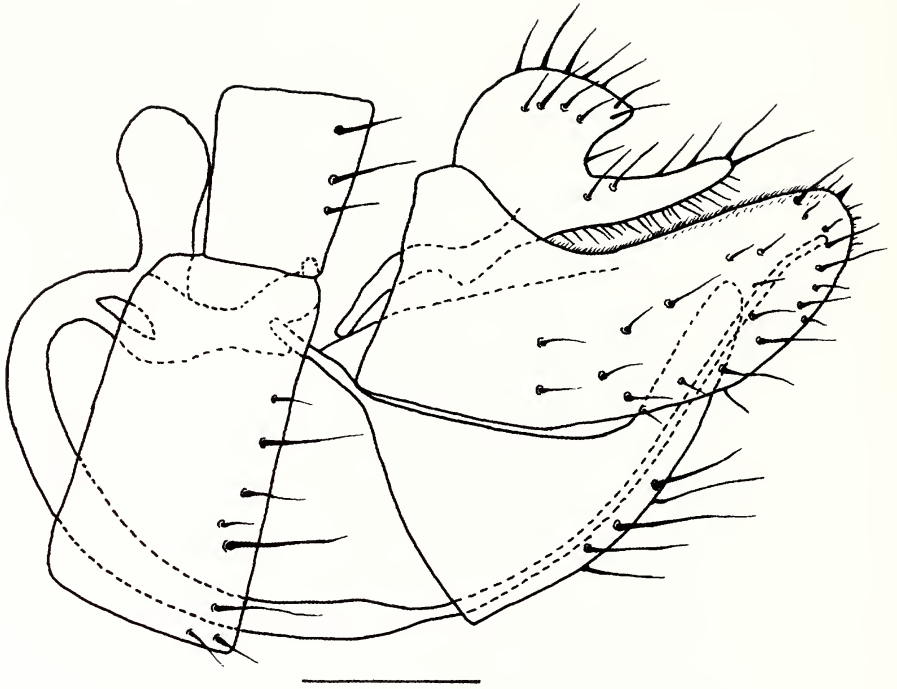


FIG. 2

Rhamphomyia (Holoclera) bohemica sp. n., male terminalia (macerated), lateral view. Scale 0.1 mm.

18°40'E, 520 m; 10.viii.1986; M. Barták.- SLOVAK REPUBLIC. 1 ♂, 3 ♀; Vyšné Ružbachy, 1 km NW, pasture, 49°28'N, 20°33'E, 650 m; 25.vii.1986; M. Barták.- 1 ♂; Košecké Podhradie, mixed wood, 48°59'N, 18°17'E, 270 m; 29.vii.1989; M. Barták.- 2 ♂; Orava, Námestovo; 11.vi.ii.1973; M. Chvála.- 6 ♂; Nizké Tatry, Demänovská dolina; 3.vii.1975; M. Barták.- 9 ♂, 2 ♀; Pribylina, along brook, 49°07'N, 19°48'E, 770 m; 28.vii.1989; M. Barták.- 1 ♂; same locality; 4.vii.1975; M. Barták.- 1 ♂; Ružomberok; 6.vii.1975; M. Barták.- SWITZERLAND. 1 ♂; Bellelay; 23.vii.1963; leg. F. & L. Keiser.- 1 ♀; same locality; 15.vii.1962; leg. F. & L. Keiser.- ÖSTERREICH. 1 ♀; Styria, Ennstal, Frauenberg Bhf., Erlgraben, 700 m; 9.vi.2010; M. Chvála.- 1 ♀; Styria, Gesäuse, Keiserau, forest road, 1250 m; 2.vii.2006; M. Chvála.- 1 ♂; Styria, Gesäuse, Johnsbach, meadows, 860 m; 6.vii.2006; M. Chvála.- ROMANIA. 2 ♂; Bystritei mt., 900 m; 7.vii.1977; O. Syrovátka.-; FINLAND. NHMH; 1 ♀; LK, Parikkala; flowers; 8.vi.ii.2003; J. Sinkkonen.- RUSSIA. ZMMU; 1 ♀; Abramcevo, 57 km N Moskva; 4.vii.1966; V. Kovalev.- SWEDEN. ZMLU; 4 ♂, 9 ♀; Sm, Växjö, S. Åreda; 27.vii.1991; R. Danielsson.- 7 ♂, 4 ♀; same locality; 5.vii.1989; R. Danielsson.- 3 ♂, 3 ♀; Sm Bergkvara; 17.vii.1983; R. Danielsson.- 11 ♀; same locality; 19.vii.1983; R. Danielsson.- 1 ♀; Sm, Torsas; 1.vii.1989; R. Danielsson.-, 1 ♂; same locality; 20.vii.1991; R. Danielsson.-, 1 ♀; same locality; 26.vii.1991; R. Danielsson.- 1 ♀; Sm, Söderakra; 25.vi.1989; R. Danielsson.- 1 ♀; Vstm, Strömsholm; 11.vii.1989; R. Danielsson.- 1 ♂, 1 ♀; Vstm, Angsö; 9.vii.1989; R. Danielsson.- 1 ♂; Vstm, Badelunda; 9.vii.1989; R. Danielsson.- 1 ♀; Vr, Alga; 3.vii.1988; R. Danielsson.- 1 ♂; Vr, Grasmark; 4.vii.1988; R. Danielsson.- 1 ♂; Vr, Vagge; 3.vii.1988; R. Danielsson.- 1 ♂; Go, 2 km V Sundre; 2.viii.1992; R. Danielsson.- 1 ♀; Öl, N. Möckleby; 24.vii.1991; R. Danielsson.- 1 ♂, 2 ♀; Me, Indal; 17.vii.1981; R. Danielsson.

DISTRIBUTION: the Czech Republic, Slovak Republic, Switzerland, Österreich, Romania, Finland, Sweden.

DATE OF OCCURRENCE: June-August.

DESCRIPTION

Male: Eyes holoptic, facets in ventral half of eye much smaller than in dorsal half. Frons (small area just above antenna and below ocellar triangle) black, microtrichose, setae absent. Ocellar setae black, about 1/3 as long as the distance between front ocellus and base of antenna, ocellar triangle mostly with 1 pair of additional similarly long setae on hind margin. Face brown, microtrichose, about 0.11 mm broad ventrally and 0.10 mm long, without setae. Occiput brownish black, microtrichose, sparsely black setose (setae on dorsal half of occiput arranged in two rows), postocular row remote from eye margin in middle part. Antenna brown to black, length of antennal segments (in 0.01 mm scale) = 7: 5-6: 16-19: 11-13, both basal antennomeres short setose (the longest setae about 0.05 mm long). Labrum brown, as long as or slightly shorter than head is high. Palpus brown, short, with 1-3 short setae. Gena very narrow, clypeus microtrichose. Thorax brownish black, microtrichose, mesoscutum uniformly dark brownish black, almost velvety black in dorsal view; without any stripes. All thoracic setae black. Chaetotaxy: 2-4 setae on proepisternum; both prosternum and proepisternal depression bare; 7-10 uniserial dorsocentrals (about 0.10-0.15 mm long in middle of their rows), 1-2 only slightly longer inclinate prescutellars; acrostichals absent; intrahumeral absent; one strong posthumeral (no additional setae laterad of dorsocentrals in presutural part of mesoscutum); 1 long postpronotal and 1-3 short additional setae; 2-3 notopleurals (0-1 shorter setae on anterior part of notopleuron); both supraalar and prealar absent; 1 strong and 1 small postalar; 4, rarely 5-6 scutellars; laterotergite with black setae. Fore coxa yellowish brown, distinctly paler than pleura, mid and hind coxae usually brown. Legs brown, microtrichose, hind femur (in some specimens also tibiae) lustrous, all setae on coxae and legs black. No seta in posteroapical comb on hind tibia. Fore femur with short setation (no prominent setae), anterior row of (sensory?) setae 0.03 mm long. Fore and mid tibiae with only short setation, without prominent setae (except preapicals on ventral part). Mid femur with short setation, no prominent setae except preapicals. Hind femur with short setation (ventrally almost bare in proximal 2/3), without prominent setae, except 1-2 preapicals ventrally. Hind tibia slightly broadened apically, with several setae dorsally slightly shorter than tibia is deep (only preapical dorsal seta may be longer), otherwise with short setation only. Basal tarsomeres of all legs thin and short setose, with short ventral setae. Measurements (in 0.01 mm scale): length: f1 (67-81), f2 (78-98), f3 (104-128), t1 (70-83), t2 (75-90), t3 (102-126), bt1 (40-46), bt2 (24-34), bt3 (48-56), width: bt1 and bt2 (4), bt3 (6). Wing light brown, stigma indistinct or only slightly darkened, veins brown, anal vein (A1) indistinct in distal half. Costal seta distinct axillary angle slightly obtuse. M2/D = 1.8-2.3, CuA1 ratio = 4.5-6.8, lw: ww = 3.1-3.3. Halter dark brown, calypter brown with dark fringes. Abdomen brown (lighter ventrally and almost velvety black in dorsal view), brown microtrichose, black setose. Hind marginal setae on sides of tergites 2-4 subequally long as their corresponding segments, on remaining segments shorter, discal setae shorter than marginals, dorsum of tergites with short

setae, 1st sternite bare. Terminalia (Fig. 2): hypandrium triangle-shaped in lateral view, with several strong and long setae, basal part connected with phallobase with narrow arms; cercus short and deeply concave dorsally; epandrium rounded apically, with a single spine at apex; phallus relatively short and broader in basal half than in apical half. Length of body 2.2-3.2 mm, wing 2.7-3.2 mm.

Female: Similar to male but with the following differences. Eyes dichoptic, facets subequal in size. Frons brown, microtrichose, 0.20-0.24 mm long and 0.08-0.10 mm broad, almost parallel sided, with 3-5 rather long (up to 0.10 mm) setae on each side. Face subequally broad as frons and 0.10-0.13 mm long. Labrum slightly longer than head is high. Mesoscutum dark reddish brown to blackish brown, sublustrous in dorsal view and light grey in frontal view. Legs mostly paler than in male: fore coxa yellow to brownish yellow, also proximal parts of all femora mostly yellowish brown. Setation of legs as in male, only mid tibia sometimes with 1-2 setae dorsally not longer than tibia is deep. Measurements (in 0.01 mm scale): length: f1 (78-86), f2 (90-96), f3 (120-136), t1 (80-87), t2 (80-91), t3 (111-120), bt1 (37-43), bt2 (34-36), bt3 (47-50), width: bt1 and bt2 (3-4), bt3 (5). Wing almost clear, stigma slightly darkened, M2/D = 1.6-1.9, CuA1 ratio = 2.3-3.8, lw: ww = 2.6-2.9. Abdomen mostly yellowish brown proximally and dark blackish brown distally, microtrichose, lateral part of tergites 3-4 sublustrous. Hind marginal setae on sides of tergites 2-3 up to 2/3 as long as their corresponding segments, on remaining segments shorter, discal setae shorter than marginals. Length of body 2.8-3.5 mm, wing 2.9-3.3 mm.

DIFFERENTIAL DIAGNOSIS: *R. (Holoclera) bohémica* sp. n. belongs to the *R. (Holoclera) nigripennis* group and it is most similar to *R. nigripennis* and *R. helvetica* sp. n. (all three having supraalar seta absent and front coxa usually paler than pleura). However, male cercus (Fig. 2) is more similar to *R. trigemina* Oldenberg (Fig. 9, i.e. deeply concave dorsally) than to *R. nigripennis* (Fabricius). Moreover, the species described above has a relatively short 3rd antennal segment in comparison to all other species of *R. nigripennis* group and this is probably the only characteristic enabling differentiation between females of *R. bohémica* and *R. helvetica*.

DERIVATIO NOMINIS: the specific name is derived from the country of origin (Bohemia = historical part of the Czech Republic).

***Rhamphomyia (Holoclera) helvetica* sp. n.**

Fig. 3

HOLOTYPE: MHNG; SWITZERLAND, GE, Cartigny/Moulin de Vert; 1 ♂; 350 m, 5.vi.2006, B. Merz.

PARATYPES: MHNG, CULSP; SWITZERLAND. 5 ♂, 2 ♀; same data as the holotype.- 1 ♀; same locality; 2.vi.2002.- 1 ♂; same locality, 470 m; 4.vi.2001; M. Eggenberger & B. Merz.- 1 ♂; Chancy/LaLaire, 350 m; 1.vii.2001; B. Merz.- 1 ♂, 2 ♀; Cartigny, Nant-des-Cruces, Rhone embouchure, 360 m; 4.vi.2001; M. Eggenberger & B. Merz.- 1 ♂; Dardagny/LeMoulin, 360 m; 30.vi.2001; B. Merz.- 1 ♀; Dardagny/Roulave, 420 m; 30.vi.2001; B. Merz.- 1 ♀; Avusy Moulin de la Grave, MT; 7.vi.2006; H. Boillat.- 1 ♀; Russin, Les Bailleys, 405 m; 30.vi.2001; B. Merz.- 3 ♂; NE, Marin/Les Tertres, 435 m; 19.v.2001; B. Merz.- 1 ♀; St. Blaise/Les Riedes, 470 m; 19.v.2001; B. Merz.- 1 ♂; ZH, Dietikon-Hardwald, 400 m; 15.v.1995; B. Merz.- 1 ♂; Zürich-Allmend, 450 m; 8.vi.1994; B. Merz.- UZMC; SPAIN. 1 ♂; Granada, Rio Mulhacén, 5 km N Capileira, 1500 m; 9. iv 1966.- 1 ♀; Rio Guadalfeo, Orgiva, 300 m; 4. iv 1966; Lyneb.-Martin-Langem.

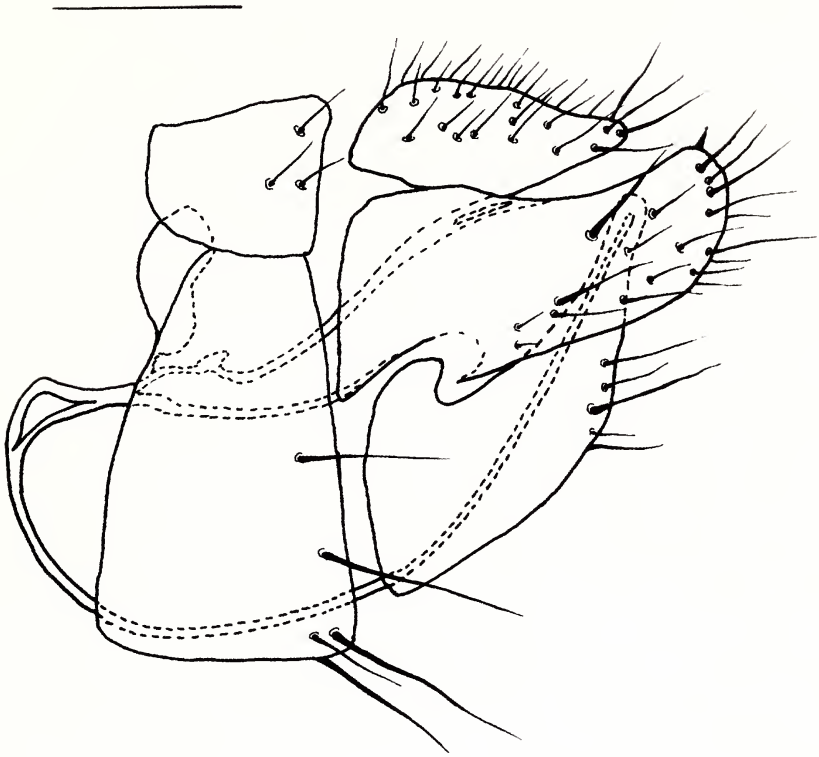


FIG. 3

Rhamphomyia (Holoclera) helvetica sp. n., male terminalia (macerated), lateral view. Scale 0.1 mm.

DISTRIBUTION: Spain, Switzerland.

DATE OF OCCURRENCE: April-July.

DESCRIPTION

Male: Eyes holoptic, facets in ventral half of eye much smaller than in dorsal half. Frons (small area just above antenna and below ocellar triangle) brown, brown microtrichose, setae absent. Ocellar setae black, about half as long as the distance between front ocellus and base of antenna, ocellar triangle with 1 pair of additional setae on hind margin. Face brown, microtrichose, about 0.09-0.10 mm broad ventrally and 0.11-0.14 mm long, without setae. Occiput dark brown, microtrichose, sparsely black setose (setae on dorsal half of occiput arranged in two rows), postocular row irregular on ventral half. Antenna brown, length of antennal segments (in 0.01 mm scale) = 5-6: 7: 21-26: 10-12, both basal antennomeres short setose (the longest setae

about 0.07 mm long). Labrum brown, slightly shorter than head is high. Palpus brown, short, with 2-3 short setae. Gena very narrow, clypeus microtrichose. Thorax brownish black, microtrichose, mesoscutum uniformly dark brownish black, almost velvety black in dorsal view; without any stripes. All thoracic setae black. Chaetotaxy: 0-3 setae on proepisternum; both prosternum and proepisternal depression bare; 7-10 uniserial dorsocentrals (about 0.15 mm long in middle of their rows), 1-2 only slightly longer inclinate prescutellars; acrostichals absent; intrahumeral absent; one strong posthumeral (no additional setae laterad of dorsocentrals in presutural part of mesoscutum); 1 long postpronotal and 1-2 short additional setae; 2-3 notopleurals (0-2 shorter setae on anterior part of notopleuron); both supraalars and prealars absent; 1 strong and 1 very small postalars; 4 scutellars; laterotergite with black setae. Legs including coxae brown (fore coxa yellowish brown apically, yellow in the male from Spain), microtrichose, hind femur (in some specimens also tibiae) lustrous, all setae black. No seta in posteroapical comb on hind tibia. Fore femur with short setation (no prominent setae), anterior row of (sensory?) setae 0.02-0.04 mm long. Fore tibia with short setation only, without prominent setae (except preapicals). Mid femur with short setation, no prominent setae except preapicals. Mid tibia often with one anteroventral seta on apical third, otherwise with short setation only. Hind femur with short setation, without prominent setae, except several preapical anteroventrals not much stronger than other setation but somewhat longer. Hind tibia slightly broadened apically, with 1-3 posterodorsal setae slightly longer than tibia is deep (situated mostly on distal half of tibia), otherwise with short setation only. Basal tarsomeres of all legs thin and short setose, ventral setae short, more distinct on hind one. Measurements (in 0.01 mm scale): length: f1 (72-85), f2 (83-95), f3 (115-140), t1 (75-88), t2 (79-88), t3 (105-120), bt1 (41-50), bt2 (35-38), bt3 (48-58), width: bt1 and bt2 (5), bt3 (6-7). Wing light brown, stigma indistinct or only slightly darkened, veins brown, anal vein (A1) indistinct in distal third. Costal seta long, axillary angle right. M2/D = 1.8-2.3, CuA1 ratio = 3.4-5.8, lw: ww = 2.9-3.3. Halter dark brown, calypter brown with dark fringes. Abdomen brown (lighter ventrally and almost velvety blackish brown in dorsal view), brown microtrichose, black setose. Hind marginal setae on sides of tergites 2-4 subequally long as their corresponding segments, on remaining segments slightly shorter, discal setae shorter than marginals, dorsum of tergites with short setae, 1st sternite bare. Terminalia (Fig. 3): hypandrium triangle-shaped in lateral view, with several setae, basal part connected with phallobase with very long and narrow arms; cercus short and simple, straight dorsally; epandrium rounded apically, with a single spine at apex; phallus medium long and evenly thin to the tip. Length of body 2.5-3.1 mm, wing 2.3-3.2 mm.

Female: Similar to male but with the following differences. Eyes dichoptic, facets subequal in size. Frons brown, microtrichose, 0.18-0.25 mm long and 0.08-0.09 mm broad, almost parallel sided, with 3-6 rather long (up to 0.10 mm) setae on each side. Face subequally broad as frons. Ocellar setae $\frac{3}{4}$ as long as the distance between front ocellus and base of antenna. Mesoscutum dark reddish brown to blackish brown, sublustrous. Legs paler than in male: fore coxa yellow, mid and hind coxae yellow to brownish yellow, proximal parts of all femora yellow to brownish yellow. Basal tar-

someres of legs with slightly longer ventral spines than in male. Measurements (in 0.01 mm scale): length: f1 (72-95), f2 (80-100), f3 (110-125), t1 (70-88), t2 (78-94), t3 (105-117), bt1 (38-45), bt2 (32-36), bt3 (44-52), width: bt1 and bt2 (4), bt3 (5-6). Wing light brownish, M2/D = 1.6-1.9, CuA1 ratio = 2.6-4.8, lw: ww = 2.7-2.8. Halter brown, calypter brown with dark fringes. Abdomen yellow to brownish yellow proximally and dark blackish brown distally, microtrichose, lateral part of tergites 2-4 sublustrous. Hind marginal setae on sides of tergites 2-4 less than half as long as their corresponding segments, on remaining segments slightly shorter, discal setae slightly shorter than marginals. Length of body 2.0-3.1 mm, wing 2.6-3.4 mm.

DIFFERENTIAL DIAGNOSIS: *R. (Holoclera) helvetica* sp. n. belongs to the *R. (Holoclera) nigripennis* group and it is most similar to *R. nigripennis* (Fabricius) (both species sharing two characteristics: supraalar seta absent and cercus almost straight dorsally). The *R. nigripennis* male has a very long phallus (see Barták 1982: fig. 12d), much longer than in *R. helvetica*. However, this characteristic is visible only after dissection. The shape of cercus may be used for distinguishing both species without dissection: in *R. nigripennis* it has distinct basal swelling, which is best visible in dorsal view (inner margins are angled) but it has no swelling in *R. helvetica* (inner margins of cerci are straight, V-shaped in dorsal view). Moreover, epandrium is narrowed apically in *R. helvetica* with only a single apical spine, but broadened apically with several long spine-like setae in *R. nigripennis*. Female frons is microtrichose in *R. helvetica* but lustrous in *R. nigripennis*.

DERIVATIO NOMINIS: the specific name is derived from the country of origin (Helvetia = Switzerland).

***Rhamphomyia (Holoclera) portugalia* sp. n.**

Fig. 4

HOLOTYPE: CULSP; 1 ♂; Portugal, 5 km N of Formalicao, 40°28'31''N, 7°21'32''W, 930 m; Castanea wood, sweeping vegetation; 23.v.2008; M. Barták.

PARATYPES: CULSP; 21 ♀; same data as the Holotype.- 1 ♀; Serra da Estrella, forest, 40°24'13''N, 7°35'10''W, 1450 m; 16.-17.vii.2009; M. Barták.

DISTRIBUTION: Portugal.

DATE OF OCCURRENCE: May-July.

DESCRIPTION

Male: Eyes holoptic, facets in ventral half of eye smaller than in dorsal half. Frons (small area just above antenna and below ocellar triangle) brown, brown microtrichose, setae absent. Ocellar triangle with 2 pairs of short setae, ocellars broken in the single male at hand. Face brown, microtrichose, 0.10 mm broad ventrally and about 0.09 mm long, without setae. Occiput brown, microtrichose, sparsely black setose (setae arranged in two almost complete and regular rows). Antenna brownish black, length of antennal segments (in 0.01 mm scale) = 9: 7: 22: 11, both basal antennomeres short setose (the longest setae about 0.06 mm long). Labrum brown, 1.5 times as long as head is high. Palpus brown, only 1 short seta on base of broadened terminal part and further three setae on base. Gena extremely narrow, clypeus microtrichose. Thorax brown, microtrichose, mesoscutum light brownish grey viewed from the front or from

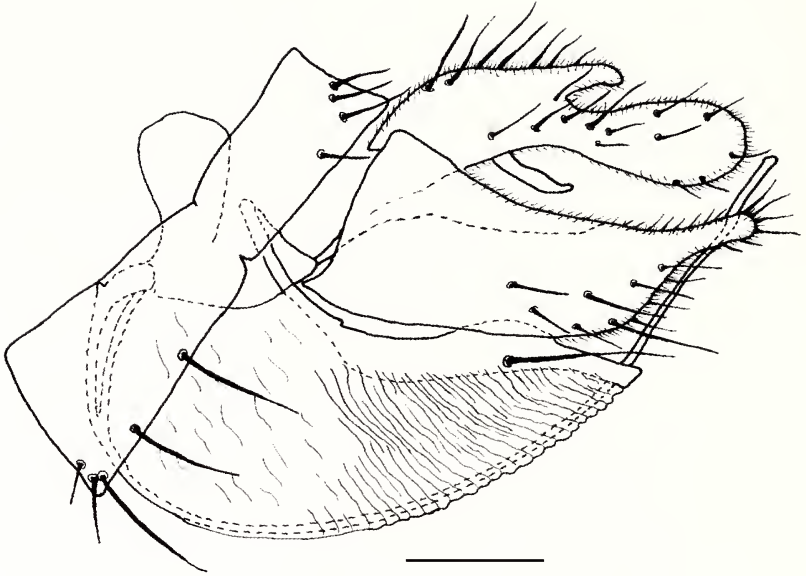


FIG. 4

Rhamphomyia (Holoclera) portugolica sp. n., male terminalia (macerated), lateral view. Scale 0.1 mm.

sides and uniformly dark almost velvety brownish black in dorsal view and with two narrow somewhat lighter stripes between rows of dorsocentrals in caudal view. All thoracic setae black. Chaetotaxy: 2 setae on proepisternum; both prosternum and proepisternal depression without setae; 6-8 uniserial dorsocentrals (about 0.15 mm long in middle of their rows), last 1-2 (prescutellar) pairs slightly longer (but one shorter seta present on both sides close to scutellum); acrostichals absent; intrahumeral absent; one strong posthumeral (no additional setae laterad of dorsocentrals in pre-sutural part of mesoscutum); 1 long postpronotal and 2 very short additional setae; 2 notopleurals (1-2 shorter setae on anterior part of notopleuron); 1 rather long supraalar (inserted in cranial position, almost in prealar region); 1 strong and 2 very small post-alars; 4 scutellars; laterotergite with black setae. Legs including coxae brown, microtrichose (hind femur lustrous except for the tip), black setose. One very short and poorly distinct seta in posteroapical comb on hind tibia. Fore femur with short setation (no prominent setae), anterior row of spine like (sensory) setae about 0.02 mm long. Fore tibia with short setation only, without prominent setae (except preapical ventral). Mid femur with short setation, no prominent setae. Mid tibia with one anteroventral seta in apical third subequally long as remaining short setation. Hind femur with short setation, without prominent setae. Hind tibia slightly broadened apically, with 1-3 posterodorsal setae slightly stronger but no longer than remaining short setation. Basal tarsomeres of both fore and mid legs thin and short setose, basal tarsomere of hind leg

thin, short setose, ventrally with several slightly prominent setae. Measurements (in 0.01 mm scale): length: f1 (75), f2 (95), f3 (128), t1 (75), t2 (80), t3 (125), bt1 (50), bt2 (40), bt3 (60), width: bt1 and bt2 (3), bt3 (6). Wing light brownish, stigma brown, veins brown, anal vein (A1) depigmented in middle part, but apical part distinct. Costal seta long, axillary angle slightly obtuse. $M2/D = 2.2$, $CuA1$ ratio = 5.0, $lw:ww = 2.6$. Halter yellowish brown with darker stem, calypter light brown with dark fringes. Abdomen brown, brown microtrichose, black setose. Hind marginal setae on sides of tergites 2-3 subequally long as their segments, on remaining segments much shorter, discal setae slightly shorter than marginals, dorsum of tergites with short setae, 1st sternite with 2 setae. The 8th tergite and sternite scarcely separated. Terminalia (Fig. 4): hypandrium narrow, with a single long submedian seta, and scarcely differentiated from sclerotized membrane; epandrium approximately rectangular with elongate dorsoapical corner; cercus unusually shaped: trilobate, two dorsal lobes visible in lateral view, lower of them broader and much longer than upper one and cercus with the third short internal lobe visible after dissection; phallus extremely thin to the tip. Length of body 2.9 mm, wing 3.0 mm.

Female: Similar to male but with the following differences. Eyes dichoptic, facets subequal in size. Frons brown, microtrichose, 0.18-0.23 mm long and 0.09 mm broad ventrally and 0.08 mm broad dorsally (slightly narrowing above), with 4-5 short setae on each side (about 0.05 mm). Ocellar setae half as long as the distance between front ocellus and base of antenna. Labrum 1.5-1.8 times as long as head is high. Fore coxa paler than in male, yellowish brown anteriorly about base. Legs as in male, setae on mid and hind tibia more distinct, mid tibia often with 1-2 anterodorsal setae, hind femur often with 1-3 ventral setae on apical third. Basal tarsomeres with more distinct ventral setae. Measurements (in 0.01 mm scale): length: f1 (67-85), f2 (85-105), f3 (123-150), t1 (70-90), t2 (80-100), t3 (94-140), bt1 (37-50), bt2 (32-40), bt3 (42-63), width: bt1 and bt2 (6), bt3 (9). $M2/D = 1.6-2.1$, $CuA1$ ratio = 3.7-5.3, $lw:ww = 2.6-3.1$. Abdomen brown, microtrichose. Hind marginal setae on sides of tergites 2-4 half as long as their corresponding segments, on remaining segments much shorter. Length of body 2.7-4.2 mm, wing 2.6-3.7 mm.

DIFFERENTIAL DIAGNOSIS: *R. (Holoclera) portugalica* sp. n. belongs to the *R. (Holoclera) nigripennis* group. However, it differs from other species of this group by its long labrum and unusually (trilobate) shaped male cercus. Females should be compared with *R. (Holoclera) tenuipes* Becker and *R. (Holoclera) lamellata* Collin (both having fore coxae paler than pleurae and supraalar seta present), but may be differentiated according to the key.

DERIVATIO NOMINIS: the specific name is derived from the country of origin (Portugal).

Rhamphomyia (Holoclera) subvariabilis sp. n.

Figs 5, 6

HOLOTYPE: CULSP; 1 ♂; Russia, Caucasus, Azau, 43°15'47''N, 42°29'21''E, 2 300m; 25.vi.-7.vii.1976; M. Barták.

PARATYPES: CULSP; 1 ♀; same data as the Holotype.

DISTRIBUTION: Russia (Caucasus).

DATE OF OCCURRENCE: June-July.

DESCRIPTION

Male: Eyes holoptic, facets in ventral half of eye much smaller than in dorsal half. Frons (small area just above antenna and below ocellar triangle) brown, light grey microtrichose, bare. Ocellar setae black, more than half as long as frons, ocellar triangle with a pair of rather long additional setae on hind part. Face brown, light grey microtrichose, about 0.18? mm broad ventrally and 0,12? mm long, bare. Occiput blackish-brown, light grey microtrichose, with rather strong black setae arranged in two nearly regular rows, postocular row complete, subparallel to hind eye margin, irregular ventrally. Antenna black, both basal antennomeres yellowish-brown, length of antennal segments (in 0.01 mm scale) = 8?: 7: 28: 16, both basal antennomeres rather short setose (the longest setae about 0.11 mm long). Labrum yellow, lustrous, nearly twice as long as head is high. Palpus yellow with several brown setae. Gena very narrow and microtrichose, clypeus microtrichose. Thorax brown, humeri, anterior part of notopleuron and stripes under presutural dorsocentrals yellowish translucent, mesoscutum grey or brownish-grey microtrichose, with more greyish median stripe between dorsocentrals with darker margins. All thoracic setae dark. Chaetotaxy: proepisternum entirely setose; prosternum bare; proepisternal depression with a single small seta; acrostichals absent; 7-8 uniserial dorsocentrals about 0.30 mm long in middle of their rows, ending in 2-3 prescutellars; intrahumeral present; 1 strong posthumeral (1-2 additional setae laterad of dorsocentrals on posthumeral area); 1 post-pronotal and about 8 shorter but relatively strong setae on postpronotum; 3-4 notopleurals (anterior part of notopleuron with 3-4 setae); 1 very long supraalar and 3-4 setae on prealar area; 1 long and 1 short and fine postalars; 4 scutellars; laterotergite with dark setae. Legs including coxae yellow, base of coxae and tarsi slightly darkened. Legs microtrichose (femora sublustrous), covered with dark setae. One long seta present in posteroapical comb on hind tibia. Fore femur short setose. Fore tibia with 3 anterodorsal and 4-5 posterodorsal setae slightly longer than tibia is deep. Mid femur with 2 anterior setae in apical third, otherwise short setose except preapical setae. Mid tibia with 3-4 anterodorsal (or anterior) and 4 posterodorsal setae slightly longer than tibia is deep, otherwise short setose. Hind femur similarly setose as mid femur. Hind tibia with 4-5 anterodorsal and 5-6 posterodorsal setae slightly longer than tibia is deep, ventral setae short. Basal tarsomeres of all legs thin and short setose, with short spines ventrally. Measurements (in 0.01 mm scale): length: f1 (140), f2 (183), f3 (235), t1 (145), t2 (169), t3 (203), bt1 (104), bt2 (89), bt3 (125), width: bt1 (5), bt2 (6), bt3 (7). Wing clear, slightly iridescent, stigma hyaline, veins yellowish-brown, anal vein (A1) complete. Costal seta present, axillary angle acute. M2/D = 1.4-1.5, CuA1 ratio = 2.5, lw: ww = 2.8-2.9. Halter yellow, calypter yellow with dark fringes. Abdomen brown, hind margin of segments and last two sternites translucent yellow, abdomen microtrichose and dark setose. Hind marginal setae on sides of tergites subequally long as segments, discal setae much shorter than marginals. Dorsum of tergites shorter setose. 8th segment forming syntergosternite, cranial part depigmented ventrally and in dorsal third. Terminalia (Figs 5, 6): cercus trilobate; phallus short and thick, axe-like broadened at apex and slightly narrowed before middle; hypandrium with two short

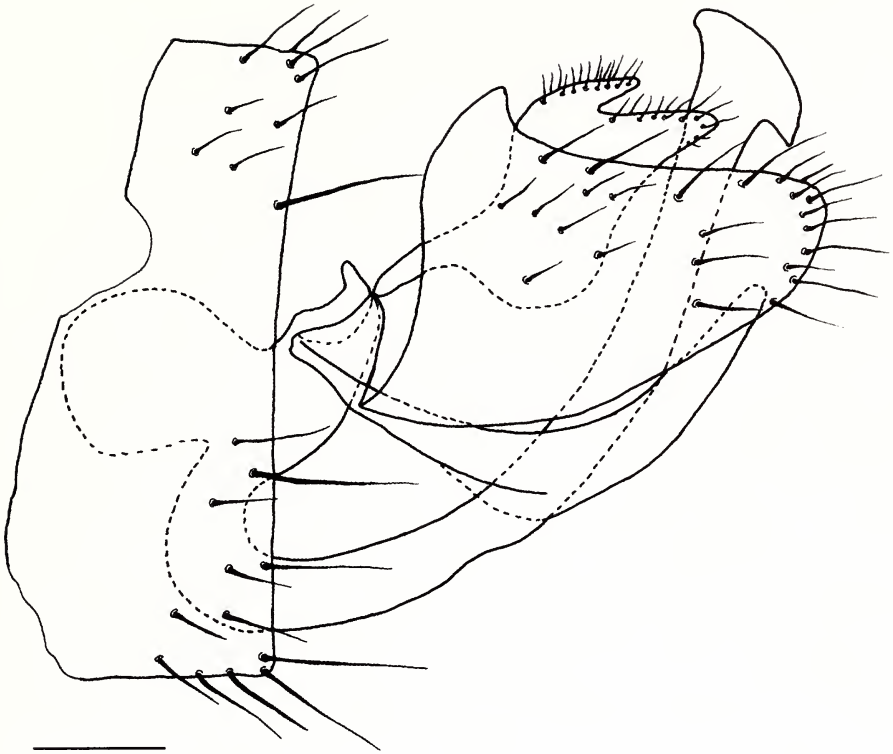


FIG. 5

Rhamphomyia (Holoclera) subvariabilis sp. n., male terminalia (macerated), lateral view. Scale 0.1 mm.

apical spine like setae; epandrium attached to hypandrium some distance from hypandrial articulation with phallobase (short hypandrial arms present). Length of body 4.6 mm, wing 5.0 mm.

Female: Similar to male but with the following differences. Eyes narrowly dichoptic (0.05 mm broad in the narrowest place), ventral facets only slightly smaller than dorsal ones. Frons 0.32 mm long, with a pair of setae in the dorsal part. Face as in male, yellowish only ventrally. Length of antennal segments = 9: 7: 26: 15. Ocellar setae $2/3$ as long as frons. Occiput translucent yellow near neck. Thorax similarly coloured and setose as in male, only yellow parts more extensive (practically whole of prothorax and broad stripes below dorsocentrals yellow), median grey stripe without dark margins, all setae slightly shorter and finer than in male (dorsocentrals about 0.25 mm long), short setae on postpronotum not strong. Legs including coxae similarly coloured as in male, also arrangement of setae similar, only anterior setae on hind femur less distinct and anterodorsal and posterodorsal setae on tibiae slightly shorter than in male. Leg measurements (in 0.01 mm scale): length: f1 (125), f2 (160), f3 (210), t1

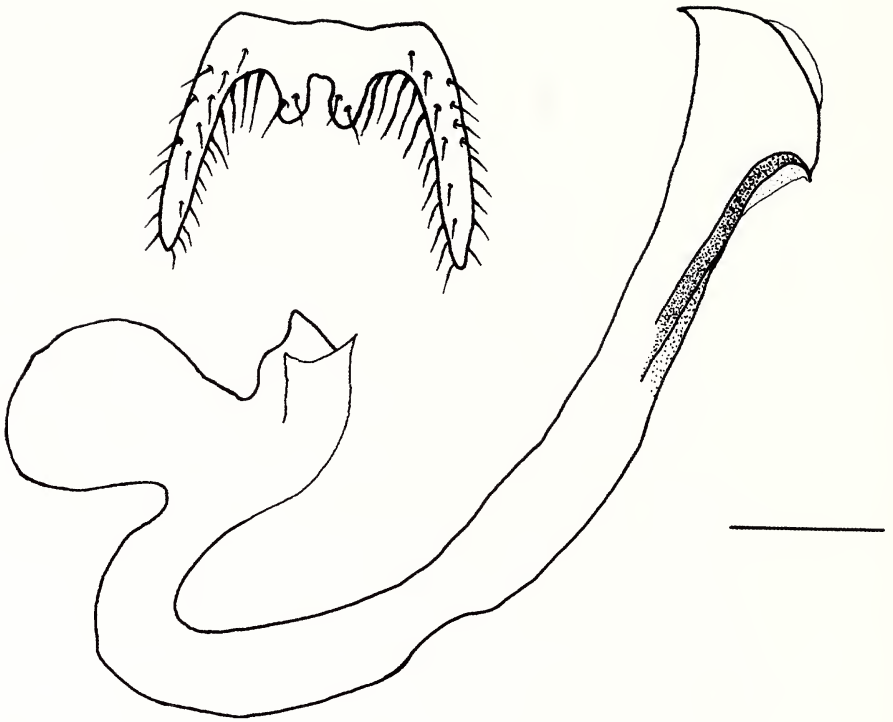


FIG. 6

Rhamphomyia (Holoclera) subvariabilis sp. n., male phallus (lateral view) and cerci (dorsal view). Scale 0.1 mm.

(125), t2 (143), t3 (184), bt1 (85), bt2 (72), bt3 (104), width: bt1 and bt2 (5), bt3 (?). M2/D = 1.3-1.4, CuA1 ratio = 2.6-2.7, lw: ww = 2.9. Abdomen brownish-yellow (front part darker than more yellowish hind third), microtrichose. Hind marginal setae on sides of tergites 2-3 almost as long as their corresponding segments, on segment 4 half as long and on the following segments much shorter. Length of body: 4.0 mm, wing: 5.0 mm.

DIFFERENTIAL DIAGNOSIS: *Rhamphomyia (Holoclera) subvariabilis* sp. n. belongs to the *R. flava* group of *Holoclera* and due to the absence of acrostichals it is most similar to *R. variabilis* (Fallén). The main characteristics distinguishing these two species are as follows: antennal stylus in *R. variabilis* is much shorter than the 1st flagellomere (being less than 1/3 as long), mid and hind tibiae with strong antero-ventral setae. In *R. subvariabilis*, antennal stylus is more than half as long as the 3rd segment and the mid and hind tibiae are without anteroventral setae. Moreover, there are differences in male genitalia (compare Figs 5 & 6 with Fig. 7 and with Barták, 1982: fig. 17c). Hypandrium bears several strong submedian setae in *R. variabilis* but

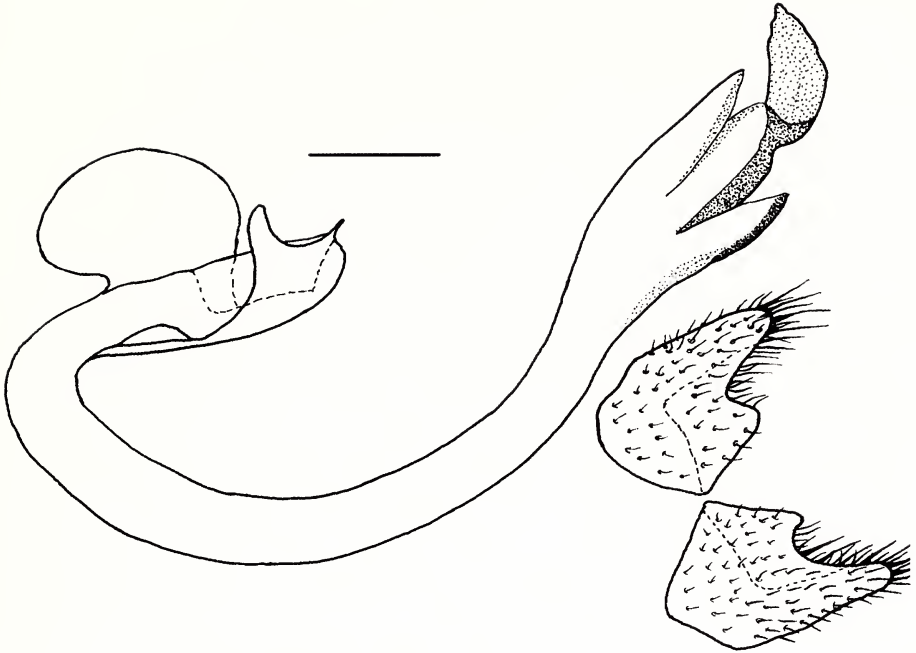


FIG. 7

Rhamphomyia (Holoclera) variabilis (Fallén, 1816), male phallus (lateral view) and cerci (dorsal view). Scale 0.1 mm.

only two very short apical spines in *R. subvariabilis*; dorsobasal projection of cercus is triangle-shaped, lustrous, bare and inflated (not visible in lateral view) in *R. variabilis* but finger-like microtrichose, with fine setae and laterally visible in *R. subvariabilis*; and tip of phallus also differs markedly in both species (compare Figs 6 and 7).

DERIVATIO NOMINIS: the specific name refers to the similarity with *R. variabilis*.

Rhamphomyia (Holoclera) sp. 1

MATERIAL EXAMINED: CULSP; TURKEY. 1 ♀; Antalya province, Kursunlu Selalesi, 15 km NNE Antalya, 150 m; 29.iv.2000; leg. B. Merz & Senay.- 1 ♀; Antalya province, Cavusköy (Adrasan), 50 m; 26.iv.2000; B. Merz & Senay. We left the species unnamed because we have not male at our disposal.

DESCRIPTION: A species of the *R. (Holoclera) nigripennis* group with dark palpus, uniserial dorsocentrals, yellow fore coxae, female frons sublustrous, meso- scutum largely devoid of microtrichiae, and supraalar seta absent.

Rhamphomyia (Holoclera) sp. 2

MATERIAL EXAMINED: CULSP; TURKEY. 1 ♂; Nur Daglari Mts., 20 km N Antakya, Akbez, 500 m; 5.v.1996; leg. B. Mocek.- 1 ♀; 20 km W Antakya, Cevlik, undeciduous forest; 3.v.1996; leg. B. Mocek. We decided not to name this species because of limited and damaged material at hand.

Fig. 8

DESCRIPTION: A species of the *R. (Holoclera) nigripennis* group with dark palpus, uniserial dorsocentrals, yellow fore coxae, female frons microtrichose, meso-scutum in male specimen damaged (supraalar seta probably present). Male genitalia of the species (Fig. 8) similar to those of *R. trigemina* Oldenberg (Fig. 9). However, both phallus and phallic plate are shorter and both epandrium and hypandrium shorter setose in *R. sp. 2* than in *R. trigemina*. There are also differences in the shape of cercus. The female is very similar to *R. tenuipes* and *R. lamellata*.

KEY TO PALAEARCTIC SPECIES OF *RHAMPHOMYIA (HOLOCLERA)*

- 1 Seta in posteroapical comb on hind tibia very short or absent. Fore femur with a row (often irregular) of short spine like anterior setae. Acrostichals absent. Palpus brown to black; if yellow (*R. caliginosa*) than anal vein incomplete. (*R. (H.) nigripennis* group) 2
- A long seta in posteroapical comb on hind tibia present. Fore femur without spine like anterior setae. Palpus yellow. Acrostichals present; if absent (*R. (H.) variabilis* and *R. (H.) subvariabilis*) than anal vein complete. (*R. (H.) flava* group) 22
- 2 (1) Palpus yellow. (Characters opposite of other species: supraalar seta present, fore coxa yellow, female frons lustrous and female hind femur with one to several ventral setae in apical third) *R. (H.) caliginosa* Collin
- Palpus brown to black 3
- 3 (2) Dorsocentral setae 2-3 serial. (Characters opposite of other species: fore coxa brown, propleura setose, supraalar seta present, female frons microtrichose, female hind femur without long ventral setae; male fore femur with posterodorsal setae as long as femur is deep)
- *R. (H.) biserialis* Collin
- Dorsocentral setae uniserial 4
- 4 (3) Male. (Unknown male of *R. (H.) sp. 1* probably has mesoscutum lustrous) 5
- Female 13
- 5 (4) Cercus long, exceeding epandrium, with very long setae dorsally (Collin, 1961: fig. 149b and Barták & Kubík, 2009: figs 6, 7) 6
- Cercus shorter than epandrium, with short setae 7
- 6 (5) 8th sternite with 2-4 long marginal setae and 2-5 additional shorter setae; cercus parallel-sided in apical half, with only short setae ventrally, epandrium gently rounded apically, without spine-like setae apically, hypandrium long and densely setose, setae longer than maximum height of hypandrium (Barták & Kubík, 2009: figs 6, 7) *R. (H.) tenuipes* Becker
- 8th sternite with many short setae in two irregular rows (10-12 setae in each row); cercus distinctly broadened apically, with long setae also along ventral margin, epandrium narrowed apically, with 1-2 strong spine-like apical setae, hypandrium short and sparsely setose, setae shorter than maximum height of hypandrium (Collin, 1961: fig. 149b) .
- *R. (H.) lamellata* Collin

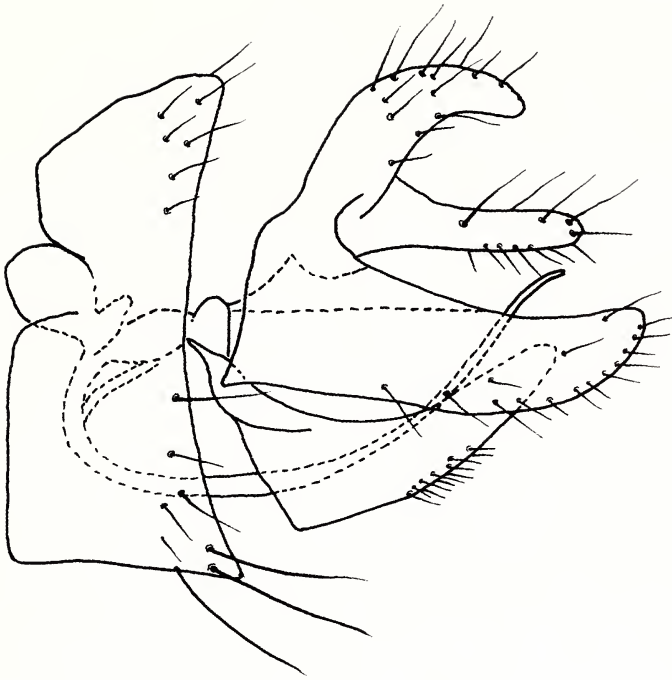


FIG. 8

Rhamphomyia (Holoclera) sp. 2, male terminalia (macerated), lateral view. Scale 0.1 mm.

- 7 (5) Cercus deeply concave, lower lobe broader than upper one, with a third short internal process (visible after dissection, Fig. 4). (Characters opposite of other species: fore coxa yellowish brown, supraalar seta present, labrum 1.5 times as long as head is high) *R. (H.) portugolica* sp. n.
- Cercus of different shape 8
- 8 (7) Cercus deeply concave (bilobate) 9
- Cercus almost straight dorsally (unilobate) 12
- 9 (8) Both epandrium and hypandrium short setose (Fig. 8) (Turkey) . . *R. (H.)* sp. 2
- Epandrium long setose. Hypandrium either long setose or without setae . . . 10
- 10 (9) Supraalar seta absent. Fore coxa yellowish brown, paler than pleura. (Fig. 2) *R. (H.) bohémica* sp. n.
- Supraalar seta present. Fore coxa dark, concolorous with pleura 11
- 11 (10) Hypandrium long setose (Fig. 9), microtrichose in ventral view
 *R. (H.) trigemina* Oldenberg
- Hypandrium without setae, lustrous in ventral view
 *R. (H.) umbripennis* Meigen
- 12 (11) Phallus extremely long, longer than abdomen (visible only after dissection). Cerci with inner margins angled. Epandrium with several strong setae on apex (Barták, 1982: fig. 12d) . . *R. (H.) nigripennis* (Fabricius)

- Phallus short. Cerci with inner margins straight (V-shaped in dorsal view). Epandrium with only a single short apical seta (Fig. 3) *R. (H.) helvetica* sp. n.
- 13 (4) Mesoscutum lustrous, leaving two narrow microtrichose stripes below dorsocentrals and somewhat broader median microtrichose stripe. Abdominal segments 2-5 almost without microtrichosity. (Other characters: supraalar seta absent, front coxa yellow) *R. (H.)* sp. 1
- Mesoscutum uniformly microtrichose. Abdominal segments 2-5 at least partly microtrichose 14
- 14 (13) Frons lustrous *R. (H.) nigripennis* (Fabricius)
- Frons microtrichose 15
- 15 (14) Supraalar seta present (sometimes very short). Fore coxa yellow (paler than pleura) or brown (concolorous with pleura) 16
- Supraalar seta absent. Fore coxa yellow to yellowish brown, paler than pleura 21
- 16 (15) Fore coxa yellow to yellowish brown, paler than pleura 17
- Fore coxa brown, concolorous with pleura 20
- 17 (16) Labrum more than 1.5 times as long as head is high. Fore coxa in most specimens darkened. Knob of halter yellowish brown. *R. (H.) portugalica* sp. n.
- Labrum less than 1.4 times as long as head is high. Fore coxa yellow. Knob of halter brown 18
- 18 (17) Hind femur without long anteroventral seta, anterior spines on fore femur shorter than 0.02 mm long (Turkey) *R. (H.)* sp. 2
- Hind femur with or without long anteroventral seta, anterior spines on fore femur up to 0.03 mm long 19
- 19 (18) South Mediterranean *R. (H.) tenuipes* Becker
- Temperate European *R. (H.) lamellata* Collin
- 20 (16) Dorsocentral setae long (about as long as the distance between their rows). Usually 1 long and 0-1 smaller supraalar seta. Frons slightly broadened above *R. (H.) trigemina* Oldenberg
- Dorsocentral setae shorter than the distance between their rows. Usually 2 small, subequal supraalars. Frons slightly broadened below *R. (H.) umbripennis* Meigen
- 21 (15) 1st flagellomere usually shorter than 0.20 mm, 1.4-1.7 times as long as stylus *R. (H.) bohémica* sp. n.
- 1st flagellomere usually longer than 0.21 mm, 1.8-2.0 times as long as stylus *R. (H.) helvetica* sp. n.
- 22 (1) Acrostichal setae absent 23
- Acrostichal setae present 24
- 23 (22) Antennal stylus 1/3 the length of the 3rd segment. Mid and hind tibiae with anteroventral setae. Male hypandrium with several long submedian setae *R. (H.) variabilis* (Fallén)
- Antennal stylus more than half of length of the 3rd segment. Both mid and hind tibiae without anteroventral setae. Male hypandrium with two very short apical setae *R. (H.) subvariabilis* p. n.

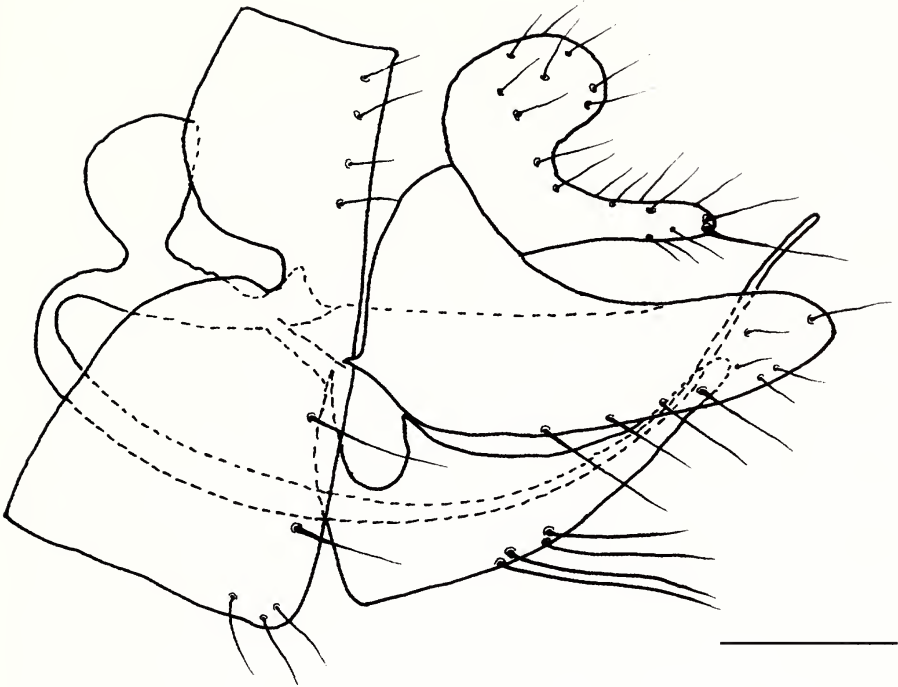


FIG. 9

Rhamphomyia (Holoclera) trigemina Oldenberg, 1927, male terminalia (macerated), lateral view. Scale 0.1 mm.

- 24 (22) Scape yellow. Thorax of both sexes yellow, without dark pattern
 *R. (H.) flava* (Fallén)
- Scape reddish brown to black, distinctly darker than palpus. Male thorax
 never yellow 25
- 25 (24) Male 26
- Female (unknown in *R. bistriatella*) 31
- 26 (25) Eyes broadly separated on frons, facets in ventral part enlarged. Frons
 with setae at least as long as pedicel 27
- Eyes meet on frons, if narrowly separated then frons bare or with minute
 setae only, facets in dorsal part enlarged 29
- 27 (26) Epandrium with dorsoapical angle more obtuse, about 80° (Barták,
 1982: fig. 16e). Anal vein complete. Normally 6 scutellar setae. Usually
 more than 35 acrostichal and dorsocentral setae altogether. Larger species
 (wings more than 5.5 mm) *R. (H.) flaviventris* Macquart
- Epandrium with dorsoapical angle more acute, about 60° (as in Fig. 1).
 Anal vein incomplete. Normally 4 scutellar setae. Usually less than 35
 acrostichal and dorsocentral setae altogether. Smaller species (wings less
 than 5.5 mm) 28

- 28 (27) Halter yellow. Fore and mid tibiae with dorsal setae at least as long as tibia is deep. Cercus with basal swelling in dorsal view (trilobate in lateral view, see Barták, 1982: fig. 17f) *R. (H.) bistriata* Strobl
- Halter grey. Fore and mid tibiae without dorsal setae. Cercus without basal swelling, strip-like in dorsal view (bilobate in lateral view, Fig. 1) *R. (H.) bistriatella* sp. n.
- 29 (26) Anal vein complete, without trace of weakening. Mesoscutum dark brown or reddish brown in dorsal view. Mid femur with anterior setae. Hind femur with at least 2 strong anteroventral (or ventral) setae, one of them situated on basal half of femur *R. (H.) heterochroma* Bezzi
- Anal vein incomplete, at least distinctly weakened (visible in translucent light). Mesoscutum velvety black in dorsal view. Mid femur usually without anterior setae. Hind femur usually without anteroventral (or ventral) setae at least on basal half of femur 30
- 30 (29) Visible part of cercus longer than high (Barták, 1982: fig. 16a). Phallus slightly broadened at tip. Axillary angle acute *R. (H.) culicina* (Fallén)
- Visible part of cercus higher than long (Barták, 1982: fig. 15b). Phallus pointed at tip. Axillary angle obtuse to right *R. (H.) sciarina* (Fallén)
- 31 (25) Thorax black *R. (H.) culicina* (Fallén)
- Ground colour of thorax yellow 32
- 32 (31) Anal vein complete. Axillary angle right to acute. Usually 6-8 scutellar setae. Clypeus lustrous 33
- Anal vein incomplete. Axillary angle right to obtuse. Usually 4 scutellar setae. Clypeus microtrichose 34
- 33 (32) Hind femur with 2 or more anteroventral setae, one of them situated on basal half of femur. Mid femur with several anterior setae. Larger, more robust and more setose species. 1st sternite setulose or bare *R. (H.) heterochroma* Bezzi
- Hind femur without anteroventral (ventral) setae at least on basal half. Smaller, less robust and less setose species. 1st sternite bare *R. (H.) flaviventris* Macquart
- 34 (32) Halter clear yellow. Usually more than 10 acrostichal setae. Mesoscutum without any stripes *R. (H.) bistriata* Strobl
- Halter greyish. Usually less than 10 acrostichal setae. Mesoscutum with two darker and more lustrous stripes between rows of acrostichals and dorsocentrals *R. (H.) sciarina* (Fallén)

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