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(Coleoptera, Cerambycidae)

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Provisional revision of the genus *Epimelitta* Bates, 1870 and associated genera, with a brief synopsis of the genus *Acorethra* Bates, 1873 (Coleoptera, Cerambycidae)

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Abstract. *Epimelitta* Bates, 1870 (Coleoptera, Cerambycidae) is redescribed with two species: *Epimelitta scoparia* (Klug, 1825) and *Epimelitta rufiventris* Bates, 1870; *Epimelitta meliponica* Bates, 1870 **syn. nov.** and *Epimelitta acutipennis* Fisher, 1947 **syn. nov.** are considered junior synonyms of *E. scoparia*. *Exepimelitta* **gen. nov.** is described with five species: *Exepimelitta mimica* (Bates, 1873), *Ex. nigerrima* (Bates, 1892), *Ex. consobrina* (Melzer, 1931) (= *Epimelitta nigerrima* var. *flavipubescens* Fisher, 1947, **syn. nov.**), *Ex. lestradei* (Peñaherrera-Leiva and Tavakilian, 2003) and *Ex. windsori* **sp. nov.** *Charisia* Champion, 1892 is **revalidated** and redescribed with six species: *Charisia euphrosyne* (Newman, 1840), *C. mneme* (Newman, 1841), *C. melanaria* Gounelle, 1911, *C. ornaticollis* Zajciw, 1973, *C. bleuzeni* (Peñaherrera-Leiva and Tavakilian, 2003) and *C. durantoni* (Peñaherrera-Leiva and Tavakilian, 2003). *Erratamelitta* **gen. nov.** is described with two species: *Erratamelitta erato* (Newman, 1840) (= *Epimelitta bicolor* (Bates, 1873), **syn. nov.**) and *Er. eliasi* **sp. nov.** *Adepimelitta* **gen. nov.** is described with two species: *Adepimelitta debilis* (Gounelle, 1911) and *Ad. eupheme* (Lameere, 1884). A brief synopsis of the genus *Acorethra* Bates, 1873 is presented, with two species included: *Acorethra chrysaspis* Bates, 1873, **revalidated**, and *Ac. aureofasciata* Gounelle, 1911. All species are illustrated (including genitalia when available); and keys to the genera, and their species, are provided.

Key words. Host flowers, new Brazilian records, Rhinotragini, taxonomy.

Introduction

The genus *Epimelitta* Bates, 1873 has been the object of attention by the author over the last four years; resulting in a series of papers to remove species which did not fit the diagnosis for the genus (see History below). This paper presents a provisional revision of the genus *Epimelitta* (as it now stands) using some new characters (including the structure of the aedeagus when these were available) as well as ones established by past and present authors. It also includes a brief synopsis of the genus *Acorethra* Bates, 1873, since the species representing this genus share many characters with species of *Epimelitta*. The term ‘epimelittids’ will herein be used to refer to the group that includes *Epimelitta* and its associated genera.

Nevertheless, the revision is to be considered a provisional one for many reasons. Chief among these are the following: the proliferation of new protocols affecting the access to museum material; the probable loss of some old type material due to inadequate curatorship in the past, amply illustrated by Maxwell Barclay (pers. comm.) commenting on Newman’s type material: “I note that *Charis euphrosyne*, *C. thalia*, *C. mneme* etc. came to us in the 1840s from the collections of the ‘Entomological Club’ which disbanded about then - there have been problems with that before because theirs was something of an ‘open collection’ with members taking things out of it; so some of the material is dispersed who knows where - and potentially lost”; and the dearth of specimens in museum collections (maybe overlooked by collectors due to their resemblance to bees), with most museum specimens having been collected between 1825-1960s, rendering them fragile and often in poor condition (maybe in some cases due to their preservation in alcohol).

Another factor has been the paucity of publications by twentieth century entomologists, only Gounelle (1911), Melzer (1931), Fisher (1930, 1947, 1952), Fuchs (1961), Tippmann (1960), Zajciw (1963, 1973) and Giesbert (1996), between them, described 16 new taxa, of which 81% have been synonymized or moved to new genera in recent years, including those changes made here. Linsley (1934) introduced his

paper with a succinct account of the difficulties of rhinotragine taxonomy; summarized with these few words: Obviously the problem of the systematist working with the group is a great one. Chemsak and Linsley (1979), in their review of Mexican Rhinotragini, dedicated a few lines to the genus, establishing *Epimelitta meliponica* Bates, 1870 as the type species. Chemsak and Linsley also remarked that only the holotype of *Epimelitta nigerrima* (Bates, 1892) was known, and that *Epimelitta aureopilis* Fisher, 1953 differed greatly from other members of the genus.

For all these reasons, the status of some species has been left as suggestions for future investigation. As for the rest, the author is confident that the many changes made to the taxonomy of *Epimelitta*, together with the illustrations, will be welcomed by those interested in these curious beetles; none of this could have been achieved without the unflagging support of those mentioned in the acknowledgements.

For those interested in the biology and behavior of the tribe Rhinotragini see Clarke (2015) for a theoretical account of the little we know; and observations of species of *Epimelitta* provide nothing contradictory.

Monné (2016) lists 17 species of *Epimelitta*, distributed between southern Mexico and Argentina: 2 Mexican/Mesoamerican species, and 15 South American species.

Altitudinal records are rarely included on specimen labels or in publications; those included here come from specimens seen by the author; they vary from 300 to 1800 metres. Those recorded above 500 metres are for Bolivian specimens of *E. debilis* Gounelle, 1911.

Host plant records for epimelittids show that we know very little about their life cycles; Monné (2001) records none; and the author has been unable to provide any for Bolivia. Tavakilian et al. (1997) provided a single record for *E. durantoni* Peñaherrera-Leiva and Tavakilian, 2003, and one unidentified species (*Epimelitta* sp. ORSTOM 988). Host-flower records for Bolivian species are summarized in Appendix 1. Examination of museum specimens for the presence of pollen suggests that all epimelittids are anthophilous.

Material and methods

Both sexes of most of the species, including some paratypes, were examined using specimens from museum collections and specimens collected in Bolivia (by Clarke and Zamalloa unless otherwise stated), mainly in the Department of Santa Cruz, near Buena Vista (17°30'S/63°39'W), including *E. debilis*, a widely distributed species recorded from several localities centered on Villamontes (21°17'S/63°28'W), not far from Bolivia's southern border with Argentina.

Specimens seen by the author have been divided into two groups. "Material analyzed" refers to those specimens (one of each sex when both available) that have been used for the data set down in the descriptions of the genera, and in the identification keys. "Material examined" refers to those specimens that have been examined for intraspecific and sexual variation; mostly differences of color and surface ornamentation, but also data contributing to the general measurements given for each species.

It should be remembered that the parameters given for intraspecific variation are likely to be exceeded by smaller or larger specimens.

The terminology used to describe the male genital tube follows those used by Sharp and Muir (1912, reprint edition 1969): aedeagus = the median lobe and tegmen together; tegmen = the term applied to the lateral lobes ["parameres" of other authors] and basal piece together; median lobe = the central portion of the aedeagus upon which the median orifice is situated [the "penis" of many authors].

Measurements were made using a cross-piece micrometre disc and are defined as follows: Total length measured from tip of mandibles to apex of abdomen. Forebody length (estimated with head straight, not deflexed) measured from apex of gena to middle of posterior margin of metasternum. Length of abdomen measured from apex of abdominal process situated at base of urosternite I to apex of urosternite V. Length of rostrum = genal length from apex of side to where it meets inferior lobe of eye. Length of inferior lobe measured with the scale along side of gena, and cross-piece level with the lobes most forward position on frons (or gena), to its hind margin (usually adjacent to antennal insertion). Width of inferior lobe (with head horizontal and level viewed from directly above) = width of head with eyes at its widest point, minus width of interocular, and divided by two. Interocular distance between inferior lobes measured at the narrowest point. References to antennal length in relation to body parts are made, as far as is possible, with head planar to dorsad and antenna straightened; and shape of antennal scape when

viewed laterally (unless otherwise mentioned). Ratio of length of mesosternum (ms) to length of metasternum (mt) = ms/mt. Length of mesosternum measured from middle of apex to hind edge of mesocoxal cavity. Length of metasternum measured from hind edge of mesocoxal cavity to middle of apex of metasternum. Length of leg (not including coxa) measured from base of femoral peduncle to apex of tarsus (not including claws). Lengths of femoral clava and peduncle are approximate; the point separating the two is where the apex of peduncle begins to broaden and the base of the clava is at its narrowest; but the exact point cannot be assessed with accuracy; and the quotients (lengths of femoral clava/peduncle) referred to are only useful when differences are large. Detailed ranges of these measurements (in some instances to the nearest .01 mm) are provided in genus and species descriptions. However, when dealing with such precision in relatively small sample sizes, these ranges are likely to change pending future examination of additional specimens.

The acronyms used in the text are as follows:

- ACMT — American Coleoptera Museum, San Antonio, Texas, USA.
BMNH — Natural History Museum (formerly British Museum of Natural History), London, UK.
CMNH — Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, USA.
FSCA — Florida State Collection of Arthropods, Gainesville, Florida, USA.
MNKM — Museo Noel Kempff Mercado, Universidad Autónoma Gabriel René Moreno, Santa Cruz de la Sierra, Bolivia.
MNHN — Muséum national d'Histoire naturelle, Paris, France.
MNRJ — Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil.
MZSP — Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil.
RCSZ — Robin Clarke/Sonia Zamalloa private collection, Hotel Flora & Fauna, Buena Vista, Santa Cruz, Bolivia.
STRI — Smithsonian Tropical Research Institute, Panama City, Panama.
USNM — National Museum of Natural History, Smithsonian Institution, Washington, DC, USA.
ZMHB — Museum für Naturkunde der Humboldt-Universität, Berlin, Germany.

The bibliographic references for each taxon correspond to the original descriptions as cited in the catalogue by Monné (2016).

Historical record

Kirby (1818) described *Necydalis barbicus* from Brazil (without provenance).

Klug (1825) described *Molorchus scoparia* and *Molorchus laticornis*, both from Brazil (without provenance).

Newman (1840) described the new genus *Charis*: “Head almost prognathous, elongate, almost triangular; antennae half as long as body, apices crassate, 11-segmented, apical segments short; prothorax almost globose, disc flattened, sides convex, rounded (not at all armed); elytra very short, cuneate; femora tumescent, metatibiae with long hairs.” He includes three new species from Brazil (without locality): *Charis aglaia*, *C. erato*, and *C. euphrosyne*.

Newman (1841) added three new species to *Charis*: *Charis aede*, *C. melete* and *C. mneme*, all from Brazil (Rio de Janeiro).

White (1855) moved *Molorchus laticornis* to *Charis*, apparently with some hesitation, as he wrote “*Charis* ? *laticornis*.” He also lists *Charis thalia* Newman without any publication reference, and therefore a *nomen nudum*.

Thomson (1864) established *Charis euphrosyne* as the type species for the genus *Charis*.

Bates (1870) described the genus *Epimelitta* with the following diagnosis (reworded): “body entirely pilose; elytra reach base of abdomen, apices strongly attenuated, subacuminate. Rostrum short, wide. Antennae slightly incrassate, serrate. Thorax short, strongly transverse, convex, setose. Hind tibiae with long setae.” His description was based on two new species from Brazil, *E. meliponica* and *E. rufiventris* (both females), noting their resemblance to bees of the *Melipona* group; and in an initial note included Klug’s *Molorchus scoparius* with the following comment: “It is stated to be found at Cameté, on the Tocantins, where I collected for two months, but did not find it”.

Gemminger and Harold (1872) moved *Necydalis barbicus* to the genus *Charis*.

Bates (1873) stated: "Having had an opportunity of examining a considerable series of species of these insects...I think *Epimelitta* may be very well incorporated with *Charis*..."; and goes on to establish two informal species-groups. The first group characterized by elytra very short, cuneiform, thorax broad, tumid on each side near the hind angle included two new species, *C. mimica* and *C. bicolor*, both from Brazil (Rio de Janeiro), and eight others: *Charis barbicus* (with *C. aede* as a junior synonym), *C. erato*, *C. euphrosyne*, *C. mneme*, *C. melete*, *C. meliponica*, *C. rufiventris* and *C. scoparius*. The second group, characterized by subulate elytra and a subcylindrical prothorax included Newman's *C. aglaia*. In the same paper, Bates established a new genus, *Acorethra*, for one new species, *A. chrysaspis* from Brazil (Rio de Janeiro). He also mistakenly placed *Molorchus laticornis* in the genus *Tomopterus* Audinet-Serville, 1834.

Lameere (1884) described *Charis eupheme* from southern Brazil.

Bates (1892) described *Charisia nigerrima* (from Mexico, Veracruz) after his journal's editor (G. C. Champion) pointed out that the name *Charis* was preoccupied by a genus of Lepidoptera, and would be changed by him to *Charisia*.

Gounelle (1911) described *Acorethra aureofasciata*, *Charisia debilis* and *C. melanaria*, all from Brazil (Goiás).

Aurivillius (1912) reverted to Bates' genus *Epimelitta* for those species included in *Charisia*; and by doing so established the order used up to the present time.

Melzer (1931) described *Epimelitta consobrina* from Costa Rica.

Fisher (1930) described *Phygopoda manni* from Bolivia (Beni), transferred to the genus *Epimelitta* by Monné and Giesbert (1992).

Fisher (1947) described *Epimelitta acutipennis* from British Guiana and *E. nigerrima* var. *flavipubescens* from Costa Rica.

Fisher (1952) described *Epimelitta viridimicans* from Brazil (Paraná).

Fisher (1953) described *Epimelitta aureopilis* from Mexico; transferred to *Crossomelas* by Chemsak and Noguera (1995).

Tippmann (1960) described *Acorethra zischkai* from Bolivia (Cochabamba) and *Epimelitta miranda* from Peru (Loreto).

Fuchs (1961) described *Epimelitta triangularis* from Brazil (Mato Grosso do Sul).

Zajciw (1963) described *Epimelitta longipennis* from Brazil (Rio de Janeiro).

Zajciw (1973) described *Charisia ornatocollis* and *C. hirsutipennis*, both from Brazil (Rio de Janeiro and Espírito Santo).

Zajciw (1975), in his revision of the genus *Tomopterus*, taking his cue from Bates' error, redescribed *Tomopterus laticornis* (Klug). However, his description and figure of this species bear no relation to Klug's species, nor to Bates' brief redescription of *T. laticornis*, which does.

Monné and Giesbert (1992) made the following species transfers: *Epimelitta erato* to the genus *Acorethra* (under the mistaken impression that Bates' *Acorethra chrysaspis* was a junior synonym of this species); *Tomopterus laticornis* Zajciw, 1975 to *Epimelitta* (in error, as Zajciw's species is obviously a species of *Tomopterus*); and *Phygopoda manni* to the genus *Epimelitta* (again in error, as *P. manni* has closed coxal cavities, while they are open in *Epimelitta*). They also established the following new synonymies: *Ischasia cazieri* = *Epimelitta eupheme*; *Charisia hirsutipennis* = *Epimelitta euphrosyne*; *Charis melete* = *Epimelitta laticornis*; and *Epimelitta miranda* = *Epimelitta meliponica*.

Giesbert (1996) described *Epimelitta postimelina* from Mexico (Chiapas).

Peñaherrera-Leiva and Tavakilian (2003) described *Epimelitta bleuzeni*, *E. durantoni* and *E. lestradei*, all from French Guiana.

Tavakilian and Peñaherrera-Leiva (2007) transferred *Acorethra zischkai* to the new genus *Pseudacorethra*.

In a series of papers describing new genera Clarke (2014a, 2014b, 2016) removed the following species from the genus *Epimelitta*: *Epimelitta aglaia* (Newman, 1840), *E. longipennis* Zajciw, 1963, *E. triangularis* Fuchs, 1961, *E. viridimicans* Fisher, 1952, *E. barbicus* (Kirby, 1818), *E. manni* (Fisher, 1930) and *E. postimelina* Giesbert, 1996.

Clarke et. al. (2015) described the new genus *Klugiatragus* for *Epimelitta laticornis* (Klug, 1825).

Results and discussion

When Bates (1870) described the genus *Epimelitta* he lamented not finding Klug's *Molorchus scoparius* (a male) when at Cametá (in the Department of Para). When he moved his base to Ega (now Tefé), 15° to the west (in the state of Amazonas), he did not realize that his *Epimelitta meliponica* collected at Ega was in fact a female of Klug's species. *Epimelitta meliponica* should thus be treated as a junior synonym of *E. scoparia*. Although *E. scoparia* was the first described species of *Epimelitta*, it is not the type species. Since Bates placed *E. meliponica* as the first in his list of *Epimelitta* species, Chemsak and Linsley (1979) subsequently established *E. meliponica* as the type for the genus, instead of *E. scoparia*.

Fisher's *Epimelitta acutipennis* is treated here as a junior synonym of *E. scoparia*; and, after comparing a topotype with Tippmann's description of *E. miranda* (from Pucallpa in Peru), I confirm the synonymy proposed by Monné and Giesbert (1992).

When Bates described the genus *Epimelitta*, he originally ignored the seven species of *Molorchus* described by Kirby (1818) and Newman (1840, 1841). I disagree with Bates's (1873) later decision to include these species in *Epimelitta*, based on the diagnostic characters for the genus established herein. Three of these seven species are still currently in *Epimelitta*, and are herein transferred out of the genus.

In the present provisional diagnosis of the genus *Epimelitta sensu auctorum* and *Acorethra* the following combination of character states are established as being among those of primary diagnostic value: procoxal cavity rounded, plugged at sides, and open behind; elytra cuneate and short (length/width across humeri 1.2-1.8), apex not passing middle of urosternite I.

Among the Rhinotragini only the following genera (after Martins and Silva 2010) have procoxal cavities open behind; but differ from *Epimelitta* for the reasons given below:

1. The following genera have elytra subcuneate, longer, apex reaching middle of urosternite II (and antennae filiform, and much longer than in *Epimelitta*): *Apostropha* Bates, 1873; and *Thouvenotiana* Peñaherrera-Leiva and Tavakilian, 2003 (with apical third of elytra lobed).

2. The following genera have elytra entire, or almost so: *Corallancyla* Tippmann, 1960; *Cylindrommata* Tippmann, 1960; *Mimommata* Peñaherrera-Leiva and Tavakilian, 2003; *Oxylomma* Pascoe, 1859; *Catorthontus* Waterhouse, 1880 (both *Oxylomma* and *Catorthontus* with apical third of elytra usually fissate); *Stenochariergus* Giesbert and Hovore, 1989; *Sulcommata* Peñaherrera-Leiva and Tavakilian; *Xenocrasis* Bates, 1873; *Xenocrasoides* Tavakilian and Peñaherrera-Leiva, 2003 (*Xenocrasis* and *Xenocrasoides* often with shorter, lobed elytra); and *Laedorcari* Santos-Silva, Clarke and Martins, 2011.

3. The following genera have the procoxal cavity open at sides (the opening V-shaped): *Panamapoda* Clarke, 2014; *Paramelitta* Clarke, 2014; *Paraphygopoda* Clarke, 2014; *Phygomelitta* Clarke, 2014; *Pseudisthmiade* Tavakilian and Peñaherrera-Leiva, 2005 (the authors did not refer to the sides of the procoxal cavities; but examination of an undescribed species of this genus confirms that they are angular); *Pseudophygopoda* Tavakilian and Peñaherrera-Leiva, 2007; and *Stenopseustes* Bates, 1873 (only some *Stenopseustes* species have this sort of opening, but all species can also be distinguished from *Epimelitta* by their long elytra).

Taxonomy

The author proposes that the genus *Epimelitta* comprises only two South American species (as originally proposed by Bates): *Epimelitta scoparia* (Klug, 1825) and *E. rufiventris* Bates, 1870. The following species of *Epimelitta* are considered junior synonyms of *E. scoparia*: *Epimelitta acutipennis* (Fisher, 1947), *E. meliponica* Bates, 1870 and *E. miranda* Tippmann, 1960.

A new genus, *Exepimelitta*, is proposed for five species: *Epimelitta lestradei* Peñaherrera-Leiva and Tavakilian, 2003, *E. mimica* (Bates, 1873), *E. windsori* sp. nov., *E. nigerrima* (Bates, 1892) and *E. consobrina* Melzer, 1931. *Epimelitta nigerrima* var. *flavipubescens* Fisher, 1947 is a new junior synonym of *E. consobrina*.

The genus *Charisia* is revalidated to include six South American species: *Epimelitta bleuzeni* Peñaherrera-Leiva and Tavakilian, 2003, *E. durantoni* Peñaherrera-Leiva and Tavakilian, 2003, *E. euphrosyne* (Newman, 1840), *E. melanaria* (Gounelle, 1911), *E. mneme* (Newman, 1841) and *E. ornatcollis* Zajciw, 1973.

A new genus, *Erratamelitta*, is proposed for the South American species *Acorethra erato* (Newman, 1840), with *Epimelitta bicolor* (Bates, 1873) treated as a junior synonym of this species, and *Erratamelitta eliasi* sp. nov., from Brazil.

A new genus, *Adepimelitta*, is proposed for the South American species *Epimelitta debilis* (Gounelle, 1911) and *E. eupheme* (Lameere, 1884).

The closely related South American genus *Acorethra*, is also reviewed herein. It contains two species: *Acorethra aureofasciata* Gounelle, 1911 and *A. chrysaspis* Bates, 1873.

The list of species summarized below (adapted from Monné and Bezark 2012), for *Epimelitta* and related new genera, is in the order laid out in the text.

Checklist of *Epimelitta* (*sensu stricto*) and associated genera.

GENUS *Epimelitta* Bates, 1870:330

rufiventris Bates, 1870:331

scoparia (Klug, 1825:469)

acutipennis Fisher, 1947:54, **syn. nov.**

meliponica Bates, 1870:331, **syn. nov.**

miranda Tippmann, 1960:128

GENUS *Exepimelitta* gen. nov.

consobrina (Melzer, 1931:1)

nigerrima var. *flavipubescens* Fisher, 1947:56, **syn. nov.**

lestradei (Peñaherrera-Leiva and Tavakilian, 2003:203)

mimica (Bates, 1873:123)

nigerrima (Bates, 1892:160)

windsori sp. nov.

GENUS *Charisia* Champion, 1892:161, **revalidated**

bleuzeni (Peñaherrera-Leiva and Tavakilian, 2003:208)

durantoni (Peñaherrera-Leiva and Tavakilian, 2003:206)

euphrosyne (Newman, 1840:21)

hirsutipennis (Zajciw, 1973:14)

melanaria Gounelle, 1911:57

mneme (Newman, 1841:90)

ornaticollis Zajciw, 1973:13

GENUS *Erratamelitta* gen. nov.

erato (Newman, 1840:21)

bicolor (Bates, 1873:124) **syn. nov.**

eliasi sp. nov.

GENUS *Adepimelitta* gen. nov.

debilis (Gounelle, 1911:59)

eupheme (Lameere, 1884:89)

cazieri Fisher, 1952:4

GENUS *Acorethra* Bates, 1873: 126.

aureofasciata Gounelle, 1911:62

chrysaspis Bates, 1873:126

Key to *Epimelitta* and related genera

1. Pronotum with large transverse depression on disc, the latter furnished with long dense pubescence; metatibia scopiferous **2**
- Pronotal disc lacking transverse depression and long dense pubescence; metatibia usually setiferous **3**

- 2(1). In male, width of one inferior lobe of eye 2.5 times wider than interocular distance; male abdomen subcylindrical, narrow and convex; female abdomen fusiform; in both sexes, urosternites without pubescent tufts; Guyana, Brazil (AM, PA), Ecuador, Peru, Bolivia (Fig. 1-6) ***Epimelitta* Bates, 1870**
- In male, width of one inferior lobe of eye 4-7 times wider than interocular distance; male abdomen cylindrical (broad and strongly flattened); female abdomen ovate; in both sexes, urosternites II-III or II-IV with pubescent tufts; Mexico, Honduras, Costa Rica, Fr. Guiana, Brazil (BA, MG, ES, RJ, SP, PA, SC), Bolivia (Fig. 7-20) ***Exepimelitta* new genus**

- 3(1). Smaller species, usually less than 10 mm; narrow (body 6-7 times longer than width of metathorax); elytra flat, more narrow and long (1.6-1.8 longer than width across humeri); apex nearly reaching middle of urosternite I **4**
- Larger species, usually more than 10 mm; broad (body 4-5 times longer than width of metathorax); elytra not flat, more broad and short (1.1-1.4 longer than width across humeri); apex may just pass metacoxae, but usually shorter. Fr. Guiana, Brazil (GO, BA, MG, ES, RJ, SC) (Fig. 21-33) ***Charisia* Champion, 1892 revalidated**

- 4(3). Male: forebody (f) about as long as abdomen (a), f/a 0.96; width of one inferior lobe of eye/interocular distance 3.8; prothorax transverse, length/width 0.9. In both sexes: antennae shorter, just passing metacoxae; apex of prosternal process triangular or bifid; length of body about 5 times width across metasterna; pronotal punctures characteristic (narrowed and arranged in elongate rows, giving integument striated appearance); elytra 1.6 longer than width across humeri, surface between humeri and scutellum furnished with arc of dense pubescence; metatibia with moderate brush; basal segment of abdomen yellowish (or partly yellowish in female), rest black, and all abdominal segments with arced band of dense, recumbent, ochreous pubescence around latero-posterior margins. Brazil (ES, SP, SC) (Fig. 34-36) ***Erratamelitta* new genus**
- Male: forebody (f) much shorter than abdomen (a), f/a 0.74-0.80; width of one inferior lobe of eye/interocular distance 4.9-5.7; prothorax slightly elongate, length/width 1.1-1.2. In both sexes: antennae longer, reaching from near apex of urosternite I to middle of II; apex of prosternal process oblongate; length of body about 6-7 times width across metasterna; pronotal punctures normal (rounded and not striate in appearance); elytra 1.7-1.8 longer than width across humeri, base of elytra without dense arc of pubescence; metatibia setose; abdomen entirely black or rufous, segments without arced band of pubescence laterally. Brazil (GO, BA, MG, ES, RJ, SP, PA, SC), Bolivia (Fig. 37-42) ***Adepimelitta* new genus**

***Epimelitta* Bates, 1870**

(Fig. 1-6)

Type species: *Epimelitta meliponica* Bates, 1870 (designation by Chemsak and Linsley, 1979) (= *Molorchus scoparius* Klug, 1825; = *Epimelitta scoparia* (Klug, 1825)).

Redescription of the genus. Male moderately large, total length 10.75-13.00 mm, female larger, 13.70-16.35 mm; and broad (total length/width metathorax 3.59-4.00). Forebody (f) slightly shorter than abdomen (a), f/a 0.86-0.90 (in *E. scoparia*), or of equal length (in *E. rufiventris*). **Head:** comparatively narrow (widths prothorax/head with eyes 1.31 in male, 1.46 in female); rostrum shorter in male (width/length 2.70), longer in female (width/length 2.46). Labrum transverse, about two times wider than long, rather

rounded laterally. Width of clypeal apex equal to width of labrum. Clypeus and frons separated by moderate declivity (more so in male than female). Apical palpomeres of maxilla and labium: short and subovate, truncate at apex. Galea: long, moderately narrow. Inferior lobes of eyes moderately far apart in male, width of one lobe/interocular distance 2.50 in male, far apart in female, width of one lobe/interocular distance 0.89; only moderately convex (in both sexes). In male superior lobes of eyes almost parallel-sided, with 10-11 rows of moderately large ommatidia, laterally narrowed by one quarter of their mesal width, and separated by 2.75 the width of one lobe. Antennal tubercles weakly raised, rounded at apex, and separated by 3.00 width of scape in male, 3.60 in female. **Antennae:** robust (more so in female); short; apex in male reaching to middle of metacoxa, in female to base of metacoxa; scape subpyriform (viewed laterally), narrower (when viewed dorsally); antennomeres: III filiform, IV subfiliform, V elongate and subserrate, VI-X serrate and incrementally more quadrate. Antennomere III moderately long, 1.15 longer than scape in male (slightly shorter in female); nearly twice as long (0.80-0.85 mm) as IV (0.45 mm); V-X subequal (0.45-0.35 mm) in male, in female 0.50-0.35 mm. XI subovate, with small apical cone; in male as long as IV, longer than V-X; in female slightly longer than IV, as long as V, and longer than VI-X. **Prothorax:** strongly transverse, in male length/width 0.83, in female 0.79 (in *E. rufiventris* less transverse); in male somewhat trapezoidal, the sides less rounded; in female obovate, the sides well-rounded; widest well in front of middle, prothoracic quotient in male 2.29, in female 2.64 (in *E. rufiventris* about 2.5); width of apical and basal margins about equal; basal margin rounded and juxtaposed between elytral humeri. Surface of pronotum: irregular, moderately convex; disrupted by moderately deep, transverse depression dominating pronotal disc; and to each side of disc with broad pair of wide, arced calli (these not well delimited), the anterior one almost evanescent, the posterior one rounded behind (and sufficiently tumid to overhang sides of pronotum and basal constriction); pronotal disc further disrupted by irregular shaped swelling between tumid, posterior calli; apical constriction almost absent; basal constriction narrow, strongly abrupt towards sides, and not fossate. Prosternum flat to apical border, at midline planar with its process process; the latter not at all arced, laminate in male (17 times narrower than width of procoxal cavity), sublamine in female (9 times narrower than width of procoxal cavity). Apex of prosternal process small and golf-tee shaped. Procoxal cavity broadly plugged laterally; widely open behind, the gap between apex of post coxal process and apex of prosternal process 0.30 mm in male, 0.25 in female. **Scutellum:** small, scutate (but dense pubescence hiding details). **Elytra:** short and cuneate; 1.40 longer than width across humeri in male, 1.32 longer in female; sides weakly arced; apices hardly divergent (but elytra well separated by moderately strongly gape for slightly more than apical third), reaching apex of metacoxae; humeri not hiding mesepimera, broad and prominent, but only weakly projecting (more strongly in female). Each elytron gradually and strongly narrowed to rounded, unarmed apex (the latter somewhat lobate in appearance); on middle half with cleaver-shaped translucent panel (in *E. scoparia*), or fusiform-shaped panel (in *E. rufiventris*); surface surrounding translucent panel irregular, slightly raised adjacent to, and posterior to scutellum. Translucent panel depressed towards apex, and abruptly separated from side of elytron by short, well-defined carina (which may represent remnants of the humero-apical costa); and at apex reaching sutural border. **Mesosternum:** flat at center; deeply, but well inclined (with about 60° slope) to mesosternal process. Base of mesosternal process nearly flat, and moderately wide (coxal cavity 1.44 wider than base of process in male, 1.29 wider in female); apex of process lanceolate, deeply excavate and abruptly depressed, the sides pointed and weakly diverging. Mesocoxal cavity: moderately open to mesepimerum. Lengths of mesosternum/metasternum 0.87-0.92. **Metathorax:** wide, in male body length/width metathorax 3.59, in female 3.77-4.00; sides rounded from base to middle of hind margin; metasternum moderately tumid, and weakly flattened for apical half in male (more so in most females), its surface level with mesocoxae; metepisternum widest at base, distinctly tapering to subacuminate apex. **Abdomen** in male: convex, narrow, weakly annulated, and almost cylindrical (widest at base, weakly tapering to apex); urosternites moderately transverse; II-IV subequal in length. Urosternite I: widest, almost quadrate (with rather rounded sides); II: weakly trapezoidal (with straight converging sides); III and IV: cylindrical (with weakly rounded sides). Urosternite V: trapezoidal (with rounded sides and broadly emarginate apex), surface weakly differentiated (soleate depression limited to a slightly depressed U-shaped area occupying apical half); sides of apex moderately winged, but rounded at apex (when viewed laterally). Abdominal process a narrow isosceles triangle, well inclined to abdomen (slope about 60°). **Abdomen** in female wider; flatter, widest at base, tapering to apex (in *E. scoparia*), more convex, fusiform, widest towards middle (in *E. rufiventris*); weakly annulated;

urosternites transverse; I-IV sequentially shorter towards apex of abdomen; urosternite I: broadly conical and convex (with rounded sides); II and III cylindrical (with sub-parallel, almost straight sides), IV trapezoidal (with rounded sides). Urosternite V subconical, slightly longer than IV, weakly constricted and down-turned for apical third; apical margin truncate. Abdominal process a broad equilateral triangle, almost planar with abdomen. **Legs** (in *E. scoparia*, unless otherwise noted): in both sexes ratio lengths front/middle/hind leg 1.0:1.1-1.2:2.3. Front and middle legs rather short, body length/length of legs 2.8-3.0 and 2.5-2.6 respectively. Front leg: femur slightly shorter than tibia, length femur/tibia 0.94-0.97; tibia robust; rather wide (including base), gradually widening to apex; when viewed dorsally apical margin oblique (not lanceolate); apico-lateral angle dentate. Middle leg: femur moderately long, 1.28-1.33 longer than length of tibia; femoral clava robust (but not at all tumid when viewed from above), in both sexes length of femur/lateral width of femoral clava 2.50-2.59 (the clava wider in female); tibia rather robust and almost parallel-sided to apex. Hind leg: robust, body length/length of leg in both sexes 1.3; femur strongly pedunculate-clavate; relatively short, apex reaching apical third of urosternite III in male, in female reaching base of IV (in *E. scoparia*), or apex of IV (in *E. rufiventris*); femoral clava subcylindrical, not much longer than peduncle, the latter not flattened (in *E. rufiventris*), or clava characteristic, strongly fusiform with well rounded sides (especially viewed from the side); 2.83-2.90 longer than peduncle, the latter moderately narrow and flattened (in *E. scoparia*). Metatibiae robust; with moderately large brushes (in *E. scoparia*), large brushes (in *E. rufiventris*); brushes not centered on slight swellings of tibial surface. When viewed dorsally tibia somewhat bisinuate; apex bifurcate, with long spur mesally, shorter one laterally. When viewed laterally tibia slightly curved and bisinuate, uniformly wide to pre-apex; at apex abruptly widened, with both mesal and lateral surfaces produced into short, spatula-like extension. Metatarsus robust, but distinctly narrower than apex of metatibia; tarsomere I subcylindrical (in male more strongly widened at apex); II hardly pediculate, almost quadrate and trapezoidal; III slightly longer than II, the lobes divergent, moderately wide, rounded at sides (less so in female); in male first tarsomere 0.93 length of II + III, in female 1.06 longer than II + III.

Genitalia (Fig. 49). In *E. scoparia* markedly different from other epimelittids. **Median lobe of aedeagus**: moderately long (about 2.4 mm), slender, modestly arched, with acuminate apex; and small dark bodies present. **Tegmen**: apical part slightly longer than basal part. Apical part divided into two finger-shaped lobes, these moderately divergent, and long (length/width 4.0); each lobe almost straight, at apex hardly wider, asymmetrical and subacuminate. Y-piece long and broad, the stem shorter than the fork.

General pubescence. Less amplified. Notable pubescence (dense tufts of long, suberect, rufous-orange or black setae) present on upperside of body and elytra, the setae predominantly rufous (in *E. scoparia*), or black or grey hair (in *E. rufiventris*) as follows: sides and transverse depression of pronotum; oblique patch on basal half of elytra (especially well developed in female *E. scoparia*). Notable pubescence on underside of body as follows: below inferior lobes of eyes; towards sides on apical margin of prosternum; covering all of metasternum and most of metepisternum; but abdomen lacking dense tufts. Less notable pubescence consisting of whitish, recumbent hairs across base of metasternum (especially dense in male); on urosternite I (and usually II) of abdomen entire side and hind margins clothed with grey (in female) or creamy yellow (in male) pubescence. Notable pubescence on legs as follows (especially notable in female): ventral surface of profemoral clava (dense, long tufts); mesofemoral clava (single tuft on ventral and mesal surfaces); metafemoral clava near middle of dorsal surface (in *E. scoparia*), and towards apex of ventral surface (in both species). Metatibia with large, untidy brushes, the setae rather short, and somewhat spirally arranged between dorsal and ventral surfaces (in *E. scoparia*), or the setae longer and rather uniformly distributed on dorsal and ventral surfaces (in *E. rufiventris*); color of brushes black and rufous in male, almost entirely rufous in female (in *E. scoparia*), or grey (in *E. rufiventris*). Lateral surface of metafemoral clava with small, white patch of recumbent hairs in male; in female the patch more extensive, but greyer and sparser.

General puncturation. Upperside: generally very dense, rather small, and alveolate or subalveolate. On pronotum punctures of transverse depression not smaller than those on rest of surface, and smooth areas of surface absent (in *E. scoparia*), or smooth areas present (in *E. rufiventris*). On elytra smooth, impunctate areas restricted to translucent panels (these not invaded by denser punctures), the panels

almost impunctate (in *E. scoparia*), or with rather sparse, large punctures (in *E. rufiventris*). Underside puncturation: mirrors the state of its pubescence; the punctures generally dense and small; simple and deeper (on prosternum); microscopic (on mesosternum), shallow and beveled (on metasternum). On abdomen punctures small shallow and somewhat beveled; rather sparse, especially towards sides and apex (in *E. scoparia*), or more uniform and denser (in *E. rufiventris*).

Species included in this genus. *Epimelitta scoparia* (Klug, 1825) and, provisionally, *E. rufiventris* Bates, 1870.

Key to the species of *Epimelitta*

1. Integument of forebody, and pubescence on elytra rufous-orange in color. Elytra predominantly rufous orange. Legs generally rufous and black in color. Metatibial brushes spirally arranged, predominantly black or sepia in color. Guyana, French Guiana, Brazil (AM, PA), Ecuador, Peru, Bolivia (Fig. 1-5) ***E. scoparia* (Klug, 1870)**
- Integument of forebody, and pubescence on elytra black in color. Elytra predominantly black. Legs generally rufescent in color. Metatibial brushes not spirally arranged, predominantly grey in color. Brazil (AM) (Fig. 6) ***E. rufiventris* Bates, 1870**

Comment. Since it has only been possible to examine photographs of the only known specimen of *E. rufiventris* (a female), its inclusion in this genus is more a matter of expediency (maintaining Bates' original designation) than certitude. At first glance (apart from the shape of its abdomen) it has a striking resemblance to *Charisia bleuzeni* from French Guiana, and might well be placed in the same genus; but the transverse depression on the pronotum suggests a closer relationship with *Epimelitta*. It might be better placed in a genus of its own; a decision that will have to await the discovery of a male specimen.

Diagnosis. As Bates (1873) stated: "In facies the species [of *Epimelitta*] bear very little resemblance to any of the other [Rhinostragini] genera, and, in fact, remind one more of bees of the *Melipona* group"; but according to the current taxonomy more like bees of the *Trigona* group; while those of *Exepimelitta* more like bees of the *Melipona* group.

Furthermore, the genus *Epimelitta* is readily separated from *Exepimelitta* by the following: in *Epimelitta* forebody equal to, or shorter than abdomen (in *Exepimelitta* longer); in *Epimelitta* inferior lobes of eyes moderately far apart in male, very far apart in female (in *Exepimelitta* inferior lobes not as widely separated); in *Epimelitta* prothorax widest well in front of middle (in *Exepimelitta* widest from near middle to well behind middle); in *Epimelitta* male abdomen narrow and convex, and urosternites II-IV subequal in length; in female abdomen comparatively narrow and fusiform (in *Exepimelitta* male abdomen rather wide and flattened, and II-IV sequentially shorter towards apex of abdomen; in female, abdomen characteristically broad and ovate); in *Epimelitta* metafemoral clava fusiform; its apex reaching apical third of urosternite III in male, base of IV in female (in *Exepimelitta* clava almost parallel-sided for middle half, and apex reaching from middle of urosternite IV to near apex of V); in *Epimelitta* much of tegument and long pubescence is orange in color (in *Exepimelitta* tegument is predominantly black, and long pubescence dark in color); in *Epimelitta* urosternites II-IV lack lateral tufts of pubescence; and I, and sometimes II, bordered with yellowish or grey, recumbent pubescence (in *Exepimelitta* urosternites II-IV with characteristic long tufts of pubescence; and basal segments not bordered by recumbent pubescence).

Separation of *Epimelitta* and *Exepimelitta* from *Charisia*, *Erratamelitta* and *Adepimelitta* is set down under the descriptions of the latter.

Genus *Epimelitta* species sample data

***Epimelitta scoparia* (Klug, 1825)**

(Fig. 1-5)

Molorchus scoparius Klug, 1825:469.

Epimelitta scoparia; Bates, 1870: 33; Monné, 2016:813 (cat.).

Epimelitta miranda Tippmann, 1960:128; Monné and Giesbert, 1992:250 (syn.).

Epimelitta meliponica Bates, 1870:331, **syn. nov.**

Epimelitta acutipennis Fisher, 1947:54, **syn. nov.**

Measurements (mm): 14 males/5 females: total length 10.75-13.0/14.00-16.35; length of pronotum 1.75-2.15/2.25-2.50; width of pronotum 2.20-2.65/2.85-3.30; length of elytra 2.55-3.25/3.70-4.20; width at humeri 2.15-2.70/2.80-3.25.

Specimens analyzed: BOLIVIA, Santa Cruz, 17°27'S/63°43'W, 5 km W Buena Vista, 1 km W Candelaria, 400 m, on/flying to flowers of "Gomphrena": male, 21.VIII.2007. (RCSZ); 17°29'96"S/63°39'13"W, 440 m, 5 km SSE Buena Vista, Hotel Flora & Fauna, Chiquitano Forest, on/flying to flowers of "Sapaimosi": female 26.VIII.2008 (RCSZ).

Specimens examined: GUYANA, female (USNM Allotype #57681). BRAZIL, Amazonas, Santarem, female (CMNH Acc. No. 2966). PERU, Pucallpa (Rio Ucayali), 400 m, female, XII.1955, Dirings collection (MZSP). BOLIVIA, Santa Cruz, 17°27'S/63°43'W, 5 km W Buena Vista, 1 km W Candelaria, 400 m, on/flying to flowers of "Gomphrena": male, 14.VIII.2007 (MNKM); *ditto*, 9 males, 15-23.VIII.2007 (RCSZ). 17°29'96"S/63°39'13"W, 440 m, 5 km SSE Buena Vista, Hotel Flora & Fauna, Chiquitano Forest, on/flying to flowers of "Sapaimosi": female, 1.IX.2008 (RCSZ); *ditto*, on/flying to flowers of "Gomphrena": male, 5.IX.2007 (RCSZ); *ditto*, on/flying to flowers of "Barbasquillo": 2 males, 20-25.VIII.2005; *ditto*, on/flying to flowers of "Ramoneo": male, 10.VIII.2008 (RCSZ). [Note: The holotype of *Epimelitta scoparia* Bates, 1870 was examined with photographs made available by the BMNH.]

Comment: Bolivia is a new country record for the species.

***Exepimelitta* gen. nov.**

(Fig. 7-20)

Type species: *Charis mimica* Bates, 1873, here designated.

Description of the genus. Small to moderately large (female larger and usually more robust), total length 8.0-13.7 mm, and broad (total length/width metathorax 3.46-4.33). Forebody (f) slightly longer than abdomen (a), f/a 1.04-1.23. **Head:** comparatively narrow (widths prothorax/head with eyes 1.11-1.26 in male, 1.23-1.42 in female); rostrum shortest in male *Exepimelitta nigerrima* (width/length 3.67), longest in female *E. windsori* sp. nov. (width/length 2.45). Labrum transverse, about two times wider than long and rounded laterally. Apex of clypeus hardly wider than labrum, its base separated from frons by moderate declivity (more so in male than female). Apical palpomeres of maxilla and labium short (longer in *E. nigerrima*), subcylindrical, truncate at apex. Galea long and narrow. Inferior lobes of eyes subcontiguous in male, least so in *E. lestradei*, width of one lobe/interocular distance 3.34-5.33, in female far apart 1.00-1.15; strongly convex (in male of *E. consobrina* and *E. nigerrima*), or less convex (in male of *E. lestradei*, *E. mimica* and *E. windsori*, and all females). Superior lobes of eyes almost parallel-sided, with 9-11 rows of moderately large ommatidia; laterally narrowed by one half of their mesal width; and in male separated by 2.25-2.86 the width of one lobe, in female 3.50-4.33. Antennal tubercles weakly raised, rounded at apex, in male separated by 2.40-3.00 width of scape, in female 3.00-3.60 width of scape.

Antennae: robust (more so in female); short, apex in male reaching from base to middle of metacoxae (in *E. windsori* just passing metacoxae), in female usually slightly shorter. Scape subpyriform (in *E. nigerrima*), or subcylindrical (in the remaining species), and narrow (width 0.2-0.3 mm); antennomeres III filiform; IV subfiliform; V elongate, and subserrate (hardly so in *E. windsori*, almost serrate in *E. mimica*); VI-X serrate and incrementally more quadrate. Antennomere III short, 0.93 length scape (in male *E. lestradei* and female *E. nigerrima*), or as long as scape (in male *E. nigerrima* and female *E. lestradei*), or 1.06-1.08 longer than scape (in *E. mimica* and *E. windsori*); about 1.5 longer than IV (in both sexes of *E. lestradei* and *E. windsori*), or about twice as long as IV (in the remaining species); V-VII, or V-VIII (in some species) subequal, and usually longer than IX-X; XI ovate (in both sexes of most species), or more elongate and less rounded (in male *E. windsori*); with moderately long to very small apical cone, and nearly

always longer than VIII-X. **Prothorax:** distinctly transverse, in male length/width 0.80-0.85, strongly transverse in female 0.73-0.81; in male somewhat trapezoidal, the sides contracted and almost straight from widest point to apical margin; in female obovate, the sides well-rounded, strongly so towards base; usually widest well behind middle in male (prothoracic quotient 1.68-1.94), in female widest near middle (prothoracic quotient 1.91-2.14). Basal margin of prothorax strongly rounded and juxtaposed between elytral humeri; its width equal to width of apex, or slightly narrower (widths apex/base 0.95-0.97). Surface of pronotum irregular, moderately convex (slightly more so in female); disrupted by moderately deep, transverse depression dominating pronotal disc; and to each side of disc with broad pair of wide, arched calli (these not well delimited in all species), a smaller anterior one closer to midline on apical third (almost evanescent in smaller specimens), a large posterior one more prominent, and rounded behind (and sufficiently tumid to overhang sides of pronotum and basal constriction). Pronotal disc further disrupted by smooth callosities at midline (sometimes absent), as follows: narrow callosity adjacent to apical margin; and an irregularly shaped swelling between the tumid, posterior calli. Apical constriction usually weak or absent; basal constriction strongly abrupt towards sides, and not fossate. **Prosternum:** flat to apical border, at midline usually planar with its process; but base of latter somewhat raised in *E. nigerrima*, or below level of prosternum in female *E. mimica*; not at all arched, sub laminate, either narrow, 10-14 times narrower than width of procoxal cavity (in *E. windsori* and *E. mimica*), or 6-9 times narrower than width of procoxal cavity (in the remaining species). Apex of prosternal process small and golf-tee shaped. Procoxal cavity rather broadly plugged laterally; moderately widely open behind, the gap between apex of post coxal process and apex of prosternal process 0.2-0.3 mm. **Scutellum:** rather small, scutate, or trapezoidal (in *E. nigerrima*) but pubescence usually hiding details. **Elytra:** short and cuneate; irrespective of sex 1.20-1.40 longer than width across humeri; sides weakly arched; apices hardly divergent (but elytra well separated by moderately strongly gape for slightly more than apical third); apex reaching apex of metacoxae, or just passing its apex in some specimens. Each elytron gradually and strongly narrowed to blunt, unarmed apex (the latter somewhat lobate in appearance); on basal two-thirds (or less) with rather narrow, irregular translucent panel of variable size (its shape and size depending upon the extent of encroaching dense puncturation); but cleaver-shaped in *E. lestradei*. Surface surrounding translucent panel irregular, usually raised adjacent to scutellum; and at humeri hiding mesepimera; humeri usually rounded, yet strongly projecting, and towards sides somewhat abruptly depressed (to leave them narrow and prominent); towards apex translucent panel depressed, and abruptly separated from side of elytron by short, well defined carina (which may represent remnants of the humero-apical costa); and at apex separated from sutural border by dense puncturation. **Mesosternum:** at center hardly more prominent than sides; mesosternal declivity deep and abrupt (in *E. consobrina*, *E. lestradei* and female *E. windsori*), not as deep and well inclined, about 60° slope (in *E. nigerrima*, *E. mimica* and male *E. windsori*). Mesocoxal cavity: hardly wider than base of mesosternal process (in *E. consobrina* and *E. nigerrima*), or 1.3-1.6 wider than base of process (in the remaining species). Base of mesosternal process nearly flat or with moderately raised sides; apex lanceolate or nearly so, or subcordiform (in *E. mimica*), sides diverging and acuminate at apex (bluntly to sharply pointed), apical margin somewhat projecting, and abruptly depressed. Mesoxal cavity rather narrowly, to moderately widely open to mesepimerum. Lengths of mesosternum/metasternum 0.85-0.92. **Metathorax:** wide, usually wider in male (but see *E. windsori*), body length/width metathorax 3.46-3.87, in female 3.65-4.03; sides rounded from base to middle of hind margin; metasternum moderately tumid, and weakly flattened for apical half in male (more flattened in most females), its surface more or less level with mesocoxae. Metepisternum widest at base, strongly tapering to subacuminate apex. **Abdomen** in male: cylindrical; almost parallel-sided; somewhat flattened; weakly annulated; rather wide (widest near apex of urosternite II in *E. consobrina* and *E. windsori*), or apex of III (in *E. mimica* and *E. nigerrima*); urosternites II-IV strongly transverse; I-IV sequentially shorter towards apex of abdomen, or II and III equal in length. Urosternite V subtrapezoidal; surface weakly differentiated, with flat, U or V-shaped area often demarcated by slightly raised sides; apical margin broadly emarginate, or hardly so (in *E. lestradei* and *E. mimica*) between acutely pointed sides (in most species); when viewed laterally urosternite V winged, with somewhat acute apical angles, or rounded apical angles (in *E. consobrina*). Abdominal process a rather narrow isosceles triangle, moderately to rather strongly inclined to abdomen (slope about 30-75°). **Abdomen** in female: characteristically broad and ovate; flattened; weakly annulated; widest near base of urosternite II (in *E. mimica*) or near apex of II (in the remaining species); urosternite I subconical; II-IV

strongly transverse (III about three times wider than long); I-IV sequentially shorter towards apex of abdomen. Urosternite V trapezoidal; surface undifferentiated; sides weakly constricted across apical half, the latter moderately down-turned; apical margin weakly rounded, and sometimes minutely angled at sides. Abdominal process large, broad and blunt; almost planar with abdomen. **Legs:** in both sexes ratio lengths front/middle/hind leg 1.0:1.1-1.2:2.3-2.5. Front and middle legs: body length/length of legs 2.3-3.0 and 2.1-2.5 respectively. Front leg: femur about as long as tibia (in most species), or 1.15-1.21 longer (in *E. consobrina* and *E. nigerrima*); tibia moderately robust; narrow at base, rather abruptly widening and almost parallel-sided to apex; when viewed dorsally apical margin oblique, somewhat lanceolate; apico-lateral angle dentate. Middle leg: femur moderately long (longest in male), 1.35-1.50 longer than length of tibia; femoral claw robust (but hardly tumid when viewed from above), in both sexes length of femur/lateral width of femoral claw 2.54-2.90 (the claw wider in male); tibia rather robust and almost parallel-sided to apex (in most species), or less robust and gradually widening to apex (in *E. lestradei* and *E. windsori*). Hind leg: robust, body length/length of leg in both sexes 1.0-1.3; femur strongly pedunculate-clavate; claw characteristic, when viewed laterally sides almost parallel-sided for middle half, and tumid (when viewed from above), or hardly tumid (in *E. windsori*); femoral apex reaching from middle of urosternite IV to near apex of V; claw long; peduncle short, moderately narrow, and usually flattened (length claw/peduncle 2.40-3.16). Metatibiae robust and uniformly wide to preapex; with large brushes, these emanating from slight swellings of tibial surface; (less obviously in *E. lestradei* and *E. windsori*). When viewed dorsally tibia almost straight (in *E. lestradei*, *E. windsori* and female *E. mimica*), or somewhat bisinuate (in both sexes of *E. consobrina* and *E. nigerrima*, and in male *E. mimica*); apex bifurcate, with long spur on mesal side. When viewed laterally tibia slightly curved and bisinuate (in both sexes of most species), or straight and bisinuate (in *E. mimica*); preapex with distinct spur; apex abruptly widened, both mesal and lateral surfaces produced into short, spatula-like extension, laterally this extension with truncate apical margin (in *E. consobrina* and *E. nigerrima*), or rounded apical margin (in *E. lestradei*, *E. windsori* and *E. mimica*). Metatarsus rather robust, but distinctly narrower than apex of metatibia; tarsomere I cylindrical; II not pediculate, almost quadrate; III as long as or slightly longer than II, the lobes narrow, rounded at sides, and weakly divergent. In both sexes: first tarsomere 0.89-0.93 length of II + III.

Genitalia. The description of the genitalia is based on two species, *Exepimelitta nigerrima* (Fig. 50) and *E. windsori* (Fig. 51). **Median lobe of aedeagus:** moderately short (about 1.8 mm), slender, modestly arched, with acuminate apex; and small dark bodies present. **Tegmen:** similar to species of *Charisia*; markedly different from *Epimelitta*. Apical part long, basal part shorter and broader. Apical part divided into two finger-shaped lobes, these moderately divergent, and long (length/width 3.2-3.7). Each lobe with moderately curved lateral and mesal margins, at apex hardly wider, slightly asymmetrical and subacuminate. Y-piece long and narrow, the stem about as long as the fork.

General pubescence. Pubescence greatly amplified in both sexes; the setae black or chestnut. Notable pubescence (very dense tufts of long, suberect setae) present on upperside of body and elytra as follows: sides and transverse depression of pronotum; arched patch on basal half of elytra (especially well developed in female). Notable pubescence on underside of body as follows: below inferior lobes of eyes (less notable in *Exepimelitta windsori*); towards sides on apical margin of prosternum; between mesocoxae and hind margin of metasternum; covering most of metepisternum; towards sides of urosternites II-IV (in most species), or only sides of II and III (in *E. windsori*, and *E. lestradei* with those on III reduced). Less notable pubescence consisting of whitish, recumbent hairs on meso- and metasterna (at least in male); on urosternite I of abdomen narrow arched fascia laterally (in *E. consobrina*, *E. lestradei*, *E. nigerrima* and *E. windsori*), or lateral fascia replaced with scattered flecks (in female *E. mimica*), or entirely absent (in male *E. mimica*); and hind margin of urosternite I with narrow fascia medially (in female *E. lestradei*). Notable pubescence on legs as follows: ventral surface of profemoral claw (very dense, long tufts); mesofemoral claw; metafemoral claw (near middle of dorsal surface and towards apex of ventral surface). Metatibia with large, untidy brushes (their arrangement differing interspecifically, and sometimes between the sexes, sometimes spirally arranged, sometimes not, sometimes covering most of the tibial surface, or shorter on one side than the other, or each brush may be interrupted in the middle, or not); and the color of the brushes variable (some bicolored, others not, some sexually dichromatic, others not);

and the variation would seem to be too much to be a useful taxonomic tool (but see key to the species, where it is used to separate *E. consobrina* from *E. nigerrima*). All species with oblique, small, white patch of recumbent hairs towards the apex of metafemoral claws, on both mesal and lateral surfaces.

General puncturation. Upperside (including elytra): generally very dense, rather small, and alveolate or subalveolate. On pronotum: almost micropunctate in transverse depression; and very small areas of surface usually smooth and impunctate on posterior calli and towards distal margins of midline (in *Exepimelitta mimica* and *E. nigerrima*), or smooth impunctate areas absent (in *E. lestradei* and *E. windsori*). On elytra: smooth, relatively impunctate areas restricted to apex, or mesal half of translucent panels, elsewhere invaded by small dense punctures, or larger, sparser punctures (in *E. nigerrima*). Underside puncturation mirrors the state of its pubescence: the punctures generally very dense and small; simple and deeper (on prosternum); microscopic (on mesosternum), shallow and beveled (on metasternum). On abdomen: punctures shallow and usually somewhat beveled, small (larger in *E. lestradei*); and dense (less so towards sides and apex), or relatively sparse (in female in *E. nigerrima*).

Species included in this genus. *Exepimelitta consobrina* (Melzer, 1931), comb. nov.; *E. lestradei* (Peñaherrera-Leiva and Tavakilian, 2003), comb. nov.; *E. mimica* (Bates, 1873), comb. nov.; *E. nigerrima* (Bates, 1892), comb. nov.; and *E. windsori* sp. nov.

Key to the species of *Exepimelitta*

1. Rostrum at least three times wider than long (length/width 3.0-3.7). Antennal scape: subpyriform (when viewed laterally). Mesocoxal cavity: about as wide as base of mesosternal process. Profemur: 1.15-1.21 longer than protibia. Mexico and Central America (Fig. 7-12) **2**
- Rostrum less than three times wider than long (length/width 2.5-2.9). Antennal scape: almost cylindrical (when viewed laterally). Mesocoxal cavity: 1.3-1.6 wider than base of mesosternal process. Profemur: 1.00-1.07 longer than protibia. South America (Fig. 13-20) **3**
- 2(1). Metatibial brush predominantly black or sepia. Mexico (Veracruz), Costa Rica (Fig. 7-10) ***E. nigerrima* (Bates, 1892)**
- Metatibial brush predominantly white or fulvous. Costa Rica (Fig. 11, 12) ***E. consobrina* (Melzer, 1931)**
- 3(1). Apex of elytra rufous. Hind leg entirely black, or nearly so. In male metatibial brush entirely yellow or sepia. Antennomere III about 1.5 length of IV. Urosternites II, or II and III, with tufts of stiff hairs **4**
- Apex of elytra black. Hind leg black and rufous. In male metatibial brush a mix of sepia and fulvous. Antennomere III about twice length of IV. Urosternites II-IV with tufts of stiff setae. Brazil (RJ, SC) (Fig. 13-16) ***E. mimica* (Bates, 1873)**
- 4(3). Translucent panels on elytra broad. In female: rostrum 2.7-2.8 wider than long; superior lobes of eyes separated by 4.3 interocular distance; antennomeres VI-IX acutely serrate; width of procoxal cavity about 7.5 width of prosternal process; urosternite V subconical, apex sinuate; metafemoral claw more than three times longer than peduncle. Metatibial brush: yellow in male, black and sepia in female. French Guiana, Brazil (AM, PA) (Fig. 17, 18) ***E. lestradei* (Peñaherrera-Leiva and Tavakilian, 2003)**
- Translucent panels on elytra narrow. In female: rostrum 2.5 wider than long; superior lobes of eyes separated by 3.5 interocular distance; antennomeres VI-IX bluntly serrate; width of procoxal cavity about ten times width of prosternal process; urosternite V trapezoidal, apex almost truncate; metafemoral claw 2.7 longer than peduncle. Metatibial brush: sepia in male, black in female. Bolivia (Fig. 19, 20) ***E. windsori* new species**

Diagnosis. Separation of *Exepimelitta* from *Epimelitta*, *Erratamelitta* and *Adepimelitta* is set down below the descriptions of the latter.

Separation of *Exepimelitta* and *Epimelitta* from *Charisia* by the following diagnostics: in both genera inferior lobes of eyes in female further apart, width of one lobe/interocular distance 0.89-1.15 (in females of *Charisia* interocular narrower, width of one lobe/interocular distance 1.21-1.75); in both genera surface of pronotal disc disrupted by distinct calli and transverse depression, the latter clothed with dense, semi-erect long setae (in *Charisia* disc lacking distinct calli, but see *C. durantoni* and *C. bleuzeni* for mild exceptions; and transverse depression absent); in both genera prosternal process golf-tee shaped (in *Charisia* prosternal process not golf-tee shaped, apex of process somewhat triangular, trapezoidal, or short and Y-shaped); in both genera elytral disc with arced patches of dense, semi-erect, long setae, the latter aggregating to form tufts (in *Charisia* pubescence shorter, recumbent and not tufted); in both genera profemora clothed with dense tufts of thick setae (in *Charisia* profemoral pubescence not unusually dense or tufted, nor thick; but almost tufted in *C. bleuzeni*); in both genera pre-apex of metafemora with characteristic, rather narrow, oblique patch of white, recumbent pubescence laterally, and usually on mesal surface as well (in *Charisia* metafemora lacking these characteristic patches); in both genera metatibia with distinct brushes (in *Charisia* metatibia may be strongly pilose, but the setae not aggregating to form true brushes (but see *C. bleuzeni* for exception).

Etymology. The generic name is to remind us that it is no longer (*Ex*) an *Epimelitta*, but related to this genus. The genus name is feminine.

***Exepimelitta windsori* new species**

(Fig. 19, 20)

Description of male holotype. Rather slender, moderately small (total length 10.4 mm) and broad (total length/width metasterna 4.33). Forebody (f): slightly longer than abdomen (a), f/a 1.05. **Color:** tegument almost entirely shining black; with rufous infusion (rufous darkening to chestnut with ageing) on the following: apical margin of clypeus; antennal scape; apical third of elytra; hind margins of urosternites (and more extensively on IV and V); mesal surface of metafemora; tibiae and tarsi (especially of front leg, less so on hind leg). The following entirely paler: mouthparts (pale chestnut); antennomeres (brownish); apex of elytra's translucent panels (semi-vitreous); and onychium of hind leg (pale chestnut). **Surface ornamentation:** amplified, but setae may be somewhat shorter, and black or sepia in color; and on metatibia brushes brown, and their arrangement as follows: not untidy; on basal third rather sparser dorsally, and long (especially mesally), with a row of short tufts ventrally, on apical two-thirds dense and tufted, more so laterally (but this brush interrupted at middle). The less notable, recumbent pubescence with silver color; with presence of dense patch ventrally at apex of metatibia. **Punctuation:** the following noteworthy: translucent panels of elytra only smooth at apex, the rest very densely punctured; on abdomen very small, almost contiguous, becoming less dense laterally, and absent from broad apical margins of each urosternite. **Structure:** head comparatively narrow (widths prothorax/head with eyes 1.26); rostrum rather long (width/length 2.75). Inferior lobes of eyes moderately contiguous, width of one lobe/interocular distance 4.67. Superior lobes of eyes separated by 2.86 the width of one lobe. Antennal tubercles separated by 2.40 width of scape. **Antennae:** comparatively long. Antennomere III short (0.7 mm), 1.07 longer than scape; 1.55 longer than IV; V and VI (0.50 mm); VII and VIII (0.45 mm); IX (0.40 mm); X (0.35 mm); XI (0.50 mm) with moderately long apical cone. **Prothorax:** length/width 0.85; sides slightly sinuate from widest point to apical margin (apical constriction weak); widest well behind middle (prothoracic quotient 1.74); apical and basal margins equal in width (1.55 mm); pair of arced calli well delimited; but small anterior callosities adjacent to midline weakly defined. **Prosternum:** base of prosternal process narrow, 14 times narrower than width of procoxal cavity; the gap between apex of post coxal process and apex of prosternal process 0.2 mm. **Elytra:** rather narrow and long; 1.40 longer than width across humeri; translucent panels almost obliterated by dense punctuation (reduced to a small area at apex); surface posterior to scutellum not raised; apices almost truncate. **Mesosternum:** mesosternal process comparatively narrow (coxal cavity 1.63 wider than base of process); base of mesosternal process with moderately raised sides; apex of process sublanceolate, hardly excavate, and lateral angles rather pointed. Mesocoxal cavity moderately widely open to mesepimerum. Lengths of mesosternum/metasternum 0.86. **Abdomen:** urosternite I distinctly longer than II-IV; Urosternites II and III equally long (1.00 mm) and wide (1.85 mm), almost parallel-sided, only

slightly wider than base of IV, the latter rather strongly contracted to apex. V slightly shorter (0.60 mm) than IV (0.70 mm), apical margin broadly excavate, lateral angles formed by ill-defined ridge running from sides of disc to apex of angles, leaving the latter characteristically prominent and projecting (when viewed from directly above), but the sides only slightly “winged” (when viewed from the side). Abdominal process moderately inclined to abdomen (slope about 30°). **Legs:** ratio lengths front/middle/hind leg 1.0:1.2:2.3. Front and middle legs rather long: body length/length of legs 2.8 and 2.4 respectively. Front leg: femur 1.07 longer than tibia; tibia hardly robust; and apical margin weakly oblique. Middle leg: femur 1.46 longer than length of tibia; length of femur/lateral width of femoral clava 2.73. Hind leg: robust, body length/length of leg in both sexes 1.2; femur 1.10 longer than tibia; femoral apex reaching apical third of urosternite IV; length clava/peduncle 2.94. First metatarsomere 0.93 longer than II + III; II and III equal in length (0.35 mm).

Male variation. Color and surface ornamentation of paratypes show little variation; but tibiae and tarsi almost black in some of them, and antennae and metatibial brushes dusker in few. Structural differences limited to minor ones, as follows: in smaller paratypes apical antennal segments less serrate; inferior lobes of eyes less convex in two paratypes; pronotal disc flatter in three; apices of elytra less truncate in some paratypes, and in one subacuminate.

Description of female (Fig. 20). Larger than male and more robust (total length/width metasterna 3.53). Forebody (f): distinctly longer than abdomen (a), f/a 1.21. **Head:** comparatively narrow (widths prothorax/head with eyes 1.36). Rostrum: slightly longer (width/length 2.45). Inferior lobes of eyes: widely separated (width of one lobe/interocular distance 1.00). Superior lobes of eyes: separated by 2.5 times the width of one lobe. **Antennae:** reach apex of metacoxae. **Prothorax:** length/width 0.78, widest near middle (prothoracic quotient 1.95). **Prosternum:** not depressed across middle; base of process slightly wider than in male (coxal cavity about ten times wider than base of process); apex of process with bisinuate apical margin (giving it a slightly bilobed appearance). **Elytra:** broad (length/width across humeri 1.26), almost hiding mesepimerum; gape wider than in male. **Mesosternum:** mesosternal declivity moderately deep and more abrupt than in male; coxal cavity 1.45 wider than width of mesosternal process. **Abdomen:** with abdominal process very large and wide, much larger than found in any other genus of Rhinotragini among the many that have been examined. **Legs:** similar to male, the following noteworthy: mesofemora longer, but wider (when viewed laterally) than in male; hind leg longer, 2.5 longer than front leg, apex of femur reaching middle of urosternite V; metatarsus longer, but tarsal formula the same. **Surface ornamentation:** very similar to male, but frons less densely punctured, these simple and deeper; metasternal pubescence much reduced, and punctures rather sparse and beveled.

Diagnosis. *Exepimelitta windsori* sp. nov. is close to *Exepimelitta lestradei*; but can be separated by the following characters: in *E. windsori* elytra gape from middle; translucent panels shorter and narrower, not cleaver-shaped, almost obliterated by dense puncturation, impunctate surface reduced to small area at apex (in *E. lestradei* elytra gape from apical third; translucent panels longer and broader, cleaver-shaped, less densely punctured, impunctate area more extensive); in female of *E. windsori* abdomen more ovate, and urosternite V trapezoidal; and in both sexes tufts of setae on urosternite III well developed (in female *E. lestradei* abdomen somewhat conical, and urosternite V subconical; and in both sexes tufts on urosternite III reduced); in male of *E. windsori* metatibial brushes black in color (in male *E. lestradei* brushes are yellow).

Both species may be separated from other species of the genus by the abdominal tufts: in *E. lestradei* and *E. windsori* only found towards sides of urosternites II and III (in the remaining species these tufts are present on urosternites II-IV).

Measurements (mm) 20 males/3 females: total length, 8.00-11.25/10.60-11.90; length of pronotum, 1.50-1.95/1.95-2.00; width of pronotum, 1.75-2.25/2.45-2.55; length of elytra, 2.65-3.00/3.35-3.40; width at humeri, 1.95-2.40/2.65-2.70.

Type material. Holotype male, BOLIVIA, *Santa Cruz*, 17°27'S/63°43'W, 5 km W Buena Vista, 1 km W Candelaria, 400 m, on/flying to flowers of *Gomphrena vaga*: 21.VIII.2007, Clarke & Zamalloa col. (MNKM).

Paratypes with same data as holotype. Male, 13.VIII.2007 (FSCA); 5 males, 15.VIII.2007 (RCSZ); male, 31.VIII.2007 (CNMH); male, 21.VII.2008 (ESSIG); 2 males, 21.VII, 2008 (RCSZ).

Paratypes with different data to holotype. BOLIVIA, *Santa Cruz*, 17°29'96"S/63°39'13"W, 440 m, 5 km SSE Buena Vista, Hotel Flora & Fauna, Chiquitano Forest, on/flying to flowers of "Barbasquillo": male, 23-26.X.2000, Wappes & Morris col. (ACMT); female, 19.VIII. 2005 (ACMT); 4 males, 1-4.VIII.2005; male, 28.VIII.2005; male, 31.VII.2007 (RCSZ); on/flying to flowers of "Ramoneo": male, 10.VIII.2008; 2 females, 17.VIII.2008 (RCSZ); on/flying to flowers of "Sapaimosi": female, 16.VIII.2009 (MZSP); on/flying to flowers of *Gomphrena vaga*: male, 29.VIII.2014 (MZSP).

Etymology. My wife and I chose this species name in recognition of the many ways Donald Windsor has helped us obtain specimens and equipment for our studies.

Genus *Exepimelitta* additional species sample data

Exepimelitta consobrina (Melzer, 1931), **comb. nov.**

(Fig. 11, 12)

Epimelitta consobrina Melzer, 1931:1; Monné 2016:810 (cat.).

Epimelitta nigerrima var. *flavipubescens* Fisher, 1947:56. **Syn. nov.**

Measurements (mm) 1 male/1 female: total length, 8.10/13.10; length of pronotum, 1.40/2.15; width of pronotum, 1.85/2.85; length of elytra, 2.70/3.75; width at humeri, 2.20/3.00.

Specimen analyzed: HONDURAS, Tela, female, 25.IV.1923, S.C. Bruner col. (USNM).

Specimen examined (by Santos-Silva): labeled "Cotypus" COSTA RICA: Farm La Caja perto de [near to] São José (MZSP).

Exepimelitta lestradei (Peñaherrera-Leiva and Tavakilian, 2003), **comb. nov.**

(Fig. 17, 18)

Epimelitta lestradei Peñaherrera-Leiva and Tavakilian, 2003:203; Monné 2016:811 (cat.).

Measurements (mm) 2 females: total length, 9.50-10.45; length of pronotum, 1.80-1.90; width of pronotum, 2.35; length of elytra, 3.00-3.05; width at humeri, 2.30-2.40.

Specimen analyzed: BRAZIL, *Pará*, Serra Norte, Caldeirão, female, 16-19.IX.1985, Armadilha, 1.6 m, Suspensa, J. Dias col. (MZSP).

Specimen examined: BRAZIL, *Pará*, Santarém, female (CMNH Acc. No. 2966).

Comment. This species is new for Brazil (see comment under *E. durantoni*).

Exepimelitta mimica (Bates, 1873), **comb. nov.**

(Fig. 13-16)

Charis mimica Bates, 1873:123.

Epimelitta mimica; Aurivillius, 1912:284 (cat.); Monné, 2016:812 (cat.).

Measurements (mm) 2 males/4 females: total length, 9.70-10.85/13.50-13.70; length of pronotum, 1.80-1.90/2.25-2.40; width of pronotum, 1.95-2.00/2.70-2.90; length of elytra, 3.05-3.25/3.35-4.30; width at humeri, 2.40-2.50/3.05-3.30.

Specimens analyzed: BRAZIL, *Santa Catarina*, Joinville, male, XII.1926, A. Maller col. (MZSP); Mafra, female, XII.1933, A. Maller col. (MZSP).

Specimens examined: BRAZIL, *Santa Catarina*, Mafra, male and 3 females, XII.1933, F. Tippmann, Wien col. Tippmann collection #213112 (USNM).

***Exepimelitta nigerrima* (Bates, 1892), comb. nov.**

(Fig. 7-10)

Charisia nigerrima Bates, 1892:160.

Epimelitta nigerrima; Aurivillius, 1912:284 (cat.); Monné 2016:812 (cat.).

Measurements (mm) 3 males/2 females: total length, 8.30-9.90/12.10-12.60; length of pronotum, 1.55-2.15/1.80-1.90; width of pronotum, 1.85-2.30/2.45-2.60; length of elytra, 2.55-2.9/3.25-3.35; width at humeri, 2.10-2.45/2.80-2.85.

Specimens analyzed: COSTA RICA, La Caja, bei San José, male, X.1930 (MZSP); San José, female, V-VI.1925. I. Schmidt col. (CMNH)

Specimens examined: COSTA RICA, San José, female, VI.1925. I. Schmidt col. (CMNH); La Caja, bei San José, male, 20.X.1928, male, XII.1929, H. Schmidt leg. Nevermann collection (USNM).

***Charisia* Champion, 1892, revalidated**

(Fig. 21-33)

Type species: *Charis euphrosyne* Newman, 1840.

Redescription of the genus. Moderately small to large, total length 9.5-17.5 mm, and broad (total length/width metathorax 3.8-4.7). Forebody (f) slightly shorter or longer than abdomen (a), f/a 0.86-1.30, longest in *C. bleuzeni*. **Head:** comparatively narrow (widths prothorax/head with eyes 1.23-1.34 in male, 1.26-1.45 in female); rostrum width/length 2.58-3.14, quotient lowest in female *C. euphrosyne*, highest in male *C. mneme* and female *C. bleuzeni*. Labrum moderately transverse, about two times wider than long, hardly rounded laterally (more so in *C. mneme*). Clypeus and frons separated by weak declivity; apex hardly wider than labrum. Apical palpomeres of maxilla and labium rather short and broadly truncate at apex (in *C. bleuzeni* and *C. melanaria*), or moderately long and fusiform (in the remaining species). Galea long; moderately narrow (in *C. bleuzeni* and *C. melanaria*), narrow (in most species). In male inferior lobes of eyes convex, almost contiguous to moderately far apart, width of one lobe/interocular distance 6.0-7.0 (in *C. durantoni* and *C. mneme*), 4.20 (in *C. bleuzeni* and *C. melanaria*); in female weakly convex and further apart, width of one lobe/interocular distance 1.2-1.3 (in *C. bleuzeni*, *C. euphrosyne* and *C. melanaria*), about 1.7 (in *C. durantoni* and *C. mneme*). Superior lobes of eyes (based on few specimens, as usually hidden) subparallel-sided, with 9-15 rows of moderately large ommatidia; laterally narrowed by about half their mesal width (in most species, including male *C. melanaria*), or narrowed by two-thirds their mesal width (in female *C. melanaria*); and separated by 2.3-2.8 the width of one lobe in male, in female 2.7-3.0. Antennal tubercles weakly raised (especially in female), rounded at apex and separated by 2.6-3.3 width of scape. **Antennae:** moderately robust (slightly more so in male), subcrassate, with most segments elongate, and apical ones narrow at base (in most species), or robust, crassate, with only basal antennomeres elongate, and apical ones hardly narrower at base (in *C. melanaria*); short to relatively long (without apparent sexual differences); apex reaching from middle of metepisternum to middle of metacoxae, or just passing metacoxae (in *C. mneme*); scape usually subcylindrical, but somewhat pyriform (in *C. melanaria*); and moderately narrow (width 0.25-0.35 mm); antennomeres V-X (in *C. durantoni*), or VI-X (in most species) serrate, or subserrate (in *C. melanaria*). Antennomere III very short to short, 0.67-0.93 length of scape (shortest in female *C. durantoni*, longest in male *C. mneme*), 1.1-1.25 longer than IV-IX (in female *C. durantoni*), or about 1.1-1.6 longer than IV-IX (in most species), or 1.6-1.8 longer than IV-IX (in male *C. melanaria*); IV slightly shorter than V (in female *C. euphrosyne*, male *C. melanaria* and both sexes of *C. mneme*), or equal to V (in females of *C. durantoni* and *C. melanaria*); V-

IX nearly subequal; but VIII and IX nearly always shorter than V-VII; X nearly always shorter than IX. Antennomere XI ovate, or somewhat elongate (in female of *C. euphrosyne* and *C. mneme*, and both sexes of *C. bleuzeni*) with moderately small apical cone (in females of *C. durantoni* and *C. euphrosyne*), or rather large apical cone (in both sexes of *C. bleuzeni*, *C. melanaria* and *C. mneme*), as long as IV, or slightly longer (in female *C. melanaria*). **Prothorax:** variable in shape (but without marked sexual differences); strongly transverse, length/width 0.80 (in female *C. durantoni*), or less strongly transverse, length/width 0.85-0.97 (in most species); obovate and strongly convex (in *C. bleuzeni* and *C. melanaria*); somewhat trapezoidal with rounded hind angles, and less convex (in female *C. euphrosyne*); more cylindrical with weakly rounded sides (in *C. mneme*); and more rectangular with weakly rounded sides, and flatter on disc (in *C. durantoni*); in male widest in front of middle, prothoracic quotient in male 2.12-2.35; in female variable: in front of middle, prothoracic quotient 2.25 (in *C. melanaria*), or at middle, prothoracic quotient about 2.1 (in *C. bleuzeni* and *C. euphrosyne*), or behind middle, prothoracic quotient 1.71-1.85 (in *C. durantoni* and *C. mneme* respectively); width of basal and apical margins of prothorax subequal (widths apex/base 0.91-1.05); basal margin moderately rounded and somewhat juxtaposed between elytral humeri. Pronotal surface only moderately irregular, with weakly raised pair of wide calli to either side of disc (the anterior one evanescent in some species, the posterior one tumid in *C. bleuzeni* and *C. durantoni*), even so calli do not overhang profile of sides in any of the species; disc lacking callosities at midline. Apical constriction weak or absent; basal constriction strongly abrupt towards sides, and not fossate. **Prosternum:** flat, its surface often below level of prosternal process; the latter weakly arched (in *C. durantoni*), or not at all arched (in the remaining species); base of process wide, 4 times narrower than width of procoxal cavity (in *C. euphrosyne*), or 6-10 times narrower than width of procoxal cavity (in most species). Apex of prosternal process small and short; variable in shape: somewhat triangular (in most species), trapezoidal (in female *C. melanaria*), bilobed (in *C. bleuzeni* and male *C. melanaria*). Procoxal cavity rather broadly plugged laterally; behind narrowly open, the gap between apex of post coxal process and apex of prosternal process 0.1 mm (in most females), or the gap 0.15 mm (in male *C. mneme*), or the gap wide, 0.40 mm (in both sexes of *C. bleuzeni* and *C. melanaria*). **Scutellum:** small, trapezoidal; sparsely pubescent, or with dense, recumbent, brassy pubescence (in *C. euphrosyne*). **Elytra:** cuneate; and, irrespective of sex, 1.14-1.22 longer than width across humeri (in most species, or maybe shorter in *C. bleuzeni*), or 1.31-1.35 (in *C. mneme*); apex nearly reaching to middle, or just passing metacoxae; laterally weakly arched (in most species), or not at all arched (in *C. melanaria*), and hardly divergent apically; but strongly gaping for apical half (in *C. bleuzeni*, *C. euphrosyne* and *C. melanaria*), or for slightly more than apical third (in *C. durantoni* and *C. mneme*). Humeri hiding mesepimera; rounded, projecting and prominent. Each elytron gradually and strongly narrowed to rounded, unarmed apex. Without distinct translucent panel (in *C. melanaria*); or with distinct translucent panel (in most species), these depressed (abruptly so towards apex) and variable in size, rather broad towards apex, reaching sutural margin (in *C. durantoni*), or separated from sutural margin by narrow band of dense punctures (in the remaining species). Surface surrounding translucent panel irregular: raised adjacent to, and posterior to scutellum, and at sides (somewhat abruptly at humeri, to leave these narrow and prominent); towards apex (the panels separated from the sides by a short, well defined carina, which may represent remnants of the humero-apical costa); and at apex (giving the elytra a lobe-like appearance). **Mesosternum:** at center hardly more prominent than sides; mesosternal declivity deep and abrupt (in both sexes of *C. durantoni*, in male *C. bleuzeni* and females of *C. euphrosyne* and *C. mneme*), or subabrupt (in females of *C. bleuzeni* and *C. melanaria*, and male *C. mneme*), or deep and well inclined, about 60° slope (in male *C. melanaria*). Base of process nearly flat; coxal cavity 1.00-1.20 wider than base of process (in female), or 1.38 wider than base of process (in male); apex of process V-shaped (in male *C. mneme*), or hardly excavate (in the remaining species), the sides weakly diverging, and sharply pointed (in most species), or the sides weakly bilobed (in *C. euphrosyne*). Mesocoxal cavity moderately widely open to mesepimerum. Lengths of mesosternum/metasternum 0.76-0.85. **Metathorax:** wide, usually relatively wider in male, body length/width metasternum 3.82-4.32, in female 4.24-4.67; sides usually weakly rounded, leaving apical margin of metasternum weakly oblique (in most species); metasternum tumid, and somewhat flattened for apical half (more so in most female), its surface more prominent than mesocoxae. Metepisternum widest at base, distinctly tapering to subacuminate apex. **Abdomen:** moderately robust, rather narrow (in male *C. bleuzeni*), or wide (in most species), and weakly annulated; in male almost cylindrical and convex; in female slightly flattened and general shape variable: either conical, with

urosternite I conical and rounded at sides (in female *C. durantoni*), or fusiform, with urosternite I subconical and straight-sided (in other females); urosternite I the longest; urosternites II-IV transverse, variable in length, subequal (in both sexes of *C. melanaria*), or sequentially shorter towards apex of abdomen (in most species). Urosternite V trapezoidal; in male hardly differentiated, slightly flattened on disc, apical margin excavate, and sharply pointed at sides (in *C. mneme*), or truncate, and blunt at sides (in *C. melanaria*); in female apical half bent downwards (weakly in *C. melanaria*), apical margin truncate to excavate (in *C. mneme* and *C. euphrosyne* respectively), or acuminate to weakly acuminate (in *C. durantoni* and *C. melanaria* respectively). Abdominal process almost planar with abdomen in female; inclined in male (slope about 30°). **Legs:** in both sexes ratio lengths front/middle/hind leg 1.0:1.1-1.2:2.1-2.3. Front and middle legs: body length/length of legs 2.6-2.9 and 2.2-2.6 respectively. Front leg: femur about as long as tibia, or somewhat longer (in female *C. mneme*); tibia moderately robust; narrow at base, rather abruptly widening and almost parallel-sided to apex; when viewed dorsally apical margin oblique, somewhat lanceolate; apico-lateral angle looks strongly dentate. Middle leg: femur moderately long, 1.1-1.5 longer than length of tibia; femoral clava moderately robust (but not tumid when viewed from above), in both sexes length of femur/lateral width of femoral clava 3.1-3.5; tibia rather slender and almost parallel-sided to apex (in most species), or gradually widening to apex (in *C. mneme*). Hind leg: robust, body length/length of leg in both sexes 1.2-1.4; femur strongly pedunculate-clavate; clava fusiform, with sides hardly parallel-sided (when viewed laterally), and weakly tumid (when viewed from above); apex reaching from basal third of urosternite III to middle of IV; clava long, peduncle short, moderately narrow, and flattened; length clava/peduncle 2.1-2.5 (in most species), or 3.1 (in *C. durantoni*). Metatibia, when viewed laterally, slightly curved and bisinuate (in *C. euphrosyne*), or almost straight (in most species); moderately robust, and uniformly wide when viewed dorsally. Metatarsus: distinctly narrower than apex of metatibia, robust in male, less robust in female. Metatarsomere I cylindrical (in *C. melanaria*), subcylindrical (in the remaining species); II not pediculate, trapezoidal; II slightly shorter or slightly longer than III; lobes of III usually narrow, rounded at sides, and weakly divergent. In both sexes first metatarsomere 1.00-1.27 length of II+III.

Genitalia. The description of the genitalia is based on two species, *C. melanaria* (Fig. 52) and *C. mneme* (Fig. 53). Tegmen similar to *Exepimelitta windsori*; rather different from other epimelittids. **Median lobe of aedeagus:** moderately long (about 2.0-3.2 mm), slender, modestly arched, with acuminate apex; and with small dark bodies present. **Tegmen:** apical part longer than basal part. Apical part divided into two relatively long, finger-shaped lobes, these strongly divergent and narrow in *C. mneme*, less divergent and broader in *C. melanaria* (length/width of lobe 3.9-6.0). Each lobe with moderately curved lateral and mesal margins, at apex abruptly wider, slightly asymmetrical and subacuminate. Basal part moderately broad and short (more so in *C. mneme*). Y-piece long and narrow, the stem about as long as the fork.

General pubescence. Pubescence of pronotum, elytra and abdomen much reduced in both sexes (especially in *C. mneme*); the setae usually black, rufous or chestnut; but somewhat golden on elytra (in *C. euphrosyne*). Notable pubescence (tufts of long, suberect setae): generally absent on upperside of body and elytra, but can be present as diagonal patch of dense, short setae on elytra (in *C. bleuzeni*, *C. euphrosyne* and *C. melanaria*); on underside of body as follows: below inferior lobes of eyes; towards sides on apical margin of prosternum; and markedly dense tufts adjacent to front margin of procoxae (in males of *C. bleuzeni* and *C. melanaria*); sides of meso- and metasternum (or covering most of metasternum in male *C. melanaria*), and metepisternum; dense rufous hair covering sides of abdomen (in male *C. melanaria*). Less notable pubescence consisting of whitish or golden, recumbent hairs on: mesepimera; and sides of metasternum (in males of *C. bleuzeni* and *C. mneme*); abdominal urosternite I liberally clothed with silver pubescence (in male *C. bleuzeni*); and urosternites I and II with dense, narrow band of yellow pubescence on hind margins (in *C. durantoni*). Notable pubescence on legs as follows: ventral and dorsal surfaces of pro- and mesofemora (hardly notable in *C. euphrosyne* and *C. mneme*); aggregating in to dense tufts (in *C. bleuzeni* and *C. melanaria*); almost uniformly clothing metafemoral clava (not especially dense, but notable suberect stiff setae in most species; denser and longer in *C. bleuzeni*); metatibiae with dense brushes (in *C. bleuzeni*), or bunching into denser patches, but not quite dense enough to be called brushes (in female *C. euphrosyne* and male *C. mneme*), or adorned with long setae,

only moderately dense, and somewhat more uniformly distributed (in *C. durantoni*, *C. melanaria*, and female *C. mneme*); and not emanating from swellings on tibial surface.

General puncturation. On upperside: generally very dense, rather small, and alveolate on head, pronotum and elytra; on head and pronotum uniformly distributed, without smooth, impunctate areas, except on frons (in most species); or sides of pronotum smooth between large, subalveolate punctures (in *C. durantoni*); on elytra smooth, impunctate areas restricted to translucent panels, these sparsely impunctate (in most species), or entire elytral surface almost uniformly densely punctate, obliterating vestiges of translucent panels (in *C. melanaria*). Underside puncturation mirrors the state of its pubescence; the punctures generally very dense and small: on prosternum confused and contiguous; micropunctate on mesosternum; on metasternum beveled (in *C. melanaria* and *C. mneme*), or less dense, not beveled, and larger on metasternum (in *C. durantoni* and *C. euphrosyne*); on abdomen punctures small; dense and beveled (in *C. melanaria*), or less so (in male *C. mneme*); micropunctate (in *C. euphrosyne* and female *C. mneme*); or sparsely and shallowly punctate (in *C. durantoni*).

Species included in this genus: *Charisia durantoni* (Peñaherrera-Leiva and Tavakilian, 2003), **comb. nov.**; *Charisia euphrosyne* (Newman, 1840), **comb. nov.**; *Charisia melanaria* Gounelle, 1911; *Charisia mneme* (Newman, 1841), **comb. nov.**; *Charisia bleuzeni* (Peñaherrera-Leiva and Tavakilian, 2003), **comb. nov.**; and on a provisional basis *Charisia ornaticollis* Zajciw, 1973. The holotype of the latter, deposited in National Museum, Rio de Janeiro, has not been examined, as they will not lend specimens to non-museum personnel (pers. comm. M.A. Monné, MNRJ); and the original description, with figure, together with a rather poor photograph of the holotype (available on the internet) do not supply the information needed to determine its true status. Zajciw (1973) suggests his species to be near to *Charisia bicolor*; and it may be better placed in *Erratamelitta*.

Key to the species of *Charisia*

Note. For the reasons given above *C. ornaticollis* is not included in the key.

1. Prothorax urn-shaped (and weakly transverse); rather strongly convex (globose in female) ... **2**
 — Prothorax more trapezoidal, not strongly convex (and disc usually somewhat flattened) **3**
- 2(1). Antennae crassate. Abdomen slightly shorter than forebody in male, 1.1 longer in female. Metatibiae without brushes. Brazil (GO, BA, MG, ES, RJ, SP, PA, SC) (Fig. 25-28) ***C. melanaria* Gounelle, 1911**
 — Antennae subcrassate. Abdomen 1.3 longer than forebody in both sexes. Metatibiae with large brushes. French Guiana (Fig. 29, 30) ***C. bleuzeni* (Peñaherrera-Leiva & Tavakilian, 2003)**
- 3(1). Size smaller (total length 10-12 mm). In female width of one inferior lobe of eye/interocular distance about 1.7. Elytra without notable pubescence between translucent panels and sutural margin. Forebody about as long as abdomen **4**
 — Size larger (total length about 15 mm). In female width of one inferior lobe of eye/interocular distance 1.2. Elytra with notable, golden colored, long setae between translucent panels and sutural margin. Forebody distinctly shorter than abdomen. Brazil (BA, MG, ES, RJ, SP, PA, SC). (Fig. 23, 24) ***C. euphrosyne* (Newman, 1840)**
- 4(3). Prothorax transverse (length/width 0.80-0.91). Pronotum not uniformly covered with small punctures, sides of pronotum with much larger ones. In female abdomen conical. Urosternites I and II with distinct bands of pubescence on hind margins. French Guiana, Brazil (PA) (Fig. 21, 22) ***C. durantoni* (Peñaherrera-Leiva & Tavakilian, 2003)**
 — Prothorax almost quadrate (length/width 0.96). Pronotum almost uniformly covered with small punctures. In female abdomen fusiform. Urosternites I and II with indistinct bands of pubescence on hind margins. Brazil (BA, MG, ES, RJ, SP, SC) (Fig. 31, 32) ***C. mneme* (Newman, 1841)**

Diagnosis. Separation of *Charisia* from *Epimelitta* and *Exepimelitta* is set down under the description of the latter; and these three genera of comparatively large, robust species, with broad metathorax (body length/width metasternum = 3.5-4.7) are readily separated from the comparatively small, more elongate species of *Erratamelitta* and *Adepimelitta* with narrow metathorax (body length/width metasternum = 5.1-6.8).

Charisia is also readily separated from *Erratamelitta* by the absence of the characteristic pronotal punctures of the latter; and from *Adepimelitta* by the proportions of the elytra; in *Charisia* elytral length/width at humeri = 1.14-1.50 (in *Adepimelitta* about 1.80 longer than width of humeri).

Genus *Charisia* species sample data

***Charisia bleuzeni* (Peñaherrera-Leiva and Tavakilian, 2003), comb. nov.**

(Fig. 29, 30)

Epimelitta bleuzeni Peñaherrera-Leiva and Tavakilian, 2003:208; Monné 2016:810 (cat.).

Comment. Unfortunately specimens of *Charisia bleuzeni* (originally described from a single female) were not available for study (but excellent photographs of both sexes provided enough detail for those characters mentioned in the text). The species could probably be placed in a genus of its own. It has a general resemblance to *Charisia melanaria*, but differs from all the species of *Charisia* by the well developed tufts of setae on the metatibia, and the shape of the male's abdomen. It cannot be placed in *Epimelitta* s. str. because the forebody is distinctly shorter than abdomen; the prothorax is widest near middle; the integument is black; and the body pubescence is not orange in color. Nor can it be placed in *Exepimelitta* because the pronotum is subquadrate, not strongly transverse; the general body pubescence is reduced, the pronotum lacking the dense, long setae of the transverse depression, the urosternites lacking hairy tufts; and the apex of the metafemora lack the characteristic fascia of white hairs.

***Charisia durantoni* (Peñaherrera-Leiva and Tavakilian, 2003), comb. nov.**

(Fig. 21, 22)

Epimelitta durantoni Peñaherrera-Leiva and Tavakilian, 2003:206. Monné, 2016:811 (cat.).

Measurements (mm), 1 female: total length, 11.60; length of pronotum, 2.05; width of pronotum, 2.55; length of elytra, 3.00; width at humeri, 2.45.

Specimen analyzed: BRAZIL, *Pará*, Serra Norte, Caldeirão, female, 2.VII.1985, Armadilha, 1.6 m, Suspensa, J. Dias col. (MZSP).

Comment. This is the second new record for the Brazilian fauna, the other being *Exepimelitta lestradei*; both collected in the same way (by flight trap), and at the same place by J. Dias.

***Charisia euphrosyne* (Newman, 1840), comb. nov.**

(Fig. 23, 24)

Charis euphrosyne Newman, 1840:21.

Epimelitta euphrosyne; Aurivillius, 1912:284 (cat.); Monné and Giesbert, 1992:250 (syn.); Monné, 2016:811 (cat.).

Charisia hirsutipennis Zajciw, 1973:14; Monné and Giesbert, 1992:250 (syn.).

Measurements (mm), 1 female: total length, 14.85; length of pronotum, 2.60; width of pronotum, 2.90; length of elytra, 3.50; width at humeri, 2.80.

Specimen analyzed: BRAZIL, *Espírito Santo*, Córrego do Itá, female, XI.1956, W. Zikan col. (MZSP).

***Charisia melanaria* Gounelle, 1911, revalidated**

(Fig. 25-28)

Charisia melanaria Gounelle, 1911:57.

Epimelitta melanaria; Aurivillius, 1912:284 (cat.); Monné, 2016:811 (cat.).

Measurements (mm) 1 male/1 female: total length, 16.25/14.75; length of pronotum, 2.70/2.25; width of pronotum, 3.10/2.65; length of elytra, 4.00/3.50; width at humeri, 3.50/3.00.

Specimens analyzed: BRAZIL, *São Paulo*, Est. Saúde, male, 28.X.1916, Melzer col. (MZSP); *Rio de Janeiro*, Itatiaia, 500 m, female, 21.XI.1942, L. Wygodzinsky col. (MZSP).

***Charisia mneme* (Newman, 1841), comb. nov.**

(Fig. 31, 32)

Charis mneme Newman, 1841:90.

Epimelitta mneme; Aurivillius, 1912:284 (cat.); Monné, 2016:812 (cat.).

Measurements (mm) 1 male/1 female: total length, 9.50/10.75; length of pronotum, 1.80/1.85; width of pronotum, 1.85/1.95; length of elytra, 2.70/2.75; width at humeri, 1.90/2.10.

Specimens analyzed: BRAZIL, *Espírito Santo*, Baixo Guandú, male, X.1971, P.C. Elias col. (MZSP). *Santa Catarina*, Mafra, female, XII.1932, F. Tippmann, Wien collection #213112 (USNM).

Comment. Further investigation of this disjunct species seems necessary, to establish whether or not the populations are monospecific.

***Erratamelitta* gen. nov.**

(Fig. 34-36)

Type species: *Charis erato* Newman, 1840, here designated.

Description of the genus. Rather small species, total length 5.60-10.00 mm, and broad (total length/width metathorax 5.06-5.88). Forebody (f) shorter than abdomen (a), in male, f/a 0.80-0.96; in female, f/a 0.93. **Head:** relatively narrow (widths prothorax/head with eyes in male 1.19-1.27, in female 1.19); rostrum short, in male width/length 3.56-3.60, in female 3.00. Labrum moderately transverse, rounded laterally, about 2.5 times wider than long. Clypeus separated from frons by weak declivity; apex hardly wider than labrum. Apical palpomeres of maxilla and labium fusiform, truncate at apex; maxillary palp rather flat, larger and longer than labial pulp. Galea long, and moderately narrow. Inferior lobes of eyes: subcontiguous in male, widely separated in female (width of one lobe/interocular distance in male 3.80-4.00, in female 1.13); moderately convex in male, weakly convex in female. Superior lobes of eyes: subparallel-sided, with 8-9 rows of moderately large ommatidia; laterally narrowed by about one third their mesal width; and separated by 2.80-3.00 the width of one lobe in male, in female by 3.60. Antennal tubercles moderately raised, rounded at apex, and separated by 3.14 width of scape in male; 3.25 in female. **Antennae:** moderately robust and somewhat crassate (slightly more so in female), with all segments elongate (apical ones weakly so), relatively long, apex reaching apical third of urosternite I in male, in female just passing metacoxae. Scape subcylindrical, rather narrow (width 0.20 mm in both sexes), especially at base; antennomere III narrow and filiform; IV and V filiform in male, widened at apex in female. Antennomeres VI-X incrementally crassate and serrate. Antennomere III (0.50-0.65 mm) slightly longer than scape (in *E. eliasi*), or as long as scape (in both sexes of *E. erato*), about 1.4-1.6 longer than IV and VIII-X, only slightly longer than V-VII; IV about 1.2 shorter than V and VI in male, in female 1.4 shorter than V and hardly shorter than VI; VI-X incrementally shorter in male, in female similar (but VI and VII, and VIII and IX equal in length). Antennomere XI (0.40-0.45 mm) somewhat elongate; slightly longer than IV, 1.3 longer than X; with moderately large apical cone in male, smaller in female. **Prothorax:** with strongly rounded hind angles; trapezoidal to subtrapezoidal with sides not uniformly rounded (in male *E. erato*), or subcylindrical with sides regularly and rather strongly rounded (in male *E. eliasi* and in female in *E. erato*); moderately transverse length/width 0.93 (in male *E. erato*), or more quadrate, length/width 0.97-1.00 (in female *E. erato* and in male *E. eliasi*); convex in female, slightly flattened in male; widest in front of middle (prothoracic quotient 2.30 in *E. eliasi*), or widest well behind middle, or

just behind middle in female (prothoracic quotient in *E. erato* male 1.47, in female 1.88); basal margin moderately rounded and somewhat juxtaposed between elytral humeri; slightly wider than apical margin (widths apex/base 0.96). Pronotal surface only moderately irregular (in *E. eliasi* and female *E. erato*); more so (in male *E. erato*); with pair of wide calli to either side of disc, the anterior one almost evanescent, the posterior one tumid (but not overhanging profile of sides); disc lacking callosities at midline; apical constriction weak, basal constriction narrow and strongly abrupt towards sides (and not fossate). Prosternum: flat, surface almost planar with prosternal process; the latter weakly arched; base of prosternal process narrow, 6-7 times narrower than width of procoxal cavity; apex of prosternal process a short, wide, isosceles triangle in male, almost bilobed in female. Procoxal cavity rather broadly plugged laterally; behind rather narrowly open, the gap between apex of post coxal process and apex of prosternal process about 0.10-0.15 mm. **Scutellum:** rather short, trapezoidal. **Elytra:** cuneate, 1.53-1.63 longer than width across humeri; apex reaching middle of urosternite I in both sexes; laterally hardly arched, and hardly divergent apically; but moderately gaping for apical third. Humeri: not hiding mesepimera, not rounded, moderately projecting and prominent. Each elytron gradually and weakly narrowed to rounded, unarmed apex. Translucent panels rather ill-defined, hardly paler than adjacent areas of elytra, or more contrasting (in *E. eliasi*), limited to middle half of elytra, weakly depressed, and rather broad towards apex, and only separated from sutural border by a few large punctures. Surface surrounding translucent panel hardly irregular, weakly raised adjacent to, and posterior to scutellum; towards sides abruptly raised at humeri (to leave these narrow and prominent); towards apex panels not separated from sides by carina (as remnants of the humero-apical costa absent). Surface just posterior to translucent panels with weak transverse depression, giving the elytral a weak lobe-like appearance. **Mesosternum:** center nearly planar with sides; mesosternal declivity moderately deep and abrupt (with about 70° slope) in both sexes. Mesosternal process partially hidden by dense pubescence; base of process moderately wide, widths mesocoxal cavity/process 2.0-2.3 (in male and female *E. erato*), or 2.5 (in *E. eliasi*); apex lanceolate; sides towards apex slightly widened to blunt tooth (in *E. erato*), or sides distinctly widened to sharp spine (in *E. eliasi*). Mesocoxal cavity moderately widely open to mesepimerum. Lengths of mesosternum/metasternum: 0.71 (in *E. eliasi*), 0.74-0.77 (in male and female *E. erato*). **Metathorax:** moderately wide, body length/width across metasterna 5.1-5.3 (in male and female *E. erato*), or 5.9 (in *E. eliasi*); sides more or less rounded to middle of metasternal apex; metasternum tumid and weakly flattened, its surface about planar with apex of mesocoxae; metepisternum wide and moderately acuminate at apex. **Abdomen:** in both sexes convex (not at all flattened), urosternites transverse (less so in female); I longest, II and III subequal, IV shorter than III, longer than IV. In male: nearly cylindrical, weakly annulated (urosternites with slightly rounded sides); rather robust, wide and parallel-sided (in *E. eliasi*), or slightly narrowed at apex of urosternite II and IV, and widest near apex of II (in *E. erato*). Urosternite V trapezoidal; with deep U-shaped soleate depression occupying most of surface; when viewed laterally with large, triangular-shaped wings (in *E. erato*), or rhombic-shaped wings (in *E. eliasi*); apical margin broadly excavate. In female: abdomen weakly fusiform, almost parallel-sided to base of urosternite V; not annulated (urosternites almost straight-sided); urosternite I broad and subconical, apical segments wider than normal; urosternite V short and trapezoidal, apical half weakly bent downwards, apical margin broadly rounded with weak projection at midline. Abdominal process in male a narrow isosceles triangle, with about 10° slope to surface of urosternite I; and intimately inserted between metacoxae. In female abdominal process a large, wide, equilateral triangle, planar with abdomen. Apical tergite in male cylindrical, strongly convex and rounded at apex; rather long (in *E. erato*), or rather short (in *E. eliasi*); in female moderately short and flatter. **Legs:** in both sexes ratio lengths front/middle/hind leg 1.0:1.3:2.4-2.5. Front and middle legs: body length/length of legs about 3.0 and 2.4 respectively. Front leg: femur hardly longer than tibia; tibia moderately slender; narrow at base, rather abruptly widening and almost parallel-sided to apex; when viewed dorsally apical margin oblique, somewhat lanceolate; with small setose tubercle at apico-lateral angle (but not dentate). Middle leg: femur long, about 1.5 longer than tibia; femoral clava moderately robust and tumid mesally (when viewed from above), and long (lengths clava/peduncle 1.7-1.8); moderately broad in male, rather narrow in female (length of femur/lateral width of femoral clava 3.6-3.8 in male, 4.1 in female); tibia rather slender and gradually widening to apex. Hind leg: robust, body length/length of leg in both sexes 1.2-1.3; femur pedunculate-clavate, 1.5-1.7 longer than tibia; clava long, fusiform, viewed laterally rather robust and abrupt basally, length of femur/width of clava 5.58 (in *E. eliasi*), or slender and not abrupt, length of femur/width of clava 6.09-6.22 in male,

6.50-6.89 in female (in *E. erato*); sides weakly tumid (when viewed from above); apex reaching base of urosternite IV (in *E. eliasi*), basal third of IV (in female *E. erato*), middle of IV (in male *E. erato*); peduncle cylindrical, moderately long and slender (less so in female); lengths clavus/peduncle 1.8 (in both sexes of in *E. erato*), or 2.2 (in *E. eliasi*). Metatibia: moderately robust; slightly bisinuate (viewed laterally), straight and gradually widening to apex (viewed dorsally). Metatarsus slender, much narrower than apex of metatibia. Metatarsomere I subcylindrical; II not pediculate, weakly trapezoidal, III shorter than II, the lobes narrow, hardly rounded at sides, and weakly divergent. In both sexes: first tarsomere 1.33-1.45 longer than II+III (in *E. erato*), 1.27 longer than II+III (in *E. eliasi*).

Genitalia. Based on *E. erato* (Fig. 57). Tegmen and median lobe characteristic: proportions of tegmen similar to *Epimelitta scoparia* (apical and basal parts of nearly equal length); but the median lobe broader than any other epimelittid examined. **Median lobe of aedeagus:** moderately long (about 1.5 mm), broad, weakly arched, with acuminate apex; and small dark bodies present. **Tegmen:** apical and basal parts of nearly equal length. Apical part divided into two finger-shaped lobes, these divergent, relatively short and wide (length/width 2.8), each lobe with strongly curved lateral and mesal margins, at apex hardly wider, symmetrical and subacuminate. Basal part broad and relatively long. Y-piece rather long and broadly, and the stem about as long as the fork.

General pubescence. Much reduced (more so in female). Notable pubescence (dense tufts of long setae) usually absent from body. Less notable pubescence: on upperside: frons, surface surrounding pronotal disc, and basal half of elytra with variable amounts of dense, recumbent, golden or brassy pubescence (and on scutellum dense silver pubescence); and some longer, fine, erect hairs on pronotum. On underside: pubescence silver in color (but dense pubescence almost absent in female); in male prosternum densely clothed with untidy, long hairs; meso- and metasterna rather densely clothed with long, recumbent hairs, on metepisterna replaced by sparser, long, erect hairs; abdomen rather sparsely pubescent, the hairs short and subrecumbent; towards sides of all urosternites narrow arched patches of recumbent hair on latero-basal margins.

General puncturation. On upperside punctures generally setose, very dense, rather small, and alveolate; on pronotum the punctures elongated, giving the surface a striated appearance; on elytra larger, granulate and confluent basally, incrementally larger and more spaced towards apex, at apex mixed with smaller ones. Underside puncturation based on the state of its pubescence (less strong and often beveled in female); the punctures comparatively deep and large on prosternum; generally alveolate, very dense and small to microscopic below patches of dense, recumbent pubescence on mesosternum and metasternum (sparser and larger towards basal margin of latter, and on metepisternum). On abdomen somewhat beveled; in male punctures alveolate, rather small, deeper and denser towards apex (in *E. erato*), or generally rather shallower and sparser (in *E. eliasi*); in female punctures shallow and sparse away from sides, towards sides not much denser, deeper and less beveled.

Species included in this genus: *Erratamelitta eliasi* sp. nov. and *Erratamelitta erato* (Newman, 1840), **comb. nov.**

Key to the species of *Erratamelitta*.

Note: key based on males, as female of *E. eliasi* not known.

1. Prothorax quadrate with regularly rounded sides; widest before middle. Abdomen entirely yellowish. Comparatively brightly colored; forebody almost entirely clothed with brassy colored pubescence; appendages with contrasting shades of yellow and black. (Fig. 34) ***E. eliasi* new species.**
- Prothorax more trapezoidal with sides converging to apex; widest behind middle. Abdomen entirely dark chestnut, or almost so. Comparatively drab in color; forebody less pubescent; color of appendages not contrasting, generally piceous with paler bases. (Fig. 35, 36) ***E. erato* (Newman, 1840)**

Diagnosis. Both species of *Erratamelitta* may be readily separated from other genera by the pronotal puncturation, as described by Bates (1873) in his description of *Charis bicolor*: the pronotal punctures almost uniformly narrowed and arranged in elongate rows, giving the integument a longitudinally striated appearance. Among the other genera this characteristic puncturation only found in small patches towards basal third of pronotum in some *Exepimelitta*.

Erratamelitta possesses rather simple, cuneate elytra that are reminiscent of *Adepimelitta* but not of any other epimelittid genus.

Etymology. The generic name is a compound of *Errata* (i.e. wrong to be in *Epimelitta*) and *melitta* (to remind us it is still an epimelittid). The genus name is feminine.

***Erratamelitta eliasi* sp. nov.**

(Fig. 34)

Holotype male, total length 10.00 mm. Deposited in MZSP.

Description of holotype. Moderately small; narrow (total length/width metasterna 5.88). Forebody (f) distinctly shorter than abdomen (a), f/a 0.80. **Color:** head black, labrum, base of mandibles and mouth parts orange; thoracic segments mostly black, the following orange: apical border of pronotum, prosternal process and area adjacent to procoxal cavities; center of mesosternum; mesal half of metasternum (partly suffused dusky). Elytra orange, basal half and apices suffused black (but humeri and epipleur orange); translucent panels testaceous. Abdomen entirely brownish-yellow. Antennae black with three basal segments, and base of antennomeres IV-XI orange. Front and middle legs orange (including coxae) with chestnut infusion on femoral claws, apical half of tibiae, and tarsi. Hind leg orange with broad chestnut band around femoral claw, apical half of tibiae black, and tarsi chestnut. **Surface ornamentation:** notable tufts of pubescence only found on apical half of metatibiae (the setae black in color). Forebody almost entirely clothed with brassy colored pubescence; especially dense and recumbent on frons, interocular, below eyes, sides of mesosterna and most of metasterna (including apex of metepisternum); moderately dense and somewhat untidy encircling pronotal disc and center of prosternum. Longer, less dense erect hairs on pronotum, sides of prosternum and metasterna. Scutellum hidden by brass pubescence; elytra pubescent, becoming dense in two diagonal, golden colored patches between humeri and suture; and similar patches clothing latero-basal angles of urosternites (the rest of abdomen rather sparsely clothed with longer suberect hairs). **Head:** narrower than prothorax (widths prothorax/head with eyes 1.19); rostrum broad and short (width/length 3.60). Width of inferior lobe four times interocular distance. Superior lobes of eyes separated by three times the width of one lobe. **Antennae:** antennomere III (0.65 mm), 1.08 longer than scape; IV (0.40 mm); V and VI (0.55 mm); VII (0.50 mm); VIII (0.45 mm); IX (0.40 mm); X (0.35 mm); XI (0.45 mm). **Prothorax:** quadrate. Base of prosternal process narrow, 6.7 times narrower than width of procoxal cavity; the gap between apex of post coxal process and apex of prosternal process 0.15 mm. **Elytra:** rather narrow; 1.63 longer than width across humeri. **Abdomen:** widest between segments II-IV, and narrowest at base of I; urosternites unequal in length, I (1.4 mm); II (1.0 mm); III (0.95 mm); IV (0.7 mm), V (0.50 mm), apical margin notched at middle. **Legs:** ratio lengths front/middle/hind leg 1.0:1.3:2.5; body length/length of legs 2.8, 2.4, 1.3 respectively; lengths femora/tibiae 1.08, 1.46, 1.16 respectively. Middle and hind leg femora length/lateral width of femoral claws 3.80, 5.58 respectively.

Male variation. The single paratype is considerably smaller (6.50 mm); the prothorax slightly transverse (pronotal length/width 0.96), and elytra shorter (length of elytra/width across humeri 1.54).

Diagnosis. *Erratamelitta eliasi* and *Erratamelitta erato* share the narrow strigose puncturation of the pronotum, thereby separating them from all other epimelittids.

Erratamelitta eliasi is readily separated from *E. erato* by the following male characters: in *E. eliasi* prothorax quadrate with regularly rounded sides widest well before middle (in *E. erato* prothorax more trapezoidal, the sides converging towards apex, abruptly rounded towards base, and widest well behind middle); in *E. eliasi* urosternite V when viewed laterally with rhombic-shaped wings (in *E. erato* wings triangular-shaped); in *E. eliasi* abdomen entirely brownish-yellow in color (in *E. erato* entirely dark

chestnut, or mostly so); in *E. eliasi* front and middle legs orange, hind legs and antennae colored by contrasting shades of yellow and black (in *E. erato* legs variable in color, but not contrasting, usually piceous with paler base, and antennae may be yellowish at base, the rest usually piceous).

HOLOTYPE and paratype males, BRAZIL, *Espírito Santo*, Baixo Guandu, X.1971, P.C. Elias col. (MZSP).

Etymology. This species is named after P.C. Elias who collected this species, and others of particular interest.

Genus *Erratamelitta* species sample data

Erratamelitta eliasi sp. nov.

(Fig. 34)

Measurements (mm) 2 males: total length, 6.50-10.00; length of pronotum, 1.20-1.60; width of pronotum, 1.25-1.60; length of elytra, 2.00-2.60; width at humeri, 1.30-1.60.

Comment. The photograph taken by Santos-Silva for this species is the paratype; it is used because it illustrates the surface ornamentation much better than could be taken of the holotype.

Erratamelitta erato (Newman, 1840), comb. nov.

(Fig. 35, 36)

Charis erato Newman, 1840:21.

Epimelitta erato; Aurivillius, 1912:284 (cat.).

Acorethra chrysaspis (nec. Bates, 1873); Monné, and Giesbert, 1992:250 (syn.).

Charis bicolor Bates, 1873:124. **Syn. nov.**

Measurements (mm) 2 males/3 females: total length, 8.10-10.00/8.80-9.50; length of pronotum, 1.30-1.50/1.35-1.50; width of pronotum, 1.40-1.50/1.50-1.55; length of elytra, 2.25-2.60/2.50-2.55; width at humeri, 1.45-1.60/1.60-1.70.

Specimens analyzed: BRAZIL, *São Paulo*, Itú, Faz. Pau d'Alho, 1 male, 28-29.X.1965, Martins & Biasi col. (MZSP); Porto Cabral, Rio Paraná, 1 female, 15-30.X.1941, L. Travassos Filho col. (MZSP).

Specimens examined: BRAZIL, *Santa Catarina*, Nova Teutônia, male, XI.1935, J. Pohl col. (MZSP); Seara, Nova Teutônia, 27°11'O/52°23'L, female, 5.XII.1941, F. Plaumann col. (MZSP); Mafra, female, XII.33, F. Tippmann, Wien col. Tippmann collection #213112 (USNM).

Comment. When Bates described the genus *Acorethra* he stipulated: "the abdomen is of disproportionate extension, exceeding by one half the length of the rest of the body. When Newman described the new genus *Charis* he made no reference to the dimensions of the abdomen, thereby suggesting that it was of normal proportions. He placed three new species in the genus, including *C. erato*. The other two species, *C. euphrosyne* and *C. aglaia* do not have elongate abdomens, and there is no reason to suppose that *C. erato* was any different, and no reason for Monné and Giesbert (1992) to move *Epimelitta erato* to the genus *Acorethra*.

Unfortunately Newman's 'type' of *C. erato*, thought to be in BMNH collection, cannot be found (pers. comm. Maxwell Barclay).

When Bates (1873) described *Charis bicolor* he stated that Newman's *C. erato* was unknown to him. Among the specimens referred to above, and others in the MZSP collection, some have been identified as *A. erato*, others as *E. bicolor*, in what seems to be a random manner. Since there seems to be no defining characters to suggest that two species are present, the author has treated *E. bicolor* as a junior synonym of *C. erato* as indicated above.

Adepimelitta gen. nov.

(Fig. 37-42)

Type species: *Charisia debilis* Gounelle, 1911, here designated.

Description of the genus. Small, total length 6.4-9.0 mm, and narrow (total length/width metathorax 5.8-6.8). Forebody (f) distinctly shorter than abdomen (a), f/a 0.74-0.85. **Head:** rather narrow (widths prothorax/head with eyes 1.11-1.19 in male, 1.21-1.30 in female); rostrum short (in Bolivian specimens of *A. debilis* width/length 3.14-3.43) to moderately long (in *A. eupheme* and Goiás female of *A. debilis* 2.40-2.50 respectively). Labrum transverse, rectangular, about three times wider than long. Clypeus almost planar with frons, apex hardly wider than labrum. Apical palpomeres truncate at apex, those of maxillary fusiform, those of labium cylindrical and narrow. Galea long, narrow. Inferior lobes of eyes: almost contiguous in male, width of one lobe/interocular distance 4.87-5.67 in male, in female 0.92-1.08. Superior lobes: of eyes almost parallel-sided, with 6-9 rows of moderately large ommatidia, laterally narrowed (by about one third their mesal width); and separated by 3.0-3.6 the width of one lobe. Antennal tubercles weakly raised, rounded at apex, and separated by three times width of scape (0.30-0.35). **Antennae:** more robust in female; apex in male reaching middle of urosternite II, in female near apex of I. Length of scape 0.85-1.10 mm; antennomeres III-V filiform, III 1.05-1.13 longer than scape, slightly longer than IV, as long as V; VI filiform to subfiliform; VI-X incrementally shorter and more quadrate; towards apex VI (sometimes) and VII-X rather crassate, hardly serrate in male, weakly so in female; XI ovate, shorter than VII, with moderately small to very small apical cone. **Prothorax:** in male 1.10-1.12 longer than wide, in female usually quadrate; trapezoidal (in most specimens examined), but may be cylindrical and slightly elongate (in some females from the Bolivian Chaco); tumid adjacent to basal angles, these well rounded (in *A. debilis*), strongly so (in *A. eupheme*), leaving width of base hardly wider than apex (widths apex/base 0.91-0.95); basal margin almost straight, not juxtaposed between elytral humeri; sides widest usually well behind middle, prothoracic quotient 1.40-1.54, or at middle (in some females of *A. debilis*). Pronotal surface moderately convex, disc almost regular (laterally with nearly obsolete arc of paired calli); apical constriction weak or absent, basal constriction weakly abrupt and narrow. **Prosternum:** only moderately declivous across middle; at midline planar with its process; prosternal process flat; base sublaminar, 5-8 times narrower than width of procoxal cavity; apex oblanceolate. Procoxal cavity rather widely plugged laterally; moderately widely open behind. **Scutellum:** small, trapezoidal; pubescence hiding details. **Elytra:** cuneate; rather flat, but slightly depressed across apical third (more strongly depressed in male *A. eupheme*); 1.76-1.82 longer than width of humeri (Chaco males and females of *A. debilis* with slightly shorter elytra; and in one of three females elytra only 1.67 longer than width of humeri); apex nearly reaching middle of urosternite I; laterally weakly, or not at all arched and hardly divergent apically; apical quarter moderately gaping. Humeri: hiding mesepimera; hardly projecting, but square, and weakly prominent. Each elytron gradually, but not strongly narrowed to rounded, unarmed apex; with broad translucent panel (in *A. eupheme*), or these almost entirely suffused with black pigment (in tropical specimens of *A. debilis*, including the Goiás female), or without panel (in Chaco specimens of *A. debilis*). **Mesosternum:** at center more prominent than sides; somewhat abruptly inclined to mesosternal process (but not deeply); base of process rather narrow (mesocoxal cavity 2.40-2.67 wider than base of process), from nearly flat to moderately raised sides; apex of process lanceolate, pre-apex moderately diverging and surmounted by small tooth to each side. Mesocoxal cavity moderately widely open to mesepimerum. Lengths of mesosternum/metasternum 0.73-0.75. **Metathorax:** with almost straight, parallel sides, hind margin obliquely rounded to middle of metasternal apex; metasternum moderately tumid, often flattened for apical half, slightly more, to slightly less prominent than mesocoxae; metepisternum moderately wide and parallel-sided for basal two-thirds, subacuminate towards apex. **Abdomen:** in both sexes convex, weakly annulated, urosternite I the longest, II-IV subequal, or sequentially slightly shorter towards apex of abdomen. Abdominal process planar with abdomen in female, weakly inclined in male (slope about 15°). In male: abdomen narrow and cylindrical; widest near apex of urosternite I; basal urosternites slightly elongate, IV and V quadrate. Urosternite V: trapezoidal; surface weakly differentiated, with flat, U or V-shaped area demarcated by slightly raised sides (in *A. debilis*), or strongly raised sides (in *A. eupheme*); in both species leaving apical margin broadly emarginate between acutely pointed sides; when viewed laterally urosternite V winged, with somewhat acute apical angles. In

female: abdomen fusiform, but much wider towards base than apex; widest at middle, or nearer apex of urosternite II; urosternite I subconical, slightly elongate; II and III transverse, IV slightly variable but, basically quadrate and trapezoidal. Urosternite V moderately elongate; somewhat trapezoidal; surface undifferentiated; sides weakly constricted across apical third, the latter moderately down-turned; apical margin weakly rounded, slightly flattened and minutely angled at sides. **Legs:** in male ratio lengths front/middle/hind leg 1.0:1.3-1.4:2.5-2.6, in female 1.0:1.4:2.6-2.8. Front and middle legs: body length/length of legs about 3.0 and 2.2 respectively. Front leg: femur about as long as tibia; tibia moderately slender, narrow at base, gradually widening to apex, or widening to middle, parallel-sided to apex, apical margin rounded and somewhat lanceolate, apico-lateral angle usually with setose tubercle. Middle leg: femur moderately long, 1.3 longer than length of tibia; femoral clava moderately robust, in male length of femur/lateral width of femoral clava 4.4, in female 5.0; tibia rather slender, gradually widening to apex. Hind leg: rather elegant, body length/length of leg in both sexes 1.0-1.2; femur subcylindrical (clava gradually widening from base to pre-apex), apex reaching from basal third to apical third of urosternite IV; clava long, peduncle short, narrow, and hardly flattened (length clava/peduncle about 1.7). Metatibiae: straight (or slightly curved viewed laterally), slender, slightly widening from base to apex; moderately densely setose (these denser, rather short and robust in *A. eupheme*), but far from being a brush. Metatarsus distinctly narrower than apex of metatibia; metatarsomere I cylindrical, II not pediculate, slightly elongate, somewhat trapezoidal or subcylindrical, III short shorter than II, the lobes narrow, hardly rounded at sides, and weakly divergent; in male first tarsomere 1.1-1.2 longer than II + III, in female 1.3-1.4 longer.

Genitalia. Tegmen of *A. debilis* (Fig. 55) and *A. eupheme* (Fig. 56) similar, with lateral lobes characteristically robust. **Median lobe of aedeagus:** rather short (about 1.0 mm), slender, modestly arched, with acuminate apex; and dark bodies not evident. **Tegmen:** apical part longer than basal part. Apical part divided into two thumb-shaped lobes, these hardly divergent; each lobe with weakly curved mesal margin, rather long (length/width 5.3 in *A. debilis*, 5.5 in *A. eupheme*), widest near middle, at apex asymmetrically rounded. Y-piece long and broad, the stem longer than the fork.

General pubescence. Much reduced (more so in female). Notable pubescence on body reduced to moderately dense, recumbent, whitish or ashy fascia on meso- and metasternum; with somewhat untidy, longer, erect, sparser hairs on most surfaces (including, and most characteristically, on elytra); on abdomen rather sparsely pubescent (especially in female), the hairs short and subrecumbent; towards sides mixed with long suberect hairs; and lacking dense recumbent fascia on latero-basal margins.

General puncturation. On upperside generally very dense, rather small, and alveolate; on elytra larger, granulate and confluent basally, contiguous apically, medially more spaced. Underside puncturation based on the state of its pubescence; the punctures generally very dense, simple, small to microscopic, and beveled; mixed with larger punctures on prosternum (these alveolate) and metasterna (these deeper and rounded). On abdomen punctures small, shallow and somewhat beveled; generally sparse to moderately sparse away from sides, towards sides rather denser.

Species included in this genus: *Adepimelitta debilis* Gounelle, 1911, **comb. nov.:** *A. eupheme* (Lameere, 1884), **comb. nov.**

Key to the species of *Adepimellita* gen. nov.

1. Prothorax trapezoidal (less contracted towards apex, less rounded and not as strongly contracted to base). Elytra with or without translucent panels (when present almost entirely suffused with black pigment). In male surface of urosternite V hardly differentiated; soleate depression represented by flat U-shaped area delimited by weakly raised sides. Brazil (BA, GO, MG), Bolivia (Fig. 37-40) ***A. debilis* (Gounelle, 1911)**
- Prothorax strongly trapezoidal, distinctly contracted towards apex, well rounded and strongly contracted to base). Elytra with long, well delimited translucent panels. In male surface of urosternite V differentiated; soleate depression represented by flat V-shaped area delimited by

strongly raised sides. Brazil (BA, MG, ES, RJ, SP, PA, SC) (Fig. 41, 42)
 **A. eupheme (Lameere, 1884)**

Diagnosis. *Adepimelitta* may be separated from the other genera by the combination of characters that follow: antennae not serrate; prothorax trapezoidal, widest and tumid near base; scutellum small; elytra cuneate, flat or nearly so, narrow across humeri, (but hiding sides of mesosterna), subparallel; with straight suture almost to apex (not dehiscent and only slightly gaping), with or without vitreous panels; usually sexually dichromatic.

Etymology. The generic name is a compound of *Ad* (short for additional) and *melitta* (to remind us it is an epimelittid). The genus name is feminine.

Genus *Adepimelitta* species sample data

***Adepimelitta debilis* (Gounelle, 1911), comb. nov.**

(Fig. 37-40)

Charisia debilis Gounelle, 1911:59.

Epimelitta debilis; Aurivillius, 1912:284 (cat.); Monné, 2016:810 (cat.).

Measurements (mm) 32 males/9 females: total length, 5.60-8.10/6.40-9.00; length of pronotum, 0.90-1.25/1.00-1.30; width of pronotum, 0.80-1.10/0.95-1.30; length of elytra, 1.60-2.15/1.80-2.40; width at humeri, 0.90-1.20/1.00-1.35.

Specimens analyzed: BOLIVIA, *Santa Cruz*, 17°29'96"S/63°39'13"W, 440 m, 5 km SSE Buena Vista, Hotel Flora & Fauna, on/flying to flowers of "Tutumillo espinoso": male, 27.XI.2007; female, 22.XI.2008 (RCSZ).

Specimens examined: *Santa Cruz*, as above, male, 9.X.2006 (RCSZ); 4 males, 20.XI.2007 (RCSZ); male and female, 22.XI.2007 (RCSZ); 2 males, 27.XI.2007 (RCSZ); male, 29.XI.2007 (RCSZ). 18°43'S/63°27'W, 750 m, ca. 20 km NNW Abapo, 17 km Moroco Rd, Foothill Chaco Forest, "Sapaimosi chico" flowers: 5 males, 6.XI.2008 (RCSZ). 18°59'S/63°14'W, ca. 600 m, Santa Cruz-Yacuiba Hwy, 10 km S Abapo, Foothill Chaco Forest, on *Croton* sp. A flower: male, 2.I.2008 (RCSZ). 19°00'S/63°14'W, ca. 700 m, Santa Cruz-Yacuiba Hwy, 20 km S Abapo, Foothill Chaco Forest, on *Croton* sp. A flower: male, 17.XII.2007 (RCSZ). 19°48'76"S/63°39'67"W, 1070 m, 6 km W Estancia Caraparicito, Quebrada Angostura, on *Croton* sp. A flower: 2 males, 2 females, 3.I.2008 (RCSZ). 20°16'S/63°18'W, 780 m, Santa Cruz-Yacuiba Hwy, 56 km S Camiri, visiting "Tipilla" flowers: 2 male, 1 female, 14.XII.2011 (RCSZ). *Chuquisaca*, ca. 19°50'/63°50', 1600 m, Incahuasi, E Muyupampa, 5 males, 2 females, XII.1984, L.E. Peña G. leg. (MZSP). 20°36'S/63°17'W, 750 m, 21 km N Machereti, semi-dry, grazed, Foothill Chaco Forest, visiting "Tipilla" flowers: male, 15.XII.2011 (RCSZ). *Tarija*, 21°40'S/63°38'W, 793 m, 48 km S Villamontes, 5 km W Santa Cruz-Yacuiba Hwy, Comunidad Sanandita-La Granja, visiting "Tipilla" flowers: 5 males, 1 female, 15.XII.2011 (RCSZ). 21°42'S/63°27'W, 762 m, 48 km N Yacuiba, 3-5 km Sanandita Road, on *Croton* sp. A flower: male, 8.I.2010 (RCSZ). BRAZIL, *Minas Gerais*, Araguary, female, X.1931, R. Spitz col. (MZSP).

***Adepimelitta eupheme* (Lameere, 1884), comb. nov.**

(Fig. 41, 42)

Charis eupheme Lameere, 1884:89.

Epimelitta eupheme; Aurivillius, 1912:284 (cat.); Monné, and Giesbert, 1992:250 (syn.); Monné, 2016:811 (cat.).

Ischasia cazieri Fisher, 1952:4; Monné and Giesbert, 1992:250 (syn.).

Measurements (mm) 1 male/1 female: total length, 7.80/7.65; length of pronotum, 1.15/1.05; width of pronotum, 1.05/1.05; length of elytra, 2.00/2.00; width at humeri 1.10/1.10.

Specimens analyzed: BRAZIL, *Espírito Santo*, Baixo Guandu, 1 male, 1 female, X.1970, C. Elias col. (MZSP).

Genus *Acorethra* Bates, 1873

(Fig. 43-48)

Type species: *Acorethra chrysaspis* Bates, 1873, by original monotypy.

Description of the genus: Bates (1873) described his genus as follows (authors paraphrase from original Latin): Abdomen disproportionately elongate. **Head:** narrow, rostrum moderately elongate. Eyes in male large, inferior lobes almost contiguous; in female moderately separated. Antennae: moderately short, from antennomere VI dilated and serrate. **Prothorax:** narrow, and narrowed towards apex. **Elytra:** cuneiform blunt at apex, the latter reaching middle of urosternite I, disc shining and smooth. **Metasternum:** not tumid. **Abdomen:** in male slender and elongate, cylindrical; in female sessile, slightly wider and fusiform. **Hind legs:** elongate; femora gradually clavate; tibiae without brush; tarsi short.

Genitalia. Based on *Acorethra chrysaspis* (Fig. 54). Tegmen different from any epimellitid; median lobe similar to *Adepimelitta*; but more arced. **Median lobe of aedeagus:** moderately long (about 1.5 mm), slender, with acuminate apex; and dark bodies not evident. **Tegmen:** shears-shaped; apical part slightly longer than basal part. Apical lobes long (length/width 5.3), not at all arced nor divergent, parallel to each other; each lobe with almost straight lateral margin, mesal margin weakly bisinuate, widest near middle, apex asymmetrically (obliquely rounded) and weakly setose. Y-piece long and broad, stem not longer than fork.

Diagnosis. Hind legs and abdomen long. In *Acorethra* hind legs 2.8-3.0 longer than front leg (in *Adepimelitta* hind leg/front leg 2.5-2.7; in *Charisia* 2.2-2.4; in the remaining genera 2.3-2.5). In *Acorethra* abdomen 1.4-1.5 longer than forebody in female and male respectively; among the epimellitids only shared by *Charisia bleuzeni* and males of *Adepimelitta*; but *Acorethra* species are not robust, nor large (*C. bleuzeni* robust and large, and species of *Adepimelitta* small).

Key to the species of *Acorethra*

1. Male prothorax trapezoidal, narrowed to apex (in female sides more rounded), in both sexes widest behind middle; basal and apical constrictions of pronotum, and metathorax lacking very dense pubescence. Brazil (MG, ES, RJ, SP) (Fig. 43-46) ***A. chrysaspis***
- Male prothorax subcylindrical, sides tumid at middle (in female well rounded), in both sexes widest near middle; basal and apical constrictions of pronotum, and metathorax with very dense, golden pubescence. Brazil (GO, ES, RJ) (Fig. 47, 48) ***A. aureofasciata***

Genus *Acorethra* species sample data

Acorethra aureofasciata Gounelle, 1911

(Fig. 47-48)

Not examined; but photographs of the male holotype and a MNRJ female indicates its validity in this genus (as described by Bates (1873) for *A. chrysaspis*): “the elongated hind legs...and disproportionate abdomen, exceeding by one half the length of the rest of the body, separate it from *Charis*”.

Acorethra chrysaspis Bates, 1873, revalidated.

(Fig. 43-46)

Acorethra chrysaspis Bates, 1873: 126.

Acorethra erato (nec Bates, 1873), Monné, and Giesbert, 1992: 250 (syn.).

Measurements (mm) 1 male/2 females: total length, 10.80/9.4-12.50; length of pronotum, 1.45/1.3-1.70; width of pronotum, 1.50/1.25-1.70; length of elytra, 2.65/2.4-3.10; width at humeri, 1.60/1.4-1.85.

Specimens analyzed: BRAZIL, *Rio de Janeiro*, Itatiaia, 1 male, 1 female in cop., 21.X.1929, J.F. Zikán col. (MZSP).

Specimen examined: BRAZIL, *São Paulo*, São Paulo, Ipiranga, female, Jasny col. (MZSP).

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Appendix 1. Summary of host flowers visited by Bolivian species of *Epimelitta* and related genera.

Barbasquillo (A) (*Serjania lethalis* St. Hilaire – SAPINDACEAE)

Epimelitta scoparia

Exepimelitta windsori

Gomphrena (*Gomphrena vaga* Mart. – AMARANTHACEAE)

Exepimelitta windsori

Adepimelitta debilis

Ramoneo (*Iresine diffusa* Willd. – AMARANTHACEAE)

Epimelitta scoparia

Exepimelitta windsori

Sapaimosi (*Trichilia elegans* Adr. Juss. – MELIACEAE)

Epimelitta scoparia

Exepimelitta windsori

Sapaimosi chico (maybe *Dimerostemma herzogii* Radlk. – ASTERACEAE)

Adepimelitta debilis

Tinajero (A) (*Croton* sp. – EUPHORBIACEAE)

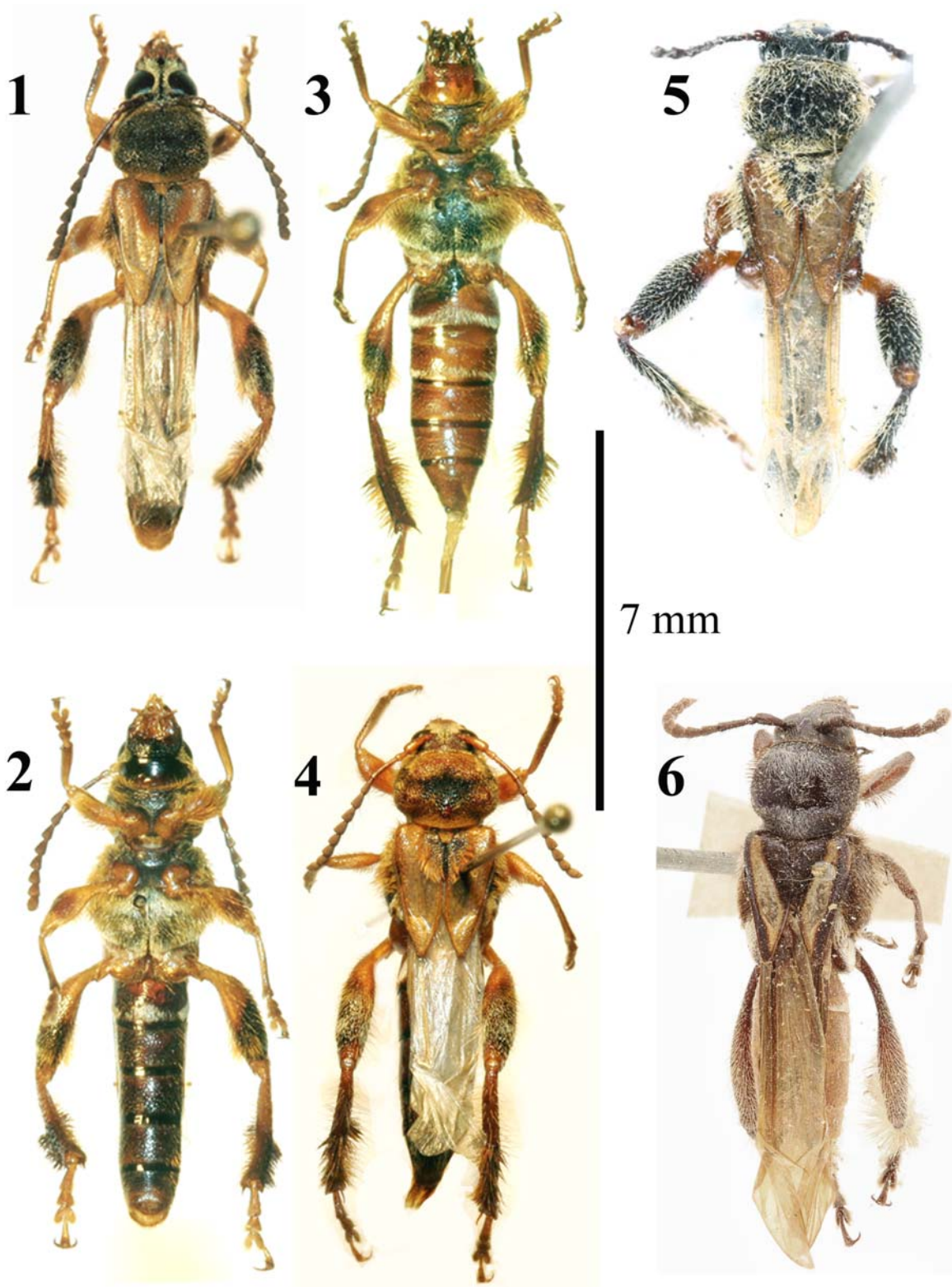
Adepimelitta debilis

Tipilla (*Pterogyne nitens* Tul. – FABACEAE)

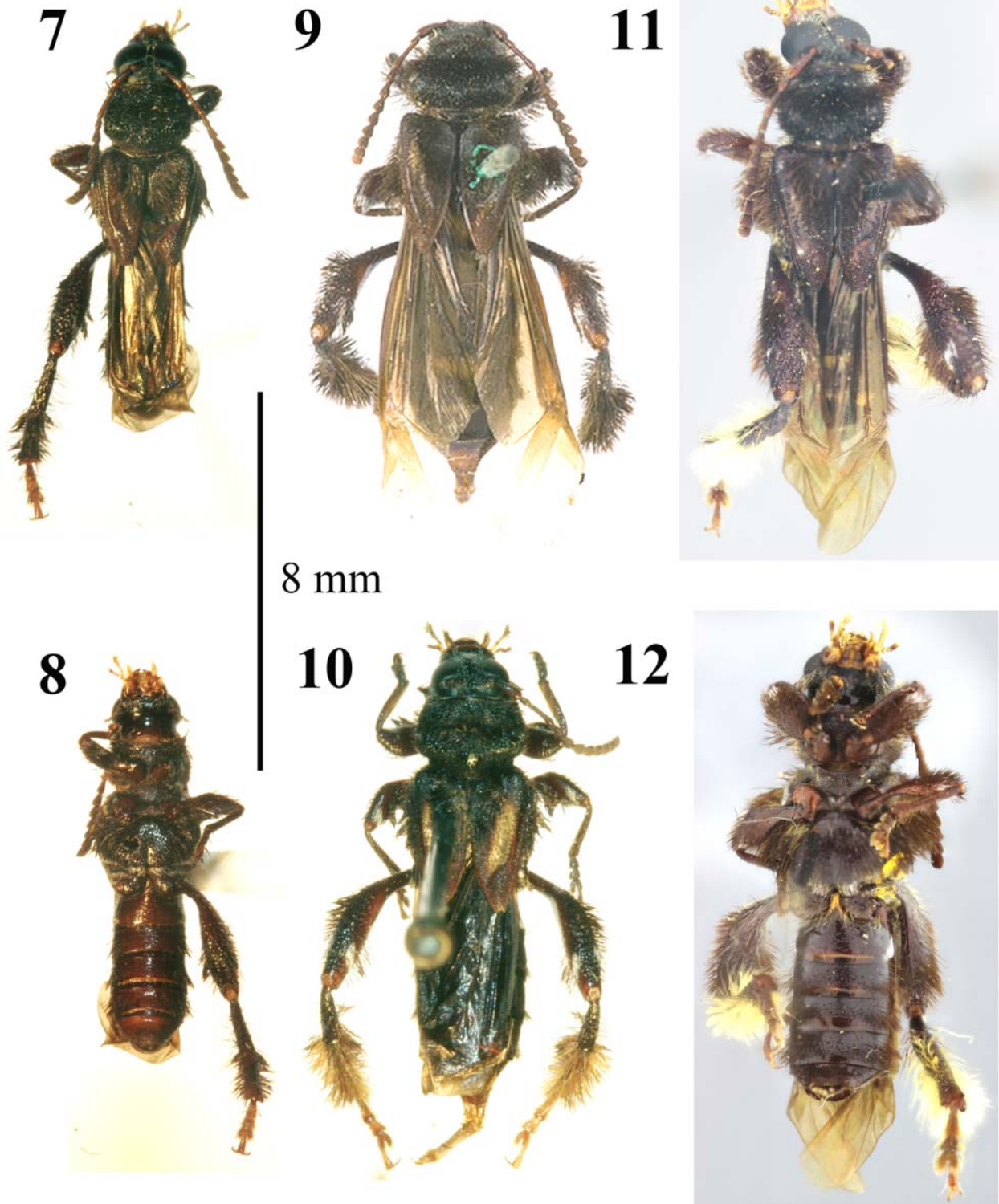
Adepimelitta debilis

Tutumillo espinosa (*Casearia aculeata* Jacq. – SALICACEAE)

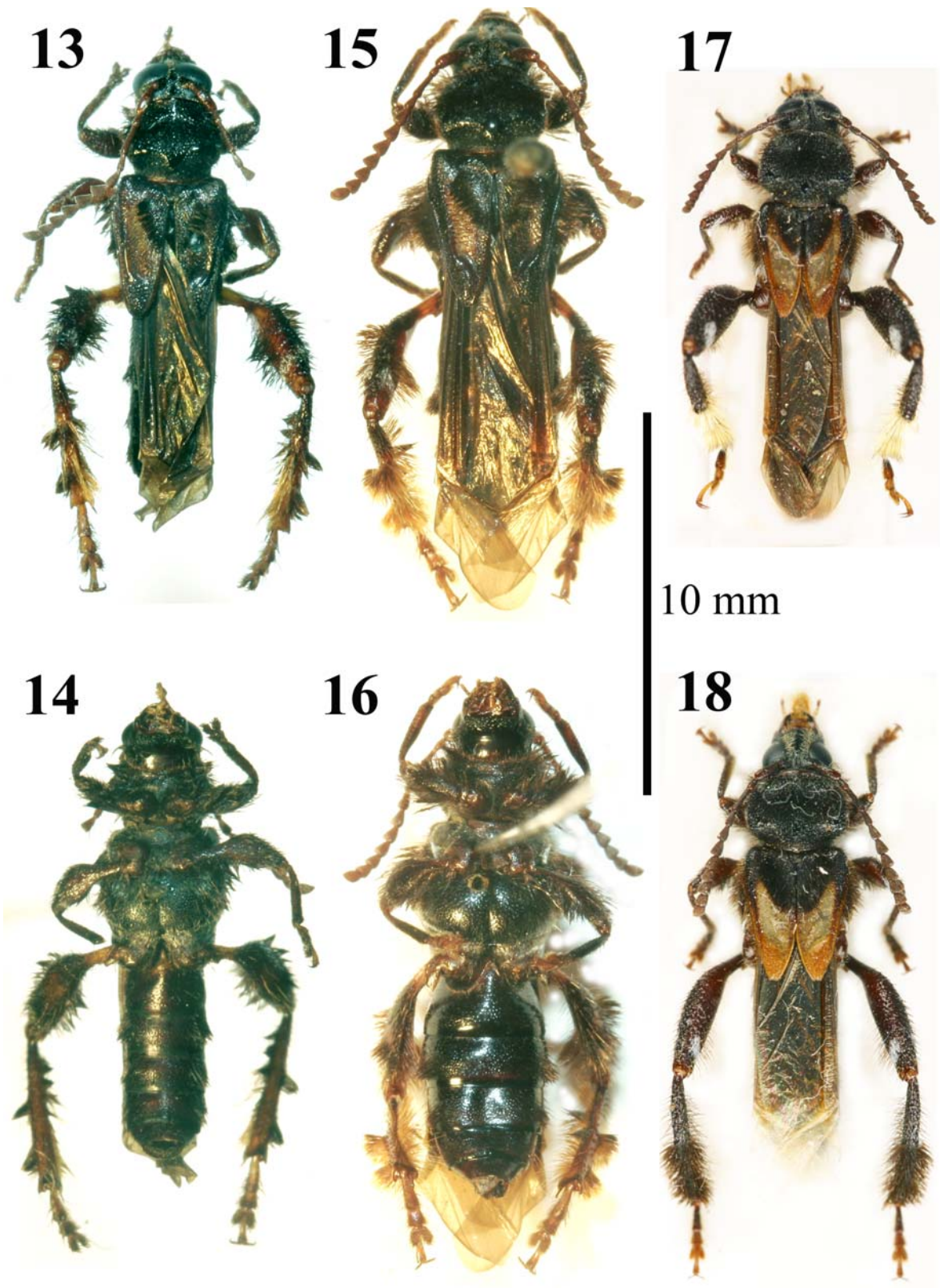
Adepimelitta debilis



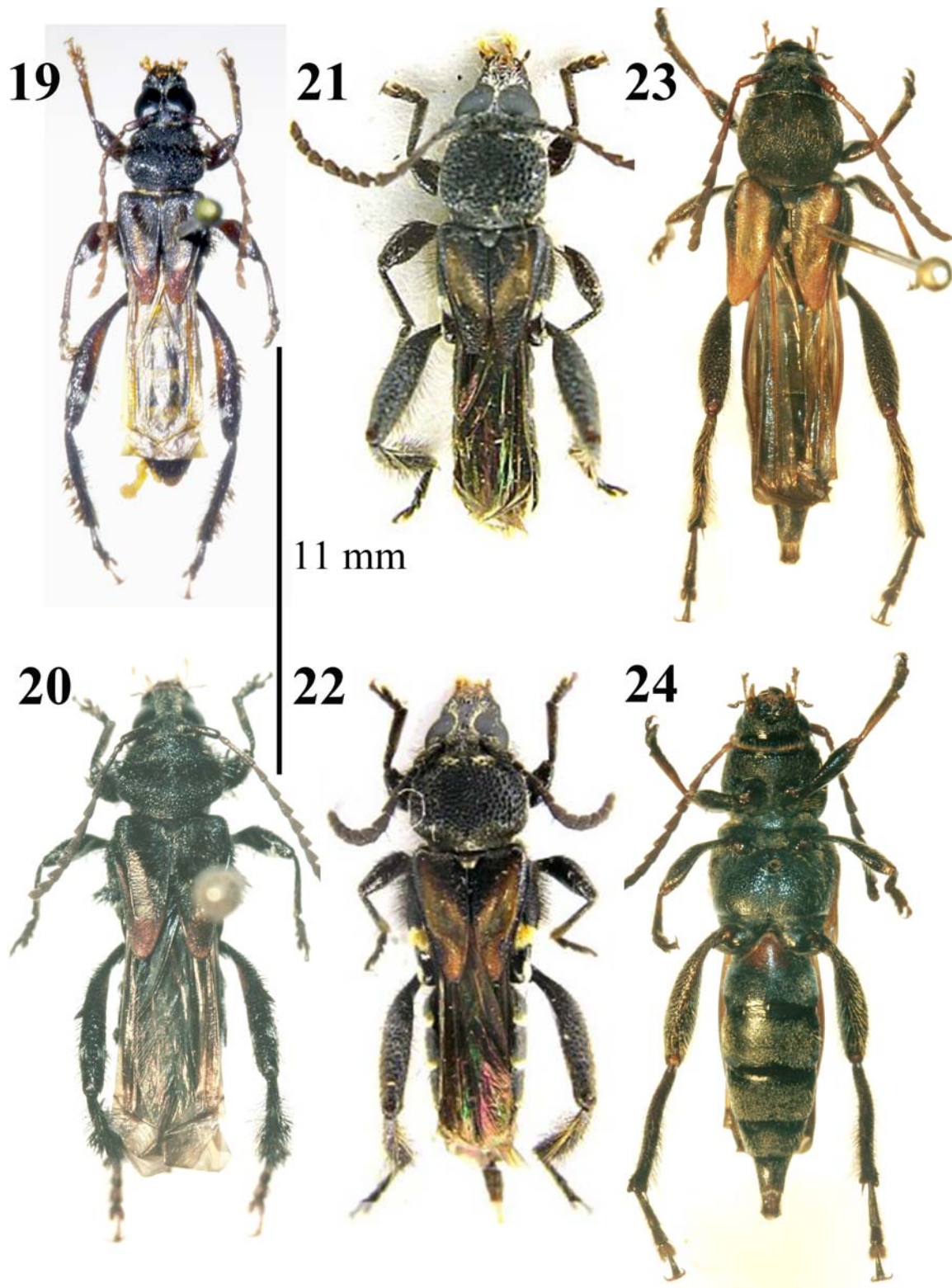
Figures 1-6. Genus *Epimelitta*. **Fig. 1-5.** *Epimelitta scoparia* (Klug, 1825): **1)** male dorsal aspect; **2)** male ventral aspect; **3)** female ventral aspect; **4)** *Epimelitta acutipennis* Fisher, 1947 **syn. nov.**, female; **5)** *Molorchus scoparius* Klug, 1825, male cotype. **Fig. 6.** *Epimelitta rufiventris* Bates, 1879, female holotype.



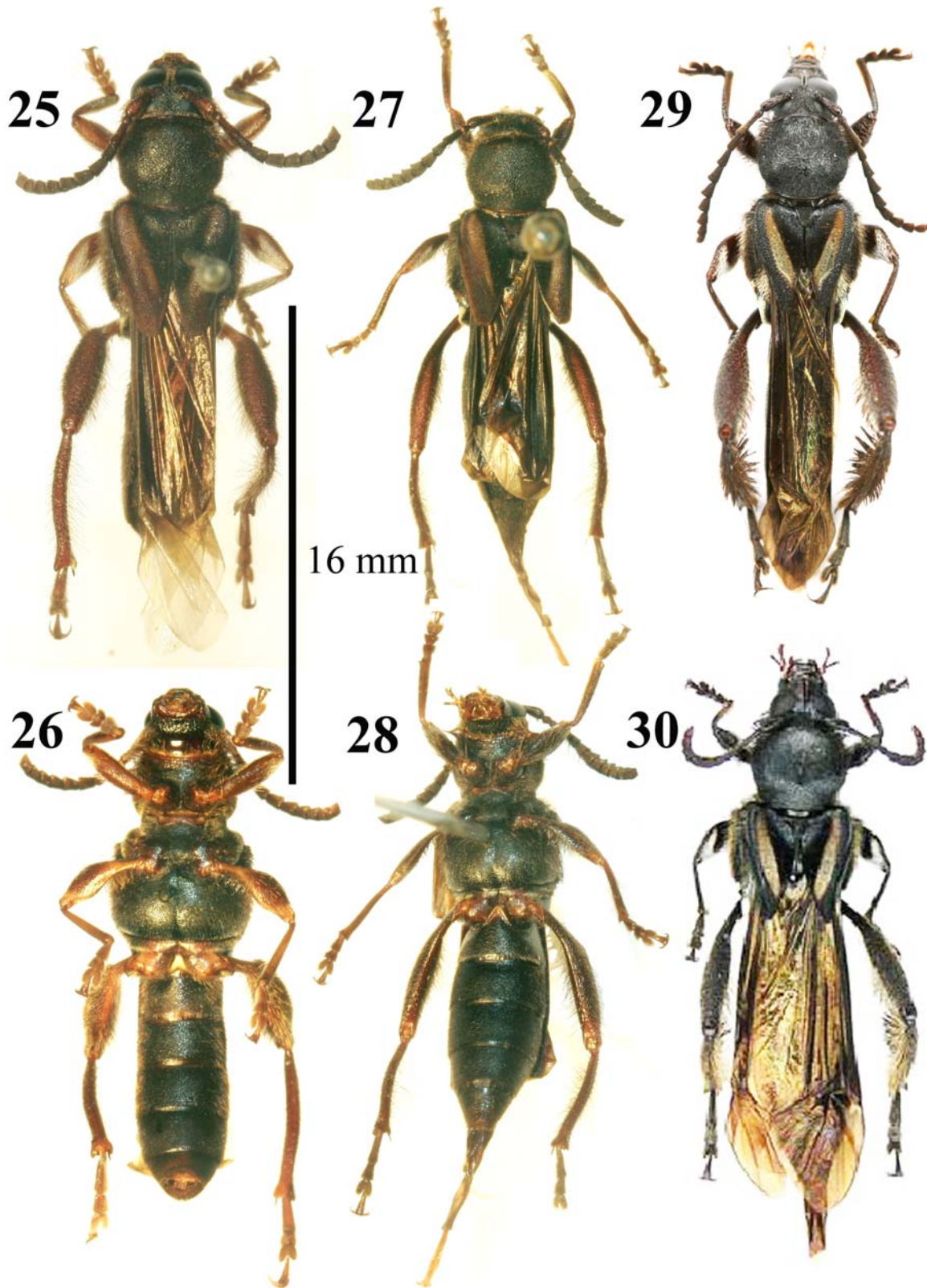
Figures 7-12. *Exepimelitta* **gen. nov.** **Fig. 7-10.** *Exepimelitta nigerrima* (Bates, 1892): **7)** male dorsal aspect; **8)** male ventral aspect; **9)** female holotype dorsal aspect; **10)** *Exepimelitta nigerrima* var. *flavipubescens* (Fisher, 1947), female dorsal aspect. **Fig. 11-12.** *Exepimelitta consobrina* (Melzer, 1931), male paratype: **11)** dorsal aspect; **12)** ventral aspect.



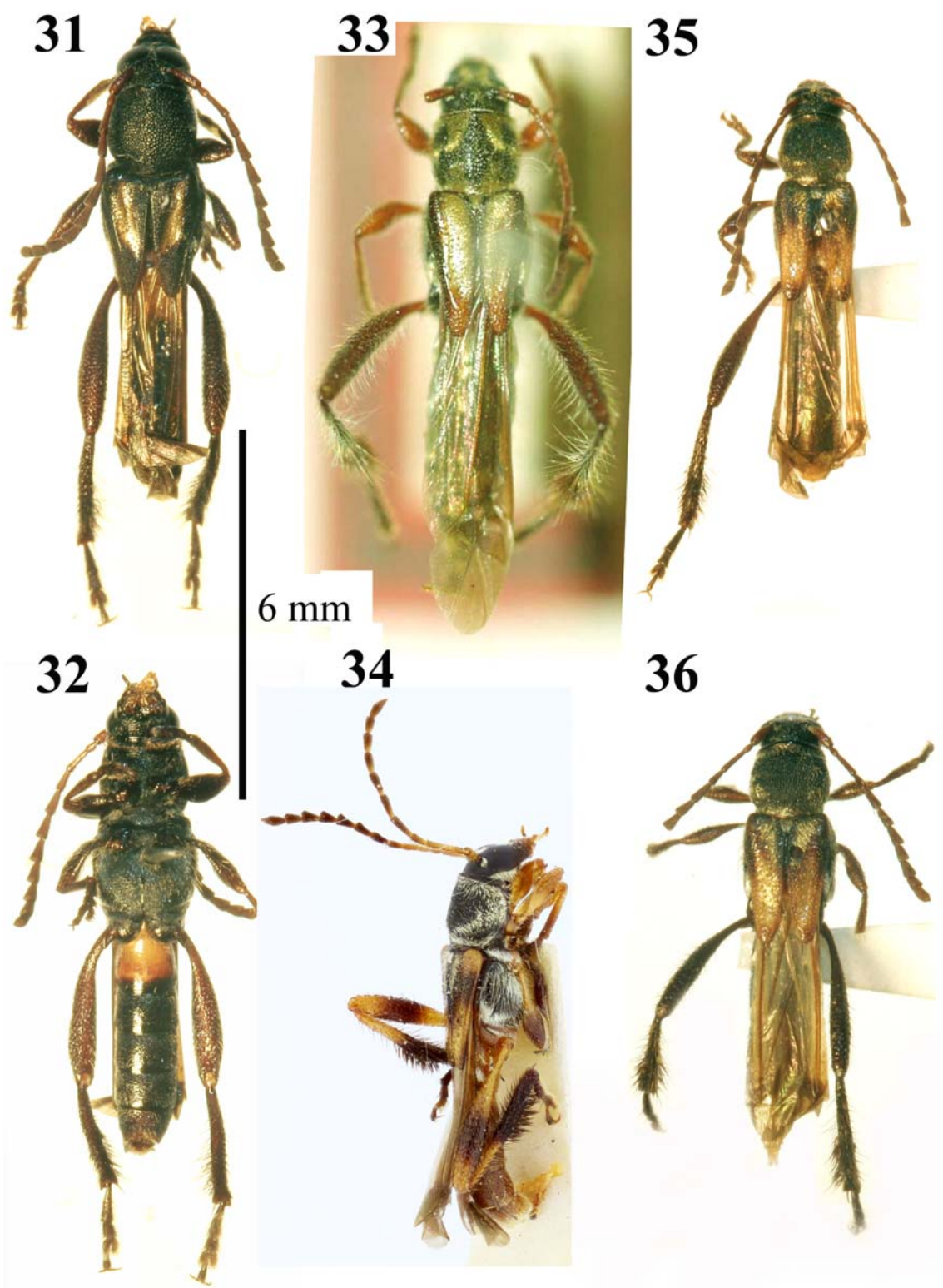
Figures 13-18. *Exepimelitta* **gen. nov.** **Fig. 13-16.** *Exepimelitta mimica* (Bates, 1873): **13)** male dorsal aspect; **14)** male ventral aspect; **15)** female dorsal aspect; **16)** female ventral aspect. **Fig. 17-18.** *Exepimelitta lestradei* (Peñaherrera-Leiva and Tavakilian, 2003), dorsal aspect: **17)** male holotype; **18)** female paratype.



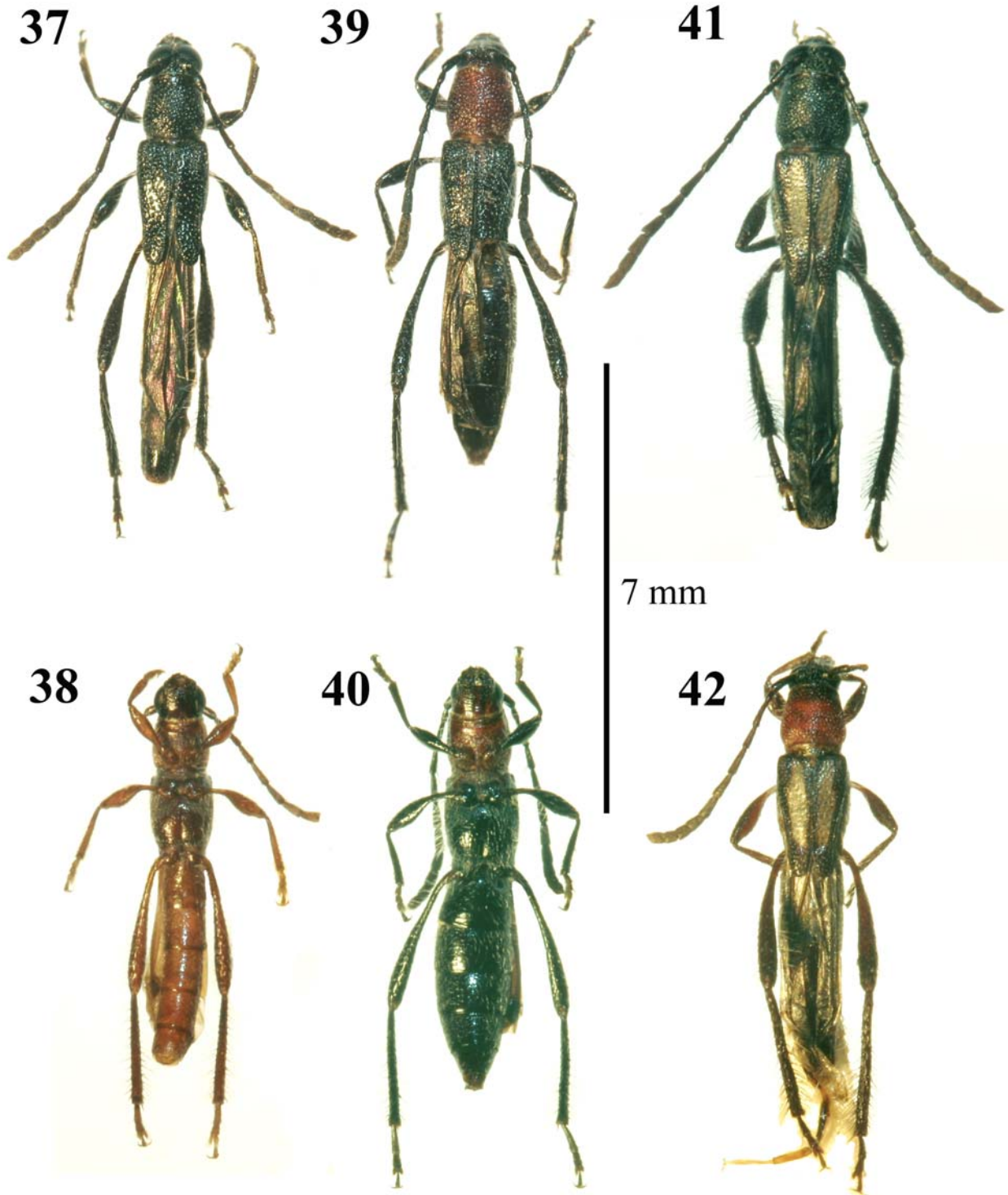
Figures 19-24. *Exepimelitta* **gen. nov.** and genus *Charisia* **revalidated.** **Fig. 19-20.** *Exepimelitta windsori* **sp. nov.**, dorsal aspect: **19)** male holotype; **20)** female paratype. **Fig. 21-22.** *Charisia durantoni* (Peñaherrera-Leiva and Tavakilian, 2003), dorsal aspect: **21)** male; **22)** female. **Fig. 23-24.** *Charisia euphrosyne* (Newman, 1840), female: **23)** dorsal aspect; **24)** ventral aspect.



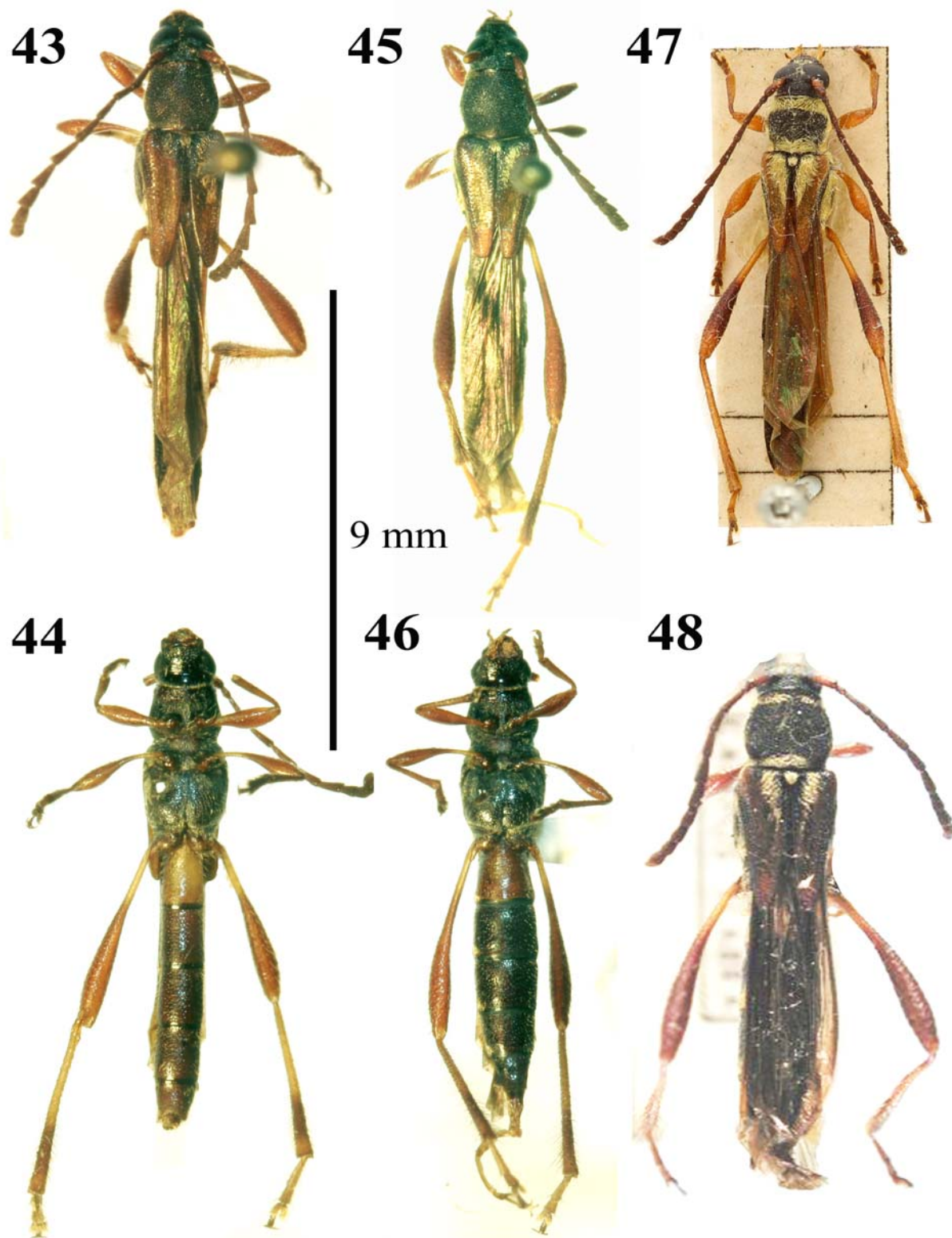
Figures 25-30. Genus *Charisia* **revalidated**. **Fig. 25-28.** *Charisia melanaria* Gounelle, 1911: **25)** male, dorsal aspect; **26)** male, ventral aspect; **27)** female, dorsal aspect; **28)** female, ventral aspect. **Fig. 29-30.** *Charisia bleuzeni* (Peñaherrera-Leiva and Tavakilian, 2003), dorsal aspect: **29)** male; **30)** female holotype.



Figures 31-36. Genus *Charisia* **revalidated** and *Erratamelitta* **gen. nov.** **Fig. 31-32.** *Charisia mneme* (Newman, 1841): **31)** male, dorsal aspect; **32)** male, ventral aspect. **33.** *Charisia ornatcollis* Zajciw, 1973, holotype, female. **34.** *Erratamelitta eliasi* **sp. nov.**, paratype, male lateral aspect. **Fig. 35-36.** *Erratamelitta erato* (Newman, 1840), dorsal aspect: **35)** male; **36)** female.



Figures 37-42. *Adepimelitta* gen. nov. **Fig. 37-40.** *Adepimelitta debilis* (Gounelle, 1911): **37)** male, dorsal aspect; **38)** male, ventral aspect; **39)** female, dorsal aspect; **40)** female, ventral aspect. **Fig. 41-42.** *Adepimelitta eupheme* (Lameere, 1884), dorsal aspect: **41)** male; **42)** female.



Figures 43-48. Genus *Acorethra* Bates, 1873. **Fig. 43-46.** *Acorethra chrysaspis* Bates, 1873 **revalidated:** 43) male, dorsal aspect; 44) male, ventral aspect; 45) female, dorsal aspect; 46) female, ventral aspect. **Fig. 47-48.** *Acorethra aureofasciata* Gounelle, 1911: 47) holotype male; 48) female.



Figures 49-57. Tegmen and median lobe of aedeagus in the genus *Epimelitta* and related genera. **Fig. 49-54.** Magnification x1 (represented by 2 mm scale bar): **49)** *Epimelitta scoparia* (Klug, 1825); **50)** *Exepimelitta nigerrima* (Bates, 1892); **51)** *Exepimelitta windsori* sp. nov.; **52)** *Charisia melanaria* Gounelle, 1911; **53)** *Charisia mneme* (Newman, 1841); **54)** *Acorethra chrysaspis* Bates, 1873. **Fig. 55-57.** Magnification x2 (represented by 1 mm scale bar): **55)** *Adepimelitta debilis* (Gounelle, 1911); **56)** *Adepimelitta eupheme* (Lameere, 1884); **57)** *Erratamelitta erato* (Newman, 1840).

