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Review of Indo-Pacific *Dicercina* GISTL (Coleoptera: Buprestidae): *Cyphosoma* MNNH. to *Touzalinia* THY.

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*This paper is dedicated to those
Colleagues who prefer to help –
rather than backbite and defame –
the work of others.*

Introduction

Dicercina GISTL, one of the largest and most widely distributed subtribes of the **Buprestidae** LEACH (several hundred – above 700 according to OBENBERGER 1926, 1930 – species in some 15-20 genera inhabiting almost all tropical and subtropical areas of the world), are represented in the Indo-Pacific Region by 10 genera and more than 100 species. The taxon comprises big or at least medium-sized, frequently colourful species, many of which are rather common, but nevertheless even their taxonomic relations and geographical distribution (to say nothing about bionomy) remain relatively poorly known: the last comprehensive review of the “Groupe **Psilopterites** Lac.” (KERREMANS 1910) is almost nine decades old and includes only a part of the subtribe as presently understood, my (HOŁYŃSKI 1999) dissertation is also incomplete (*Ovalisia* KERR. treated only at the subgeneric level) and anyway has remained unpublished, OBENBERGER’s (1926) world catalogue is already badly outdated, that of BELLAMY (2008) admittedly represents but uncritical compilation, and thus the recent revision of *Dicerca* ESCH. and *Poecilonota* ESCH. (HOŁYŃSKI 2005, 2011a) and of Indochinese *Psiloptera* SOL. by AKIYAMA & OHMOMO (1994) are the only more than exiguous contributions to the knowledge of the Indo-Pacific representatives of the **Dicercina** GISTL published in the last decades; as the easily understandable consequence the status and affinities of most forms are often falsely interpreted, names wrongly applied, and specimens in collections notoriously misidentified.

As mentioned above, my PhD dissertation (HOŁYŃSKI 1999) has not been published as such, but general theoretical and methodological questions have been extensively treated in

the book on the **Chrysochroina CAST.** (HOŁYŃSKI 2009b), and basic algorithm of the phylogenetic program MICSEQ (HOŁYŃSKI 2001c) as well as elaboration of some genera appeared (more or less modified) later as separate papers: subgeneric revision of *Ovalisia KERR.* (HOŁYŃSKI 2000), formal description of monotypic *Tristria HOL.* [later found to be preoccupied and renamed (HOŁYŃSKI 2005) as *Zoolrecordia HOL.*] and evidently extralimital (Neotropical) *Archepsila HOL.* (HOŁYŃSKI 2001a), revision and phylogeny of *Dicerca ESCH.* and *Poecilonota ESCH.* (HOŁYŃSKI 2005, 2011a); thus the aim of this paper is to complete the work (recapitulate the present state of knowledge, clarify some hitherto unresolved taxonomic questions, describe several new taxa, and propose a hypothetical reconstruction of phylogeny) with five (*Cyphosoma MNNH.*, *Capnodis ESCH.*, *Mirolampetis g.n.*, *Dicercomorpha DEYR.*, *Touzalinia THY.*) of six not yet formally elaborated genera.

Conventions and abbreviations

BMNH =Natural History Museum, London, ENGLAND;

EONMP=Entomologické Oddelení Národního Musea, Praha, BOHEMIA;

KBIN =Koninklijk Belgisch Instituut voor Natuurwetenschappen, Bruxelles, BELGIUM;

NNHM =Nationaal Natuurhistorisch Museum, Leiden, HOLLAND;

RBH =Roman B. HOŁYŃSKI, Milanówek, POLAND;

USNM =Smithsonian Institution: National Museum of Natural History, Washington, USA

ZIRAN =Zoological Institute, Russian Academy of Sciences, Petersburg, RUSSIA

Besides, the following abbreviations are used in morphological descriptions:

dfp = “dense-and-fine punctulation” or “densely-and-finely punctulate”; refers to the type of sculpture, especially characteristic of representatives of some subtribes (**Chrysochroina CAST.**, **Chalcophorina LAC.**, **Lampropeplina HOL.**, **Hypoprasina HOL.**, **Psilopterina LAC.**, &c.) of the **Buprestini LEACH**, occurring mainly in depressed areas (foveae, sulci), and consisting of fine, dense, regular punctulation on usually distinctly microsculptured background, covered with dense pubescence and frequently pulverulent.

L = length

W = width

BW = basal width

MW = maximum width

AW = apical width

V = width of vertex between eyes

H = width of head with eyes

SYSTEMATIC REVIEW OF INDO-PACIFIC TAXA

Dicercina GISTL

Dicercaidae GISTL 1848b: [cover]3

Polybothrisidae GISTL 1848b: [cover]3

Psilopterites LACORDAIRE 1857: 15, 26

Capnodini JAKOBSON 1913: 779

Poecilonotini JAKOBSON 1913: 786

General characteristics:

Large, nearly (except Oceania) cosmopolitan subtribe, variously interpreted by previous authors. In the traditional scheme, proposed by LACORDAIRE 1857 and accepted with little modifications by virtually all subsequent students, it was divided (on sole grounds of different distribution of antennal sensory pores) as two separate tribes between two subfamilies: the **Chalcophorinae LAC.** (“**Psilopterini LAC.**”) and **Buprestinae LEACH** (“**Dicercini KERR.**”);

it was RICHTER (1949, 1952) who pointed out to the untenability of such classification and merged the “**Dicercini KERR.**” with **Psilopterini LAC.** (and, by the way, **Chalcophorinae LAC.** with **Buprestinae LEACH**), but his arguments were totally neglected – the adherence of buprestidologists to the traditional arrangement and to the single-feature VIC [Very Important Character]-taxonomy was too strong... Almost half a century later TÔYAMA (1987) removed *Pseudoperotis OBB.* to the newly erected **Pseudoperotini TMA.**, and I (HOŁYŃSKI 1993b) – in the framework of general rearrangement of buprestid classification – ranked the above-mentioned “tribes” and “subfamilies” as subtribes of the large tribe **Buprestini LEACH**, confirmed the merger of the “**Dicercini KERR.**” into, and removal of the **Pseudoperotina TMA.** (to which I added also *Chalcopoecila THS.*) from, the “**Psilopterina LAC.**” [according to BELLAMY (2003) the family-level name based on *Dicerca ESCH.* has been first proposed by GISTL (1848b) rather than – as traditionally quoted – by KERREMANS (1893a), and so has priority over **Psilopterides LACORDAIRE 1857**; I have been unable to check GISTL’s publication personally, but see no reason to disbelieve my late colleague’s conclusion], and separated some other groups (**Phrxiina COB.**, **Haplotrinchina HOŁ.**) traditionally included (at least in part) in this group. ALEXEEV & BEBKA (1970) removed the *Poecilonota ESCH.* - *Ovalisia KERR.* group into a separate tribe **Poecilonotini JAKOBS.**, and recently some authors (most notably BÍLÝ & al. 2009) attempt to resurrect this idea in a new, rather bizarre form [including not only *Poecilonota ESCH.* and “*Lamprodila MOTSCH.*” (evidently unavailable and totally misinterpreted – see HOŁYŃSKI 2011b – “synonym” of *Ovalisia KERR.*) but also *Nesotrinchus OBB.* and *Melobasina KERR.* (as new subtribe **Nesotrinchina B.K.V.**)!]. TÔYAMA (1989) is certainly right that *Pseudohyperantha* (spelled by him incorrectly as *Pseudohyperantha*) *SND.* – placed by its author (SAUNDERS 1869) “between *Capnodis* and *Cardiaspis*” – does in fact not belong here: his reasons (maxillary palpi, wing venation) are rather weak, but in fact the only justification for the traditional classification seems to be some similarity in general shape of the body, size of scutellum, and conformation of apex of anal sternite, to *Cardiaspis SND.*, while width of mesoepisterna, straight epipleural margin, slender metatarsi with long basal joint, and many other features point to the contrary. TÔYAMA includes the genus into the „**Buprestini**” [≈**Buprestina LEACH sensu RBH**] but (besides stressing the two above-mentioned differences from „**Dicercini**”) does not present any reason for such classification. In fact, general shape of body, proportions of front, shape and proportions of pronotum and elytra, structure of pronotoelytral suture, size and shape of scutellum, conformation of elytral and abdominal apices, „bulky” prosternum, and especially reduced mesoepisterna, as well as several minor features, clearly preclude the possibility to include *Pseudohyperantha SND.* into **Buprestina LEACH**, and equally clearly place it among **Stigmoderina LAC.** (HOŁYŃSKI 2009a, 2011). At last BÍLÝ (1997) has shown that *Pagdeniella THY.*, considered hitherto as a close relative of *Philanthaxia DEYR.* (**Anthaxiini C.G.: Bubastina OBB.**), is in fact inseparable from *Ovalisia KERR.* So understood, the **Dicercina GISTL** include some 600 or 700 species in ca. 15 genera, of which 10 (*Cyphosoma MNNH.*, *Capnodis ESCH.*, *Mirolampetis g.n.*, *Dicercomorpha DEYR.*, *Zoolrecordia HOŁ.*, *Touzalinia THY.*, *Psiloptera DEJ.*, *Dicerca ESCH.*, *Poecilonota ESCH.* and *Ovalisia KERR.*), with ca. 100 species, occur in the Indo-Pacific Region or its vicinities.

Key to the Indo-Pacific genera of the subtribe Psilopterina LAC.:

- 1 (2) Body very short: L:W<2.25 *Cyphosoma MNNH.*
- 2 (1) Body [except in some extralimital *Polybothris SPIN.*] more elongated: L:W>2.35
- 3 (4) Body totally glabrous, even ventral side without pubescence *Capnodis ESCH.*
- 4 (3) At least some parts of underside pubescent
- 5 (8) Inner surface of femora deeply longitudinally furrowed (to receive tibiae in repose) between pair of smooth carinae extending from tip to near base

- 6 (7) Elytral costae highly elevated and prominent throughout; dfp areas in form of longitudinal intercostal bands *Mirolampetis* **sg.n.**
- 7 (6) Elytral costae obliterated in anterior half, only apically conspicuous; dfp areas in form of isolated spots or transverse fasciae *Dicercomorpha* **s.str.**
- 8 (5) Femora without distinct furrows, at most with indefinite depression on apical half
- 9(14) Medial parts of prosternal process separated from lateral rims by deep striae; scutellum small, not wider than interstria, or elytra with 13 striae
- 10(11) Elytra with 13 striae; 1., 3., 6., 9., and 12 interstria elevated as costae *Zoolrecordia* **HOL.**
- 11(10) Elytra with 10 striae (scutellar not counted); all interstriae equally elevated
- 12(13) 11. interstria interrupted – like others – by coarse foveolate punctures and not clearly delimited from epipleura, so elytral margin (especially in apical part) distinctly crenulate *Touzalinia* **THY.**
- 13(12) 11. interstria smooth, clearly delimited from epipleura, so elytral margin not crenulate *Psiloptera* **DEJ.**
- 14 (9) Prosternal process without lateral striae and/or scutellum rather large, much (usually two times or more) wider than long; elytra with 10 striae
- 15(16) Scutellum small, about as long as wide, not wider than 2. interstria .. *Dicerca* **ESCH.**
- 16(15) Scutellum large and/or much wider than long, much wider than 2. interstria
- 17(18) Elytra distinctly caudate; scutellum more than twice wider than long; pronotum with very conspicuous smooth median carina *Poecilnota* **ESCH.**
- 18(17) Elytra not caudate, or scutellum but slightly wider than long and pronotum without smooth median carina *Ovalisia* **KERR.**

***Cyphosoma* MNNH.**
Cyphonota MANNERHEIM 1837: 91

General characteristics:

Small genus, containing 2 subgenera: *Phelix* MARS. including only single very poorly known N-African species [*C. tetrum* (C.G.)], and *Cyphosoma* MNNH. s.str. with 6 known species distributed from Morocco, through Mediterranean countries to Near and Middle East [map 1]; 1 species touches the borders of the area under study in Belouchistan. Very short, ovate, convex, rather small (7.5-20 mm. – RICHTER 1952), dark (bronzed- or blackish-brown) body, apically broadly rounded elytra, and characteristic oblique elytral band in most species, make representatives of this genus easily recognizable.

Key to the subgenera of *Cyphosoma* MNNH.:

- [1 (2) Body blackish-blue. Elytra lustrous, impunctate (extralimital: N-Africa) *Phelix* MARS.]
- 2 (1) Body brown or brownish-black. Elytra distinctly striatopunctate *Cyphosoma* MNNH. s. str.

***Cyphosoma* MNNH. s. str.**

Cyphonota DEJEAN 1833: 79

Type-species: *Buprestis sibirica* FABRICIUS 1781 [=*Buprestis tatarica* PALLAS 1773]

Cyphosoma MANNERHEIM 1837: 91

Type-species: *Buprestis tatarica* PALLAS 1773

Coeculus CASTELNAU et GORY 1839: 1

Type-species: *Buprestis sibirica* FABRICIUS 1781 [=*Buprestis tatarica* PALLAS 1773]

General characteristics:

The distribution area of the nominotypical subgenus, including all but one species of *Cyphosoma* MNNH., is practically identical to that of the genus. Only one species marginally entering the Indo-Pacific Region.

Remarks:

The nomenclatural history of the genus seems worth recollection as a typical example of current practices. It had been originally described by DEJEAN (1833) as *Cyphonota* DEJ.; few years later MANNERHEIM (1837), under the erroneous interpretation that the name has been preoccupied by *Cyphonotus* FISCH. introduced *Cyphosoma* MNNH. MANNERHEIM was evidently wrong, but nevertheless most of the contemporaneous entomologists accepted the junior synonym. By the way, it was the common situation: I do not know the reasons – perhaps some personal or political (DEJEAN was a Napoleon’s general) animosities were involved (as is, unfortunately, not rare also today...) – but anyway his colleagues frequently used any pretext to reject or “forget” DEJEAN’S names (so we had *Castalia* C.G. for *Strigoptera* DEJ., *Halecia* C.G. for *Pristiptera* DEJ., *Dactylozodes* CHEVR. for *Lasionota* DEJ. or just *Cyphosoma* MNNH. for *Cyphonota* DEJ.) or ascribe them to other authors (*Perotis* “SPINOLA”, *Psiloptera* “SOLIER”, *Chrysochroa* “SOLIER”, *Eurythyrea* “LACORDAIRE” &c.). In several cases the correct name (and/or authorship) has been re-established by BELLAMY 1998b, but he did this very selectively and when I (HOŁYŃSKI 1993b, 1999) used *Cyphonota* DEJ., it was just BELLAMY (with BÍLÝ) who hastened to formulate the application to ICZN (BÍLÝ & BELLAMY 2002) for its suppression... My extensive (two pages in manuscript) argumentation (showing that *none* of the criteria formulated by the *Code* for suppression had been in this instance met) became so drastically crippled by the editor of the *Bulletin* that, to my consternation, in published version (HOŁYŃSKI 2003) my comments appeared as five lines long platitude with the sense garbled to something like “I am against because I am against”... So, one year later MANNERHEIM’S mistake has been officially fixed (ANONYM 2004) – as usually, without any justification though probably under the never named or formally introduced but in fact almost consistently applied “Principle of Posteriority” (“current usage”) – against (as admitted even in the application!) the provisions of the *Code*, to say nothing of fair play or commonsense [“*what other field defines its major activity by the work of the least skilled?*” asked some years earlier Stephen Jay GOULD (1990) in the same *Bulletin*; now we can (and should!) ask what other field defines its major activity *by “legal protection” of evident errors?*]...

Tataricum-circle***Cyphosoma turcomanicum* (KR.)**

Coeculus turcomanicus KRAATZ [in HEYDEN et KRAATZ] 1883:358

Coeculus fulvovittis REITTER 1887: 511

Cyphosoma lawsoniae orientalis BÍLÝ 1983: 55-56

Material examined:

1 ex.

Characters:

7.7×3.7 mm. [length 7.5-16.5 mm. according to RICHTER 1952]. Bronzed-brown with bright cupreous bottoms of punctures and dfp areas. Obliquely longitudinal, depressed, sharply but somewhat irregularly delimited, wide (except in anterior third) dfp stripe runs from humeral protuberance to apex of each elytron; another, short and indistinct dfp band extends along elytral margin from humeri to basal third. Whitish, recumbent pubescence is long and dense on sides of front, at anterior angles of pronotum, in dfp areas of elytra, and on sides of underside; otherwise short, sparse and indistinct. Front trapezoidal, wider than long, with rather regular, coarse and extremely dense puncturation at middle of upper part, where it becomes as sparse as on vertex; fine stria extends from midlength of front to occiput. Antennae short (not reaching midlength of pronotal sides); 1. joint ovoid, somewhat longer than thick; 2. and 3. subequal, thinner and shorter than 1., globularly subconical; 4. *ca.* as long and wide as 1., subtriangular, 5. somewhat shorter, triangular; 6.-10. *ca.* as short as 2. or 3.,

wider than long, rhomboidal; 11. as long as 10. but narrower. Pronotum widest at middle, very broadly cordate; anterior margin shallowly, base deeply bisinuate, sides strongly roundedly convergent to apex, somewhat less markedly, sinuately so to slightly obtuse basal angles; surface regularly convex, puncturation rather uniform, coarse, laterally very dense and confluent, medially somewhat sparser; prescutellar pits transverse, narrowly and indistinctly separated, make appearance of single striola; lateral carina traceable on basal half, completely obliterated anteriorly. Elytra very short; humeral angles almost perfectly rounded, sides very slightly divergent to midlength, then broadly arcuately tapering to roundedly truncated apices; no posterolateral denticulation or apical denticles, sutural angle right. Elytral striae coarse and irregular, more or less disrupted into separate punctures anteromedially, very fine but more continuous posterolaterally; discal interstriae slightly convex, lateral flat. Each elytron with two depressed dfp bands: one prominent, oblique, beginning as narrow and not quite continuous sulcus above humeral protuberance, then widened (wider than two intervals) and running almost to suturoapical angle (but not reaching either suture or apex); other shallow, short and indistinct along basal third of elytral margin. Epipleura rather wide, subparallel to metacoxae, practically disappear behind them. Prosternum shallowly emarginate apically, prosternal process bordered with deep and coarse marginal stria, median part rather sparsely but coarsely punctured, more than 3× wider than smooth lateral rim. Sides of sternum and abdomen dfp, median parts more or less coarsely but sparsely punctured; hind margin of metacoxae shallowly trisinate, without denticle; anal sternite rounded at apex in female, truncated in male (RICHTER 1952).

Geographical distribution:

C. turcomanicum (KR.) is widely distributed in Central Asia (Tadjikistan, Usbekistan, Turkmenia) and Persia; the specimen in my collection labelled “PASNI, BALUCHISTAN, 11-4-35” [map 1], on which this description has been based, is – to my knowledge – the first reported from the peripheries of the Indo-Pacific Region.

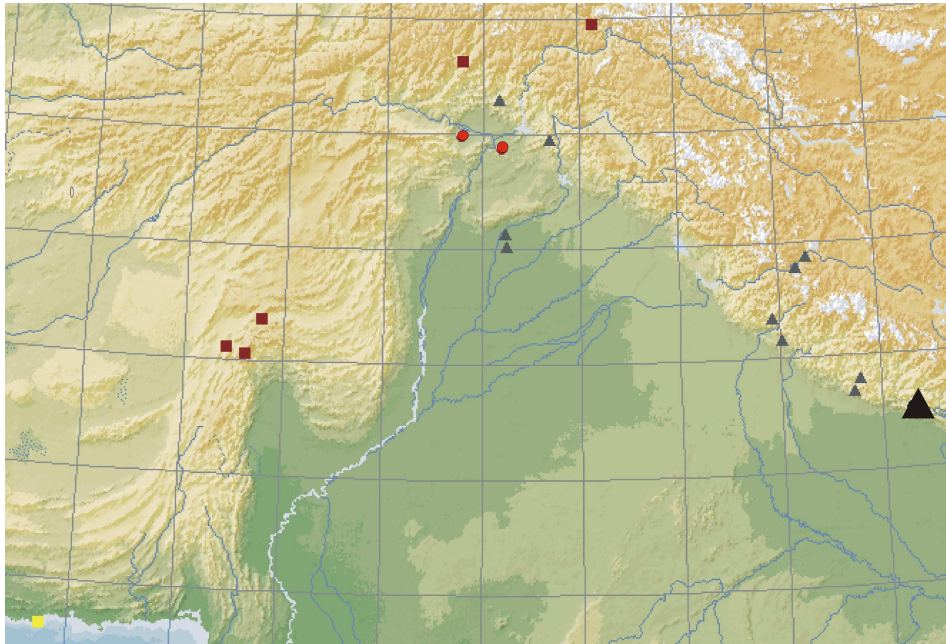
Remarks:

This species is closely related to North-African *C. lawsoniae* (CHEVR.), from which it differs in hardly separated prescutellar pits of pronotum, mat elytra with somewhat less developed elytral dfp bands, their yellowish pubescence, and some other details. The characters (microsculpture, pronotal pits, pubescence of elytral bands) listed by BÍLÝ (1983) to differentiate *C. lawsoniae orientalis* BÍLÝ from other subspecies are exactly those used by RICHTER (1952) to distinguish *C. turcomanicum* (KR.) and seen on my specimen of the latter, so I consider them synonymous, and the fact that the type-localities of *C. l. orientalis* BÍLÝ (extreme south-east of Persia, just at the border of Pakistan) lie within the distribution area of (not mentioned by BÍLÝ 1983) *C. turcomanicum* (KR.), but very far from that of the easternmost race (*C. l. kalalae* OBB.) of *C. lawsoniae* (CHEVR.), convincingly supports that conclusion.

***Capnodis* ESCH.**
Capnodis ESCHSCHOLTZ 1829

General characteristics:

Small genus, containing 14 known species distributed in Mediterranean countries and in Middle Asia, with 5 species reported to occur at the peripheries of the Indo-Pacific Region: in Pakistan and subhimalayan areas of NW-India. Representatives of this genus are medium-sized to big (11-41 mm. – RICHTER 1952), dark (brown to black, with usually characteristic pattern of cupreous-bronzed – covered on fresh specimens with white waxy coating – dfp depressions), almost totally glabrous beetles of cordate pronotum, small (sometimes almost imperceptible) scutellum, and more or less caudate and finely punctatostriate elytra.



Map 1. Localities of *Cyphosoma* MNNH. and *Capnodis* ESCH. in Pakistan and India

■ – *C. turcomanicum* (KR.); ■ – *C. c. sexmaculata* BALL.; ▲▲ – *C. indica* THS.; ● – *C. parumstriata* BALL.
[here and on other maps small symbols show [near] exact localities, large symbols - general areas]

***Capnodis* ESCH. s.str.**

Capnodis ESCHSCHOLTZ 1829: 8

Type-species: *Buprestis tenebricosa* OLIVIER 1790

Caloptera GISTL 1834: 10

Type-species: *Buprestis tenebrionis* LINNAEUS 1761

Key to the Indo-Pacific species of *Capnodis* ESCH.:

- 1 (2) Frontal sculpture consists of sparse, almost regularly spaced punctures. Pronotum with five sharply delimited reliefs on very densely and regularly punctured background *C. carbonaria* (KL.)
- 2 (1) Front with irregular, at least partly very dense and confluent punctation, from which some smooth elevated spaces emerge. Pronotal surface between large reliefs very unevenly punctured, with many small irregular callosities
- 3 (6) Metacoxal denticle obtuse, rounded at tip
- 4 (5) Posterior angles of pronotum right. Elytra with prominent striae, consisting of coarse and at least partly confluent punctures. Prosternal process without perimarginal stria *C. miliaris* (KL.)]
- 5 (4) Posterior angles of pronotum decidedly acute. Elytra with indistinct (especially on anterior half) rows of fine and widely spaced punctures. Prosternal process bordered with row of deep punctures, usually confluent into stria *C. indica* THS.
- 6 (3) Metacoxal denticle acute, sharp
- 7 (8) Pronotal sides simply sinuate before posterior angles; midline of pronotum not sulcate. Even (4., 6., 8. and 10.) elytral interstriae much narrower than odd ones *C. parumstriata* BALL.
- 8 (7) Proepisterna broadly and deeply excavated to receive profemora, thence lateral margin of pronotum with broad and deep angular incision at base; midline (at least on basal half) deeply sulcate. Odd and even elytral interstriae of subequal width *C. excisa* MÉN.

Carbonaria-circle

Capnodis carbonaria (KL.)

Buprestis carbonaria KLUG 1829: T. 2, f. 2

This widely – from Greece to Kashmir – distributed species, well characterized by the combination of very regular puncturation of the pronotal “background”, distinct dfp spots on elytra, and prosternal process bordered with row of deep confluent punctures, shows marked geographical variability. Three subspecies [KERREMANS (1911) and THÉRY (1936) consider them as simple synonyms or varieties, OBENBERGER (1926) and RICHTER (1952) as separate species] have been distinguished, one of which reaches the westernmost periphery of the Indo-Pacific Region:

Key to subspecies of *C. carbonaria* (KL.)

- 1 (4) Median pronotal relief large, not divided longitudinally
- [2 (3) Median relief on pronotum long, extending beyond midlength, usually touching small prescutellar spot
.....(extralimital: W-Mediterraneum) *C. carbonaria* (KL.) s.str.]
- 3 (2) Median relief on pronotum short, not reaching midlength (extralimital: Middle East) *C. c. henningi* FALD.]
- 4 (1) Median relief of pronotum reduced to pair of small smooth spots at anterior margin
.....*C. c. sexmaculata* BALL.

[*Capnodis carbonaria* (KL.) s.str.]

Buprestis carbonaria KLUG 1829: T. 2, f. 2

Capnodis Lefebvrei CASTELNAU et GORY 1836a: 4

Capnodis Henningi var. *cribricollis* ABEILLE DE PERRIN 1904: 211

[*nec Capnodis anthracina* var. *cribricollis* ABEILLE DE PERRIN 1896: 270] [issp]

Capnodis henningi FALD. var. *Abeillei* OBENBERGER 1926: 211

East-mediterranean race, occurring from Greece to Israel and Caucasus; reported also from Crimea.

[*Capnodis carbonaria henningi* FALD.]

Capnodis henningi FALDERMANN 1835: 141

Inhabits the area around southern coasts of the Caspian Sea.

Capnodis carbonaria sexmaculata BALL.

Capnodis sexmaculata BALLION 1871: 349

Capnodis kashmirensis FAIRMAIRE 1891: 125-126

Material examined:

15 ex. [1♂, 2♀, 12∅]

Characters:

Male [1] 24×9.5; female [2] 23.5×9.5 – 26.5×11 mm. [length 16-28 mm. – RICHTER (1952)]. Black with white waxy coating within punctures. Epistome very broadly and rather shallowly emarginated; front trapezoidal, somewhat wider than long, broadly and shallowly depressed at middle of anterior half, sparsely and somewhat irregularly covered with moderately coarse punctures. Pronotum widest at anterior ²/₅, broadly cordate: apical margin shallowly but distinctly bisinuate, with median lobe reaching to level of inconspicuous obtuse anterior angles; base with very broad prescutellar lobe reaching far beyond level of sharply acute posterior angles; sides sinuately convergent in basal sixth, then broadly roundedly expanded; pronotal puncturation very regular, moderately coarse and very dense (interspaces forming but narrow ridges between punctures) but not confluent, very slightly sparser at middle of disk, leaving three pairs of smooth shining reliefs: large rounded on sides of base, small rounded on sides of anterior third, and small roundedly triangular at middle of anterior margin; lateral carina distinct from base to apex, interrupted by not dense but rather coarse (similar to those on disk) punctures and thence looking somewhat crenulate in dorsal aspect. Elytra obliquely truncate at humeri, sides then subparallel to midlength, arcuate to near apices and distinctly sinuate (“caudate”) just before them; striae inconspicuous, consist of sparse rows of moderately coarse, shallow punctures; even (2., 4., 6., 8., 10.) interstriae sparsely uniserially punctured, odd (1., 3., &c.) ones with widely spaced, small, inconspicuous dfp foveae. Anterior margin of prosternum deeply triangularly emarginate between broadly

rounded lobes; prosternal process rather sparsely covered with coarse punctures, which laterally (but not apically) fuse into bordering stria; proepisterna and rest of undersurface with very sparse, irregularly distributed, coarse punctures. Metacoxal denticle right or obtuse; anal sternite narrowly rounded at apex in female, roundedly truncated in male.

Geographical distribution:

C. c. sexmaculata (BALL.) inhabits Middle Asia (Turkmenia, Uzbekistan, Tadjikistan) and Pakistan (Chitral, Kashmir, Baluchistan [map 1]).

Remarks:

Besides reduced and divided median relief of pronotum, *C. c. sexmaculata* (BALL.) differs from the remaining subspecies in less conspicuous elytral dfp spots and minor details of elytral and ventral sculpture. *Capnodis kashmirensis* FRM., treated as distinct species by KERREMANS (1911) and OBENBERGER (1926), is – as THÉRY (1936) and RICHTER (1952) justly observed – not distinguishable from this race.

Miliaris-circle

***Capnodis miliaris* (KL.)**

Buprestis miliaris KLUG 1829: 15

Capnodis albisparsa FALDERMANN “1830: 107” [i.l.?)

Buprestis daedalea STEVEN 1830: 170-172

Capnodis metallica [melattica err.] BALLION 1871: 349

Capnodis aurata ABEILLE DE PERRIN 1904: 211

?=*Capnodis misteriosa* OBENBERGER 1917: 48-49

Capnodis miliaris var. *Magdelainei* THÉRY 1929: 121

Capnodis miliaris var. *Nonfriedi* OBENBERGER 1934a: 123

Capnodis miliaris ssp. *afghanica* OBENBERGER 1934a: 123

Material examined:

20 ex. [8♂, 12♀]

Characters (fig. 31):

Male [1] 30×12 – 34×14; female [1] 31×13 – 37×16 mm. [length 26-41 mm. – RICHTER (1952)]. Black with white waxy coating within punctures. Epistome broadly emarginated; front trapezoidal, somewhat wider than long, broadly and shallowly depressed at middle of anterior half, sculpture consist of dense and rather coarse irregular microreliefs. Pronotum widest at midlength, broadly cordate: apical margin shallowly but distinctly bisinuate, with shallow but prominent median lobe and poorly marked anterior angles; base with very broad prescutellar lobe reaching beyond level of sharp, somewhat acute posterior angles; sides sinuately convergent in basal sixth, then broadly roundedly expanded; pronotal puncturation usually regular on disk (rather sparse at middle, very dense midlaterally), becoming irregularly granulose on sides and often here and there elsewhere; two pairs (midlaterally at base and anterior third) of small rounded, and one elongatedly fusiform median smooth shining reliefs; lateral carina entire, rather coarsely crenulate; prescutellar fovea deep, undivided, horseshoe-shaped or subtriangular. Elytra subparallelsided in anterior half, then arcuate to near apices and distinctly sinuate (“caudate”) just before them; striae fine, interstriae very sparsely uniserially punctured, odd (1., 3., &c.) ones with widely spaced, small, inconspicuous densely punctured foveae, numerous broad (occupying together ca. 1/3 of elytral surface) irregular depressed areas of similar sculpture concentrated on sides. Anterior margin of prosternum deeply triangularly emarginate between broadly rounded lobes; prosternal process rather sparsely covered with coarse punctures, without bordering striae; proepisternal sculpture consists of irregular elevated smooth reliefs. Metacoxal denticle obtuse; anal sternite narrowly rounded at apex in female, truncated in male.

Geographical distribution:

Occurs from Turkey, Cyprus and Syria to Tadjikistan, Afghanistan and Pakistan

Remarks:

One of two [with similar – but easily distinguishable by sharply acute metacoxal denticles and much less regular pronotal sculpture with larger main reliefs – *C. cariosa* (PALL.)] largest species of the genus. Eastern populations have been separated as *ssp. metallica* BALL. (characterized as bright cupreous), but MÜHLE (2015), “having seen a large number of specimens from dull grey ... from Afghanistan to bright coppery ones from Syria” considers it synonymous with *f. typ.* His conclusion has been based mainly on rather irrelevant lack of “any substantial differential characteristics of the outer morphology and male genitalia”, while the potentially decisive geographical pattern of the observed (colour) variability is not clear from his text, however, FATIMA (2012) and FATIMA & al. (2012, 2014) report both forms from Pakistan, with remark (FATIMA & al. 2012) that “as it [*i.e. v. metallica* BALL.] occurs together with the nominate form in the same places we treat it as a simple variation of *Capnodis miliaris*”. The material available to me does not allow to resolve the question: all my specimens are black with only bottoms of elytral punctures partly brassy or cupreous, but the easternmost of them come from Caucasus, northwesternmost Persia (Azerbaijan) and N-Iraq. RICHTER (1952) mentions “– *albisparsa* Faldermann, 1830, Bull. Soc. Nat. Mosc. 107 (*Buprestis*)” among synonyms of *C. miliaris* (KL.), but I have been unable to find either such name or, to be sure, any FALDERMANN’s paper in the respective volume, where only STEVEN (1830) on p. 172 remarks on *Buprestis daedalea* STEV. that “*D. Faldermann huic nomen B. albispersae [sic!] dedit, sed ob colorem macularem saepe cupreum aliud imponere necesse erat*”. KUBÁŇ (2006a) makes *C. misteriosa* OBB. a “**syn. nov.** of *C. indica* J. Thomson”, but does not justify his opinion with any argument beyond schematic and non-informative “*type material studied*”, especially inconvincing in this case, as several characters mentioned in the original description – even if “*detailed but very insufficient*” – seems nevertheless to suggest rather “small specimen of *C. miliaris* KL.” (RICHTER 1952): “*elytral surface at suture smooth and lustrous, in perisutural area sparsely punctulate, on sides strongly irregularly punctured, like eroded, that characteristic puncturation goes at humeri, at middle, and here and there in apical part far towards suture*”, “*ventral side ... black. Punctures black, non-metallic*”, let alone distribution (“Zentralasien”) fit *C. miliaris* KL. well but would be very unusual in *C. indica* THS.

Capnodis indica* THS.Capnodis indica* THOMSON 1881: 176*Capnodis vermiculata* FAIRMAIRE 1891: 125*Capnodis orientalis* ABEILLE DE PERRIN 1896: 270*Capnodis indica ssp. Fuksai* OBENBERGER 1924a: 15**Material examined:**

57 ex. [4♂, 8♀, 45∅]

Characters:

Males [4] 22×8.5 – 24×9.5; females [7] 23×8.5 – 27.5×11 mm [length 22-27 mm. – RICHTER (1952)]. Cupreous-bronzed, dorsal elevated spaces usually blackish, or sometimes (*v. vermiculata* FRM.) black; bottoms of punctures covered with white waxy coating. Front very coarsely and densely sculptured, with but few small elevated reliefs left among irregularly, longitudinally confluent punctures. Pronotum widest just before midlength, sides arcuately narrowed to apex and similarly so to posterior fourth, deeply sinuate at sharply acute posterior angles; apical and basal margins bisinuate, with anterior angles more, posterior less produced than the respective median lobes. Besides three pairs (basal, anterodiscal, and – usually indistinct – medioapical) of smooth reliefs similar to those in *C. carbonaria sexmaculata* (BALL.) (though anterodiscal not wider separated from one another than basal), one – also frequently obsolete – irregularly broadly lanceolate anteromedian “mirror”; surface between them with coarse, sparse on disc, dense laterally, very dense around (especially

anterodiscal) reliefs; lateral carina entire, strongly upturned and sinuate (to receive profemur) in basal fourth and nearly straight (in lateral aspect) before. Elytral striae marked as rows of very fine, often obsolete punctures; three larger pairs and numerous smaller irregular smooth reliefs semisymmetrically emerge from background of coarsely and very densely but regularly (like typical dfp but much coarser) punctured areas. Anterior margin of prosternum broadly arcuately emarginate; prosternal process usually striatomarginate; undersurface coarsely but rather sparsely punctured; metacoxal denticle obtuse; anal sternite narrowly rounded at apex in female, truncated or shallowly emarginated in male.

Geographical distribution:

Subhimalayan species, distributed [map 1] from Afghanistan (RICHTER 1952), through Punjab and Kashmir, to Kumaon and Nepal.

Remarks:

Closely related to *C. miliaris* (KL.) and *C. cariosa* (PALL.), differs in lesser size, acute posterior angles of pronotum, finer elytral striae, striatomarginate prosternal process, usually bronzed colouration, &c. Extensive, irregular, densely punctured surfaces on elytra make *C. indica* THS. easily distinguishable from all the remaining easternmost (occurring in or near the former British India) species of *Capnodis* ESCH. *C. vermiculata* FRM., treated by KERREMANS (1911) as separate species and supposed by RICHTER (1952) (“as it has its area – Kashmir”) to be distinguishable at subspecific level, seems to be a simple colour variety: in Kashmir *forma typica* (and intermediates) also occurs, and no stable difference other than colouration and somewhat sparser punctures in elytral striae (which, however, is highly variable) has ever been suggested.

Excisa-circle

***Capnodis parumstriata* BALL.**

Capnodis parumstriata BALLION 1871: 349

Capnodis costulata FAIRMAIRE 1902a: 39

Material examined:

5 ex. [1♂, 4♀]

Characters:

Male [1] 25.5×10 mm. (Length 26-35 mm. according to RICHTER 1952). All-black, with white waxy coating at bottoms of punctures. Frontal reliefs emerging from very coarsely and densely punctured depressions few, small, irregular, but highly elevated. Pronotum cordate, widest at midlength; sides subparallel in basal sixth, roundedly expanded before; apical margin very slightly bisinuate, basal more strongly so. Main reliefs similarly distributed to those in *C. carbonaria* (KL.) s. str., but broader and less regular in shape; only anterodiscal reliefs clearly separated: laterobasal and medioapical pair confluent (or almost so) with unpaired anteromedian and prescutellar ones; besides, numerous irregular, small, sharply delimited callosities emerge from very dense, uniform puncturation of depressed surface; lateral carina entire, upturned and deeply sinuate just before base, broadly arcuate and coarsely crenulate otherwise. Elytral striae very deep, continuous, inconspicuously punctured; interstriae smooth, 2. slightly, 4., 6., 8. ca. 3× narrower than others. Anterior margin of prosternum narrowly, rather deeply, arcuately emarginate; prosternal process laterally (not apically) bordered with deep, coarsely punctured stria; ventral puncturation coarse but sparse; metacoxal denticle sharply acute; anal sternite narrowly rounded at apex in female, broadly truncated in male.

Geographical distribution:

The area of distribution of this species extends from Turkmenia to Pakistan (Chitral, Punjab, Baluchistan [map 1]).

Remarks:

RICHTER (1952) – without argumentation – places this species “close to *C. cariosa* PALL. and *C. jacobsoni* sp. nov.”, but in my opinion it is related rather to *C. excisa* MÉN. and – especially – *C. alfieri* THY. and *C. aericolor* BL. showing the same peculiarity of narrowed 4., 6., and 8. interstriae which distinguishes *C. parumstriata* BALL. from all the remaining species.

***Capnodis excisa* MÉN.**

Capnodis excisa MÉNÉTRIÉS 1848: 44-45

Material examined:

9 ex. [3♂, 4♀, 2♂]

Characters:

Male [3] 25×9 – 30×11; females [4] 30×11.5 – 34.5×13 mm [length 22-37 mm. – RICHTER (1952)]. Black with white waxy coating within punctures. Frontal reliefs large, puncturation of depressed parts coarse and very dense at middle, much sparser on peripheries. Pronotum widest at midlength; sides broadly rounded with deep, nearly rectangular incision in basal fifth, bordering very conspicuous, smooth, deep excavation of proepisterna to receive femora in repose; both apical and basal margins rather deeply bisinuate; anterior angles prominent, posterior sharply acute. Laterobasal and laterodiscal pairs of reliefs large, irregular, free; medioapical pair coalescent with prescutellar and anteromedian reliefs into broad, widened anterad, smooth elevation occupying median third of pronotal surface; depressed surface coarsely, regularly, very densely punctured with numerous small to medium-sized, smooth, elevated reliefs throughout; median line sulcate, sulcus deep in basal half, shallow apically; lateral carina entire but very blunt and coarsely punctured. Elytral striae continuous or consisting of rows of coarse punctures; interstriae smooth or with very sparse but rather coarse punctures, odd ones with densely punctured foveae [in some specimens foveae extend – especially on sides – to even intervals, forming irregular depressed areas similar to, though much smaller and less conspicuous than, those in e.g. *C. miliaris* (KL.)]. Anterior margin of prosternum deeply but narrowly emarginate; prosternal process deeply striatomarginate laterally (not apically); proepisterna crossed with two longitudinal, coarsely and very densely punctured depressions; ventral puncturation coarse but very sparse; metacoxal denticle sharply acute; anal sternite laterally bordered with densely punctured depressions, apex rounded in female, truncated in male.

Geographical distribution:

Occurs from S-Kazakhstan to Oman and from NE-Turkey to Tadjikistan and Persia; OBENBERGER (1926) and RICHTER (1952) mention also (probably western, Persian part of) Baluchistan; occurrence in Pakistan uncertain: FATIMA & al. (2011) quote “*Pakistan: Baluchistan Prov., 1 ♀ (no other data). (NARC, Islamabad). 22.8 mm.*”, but FATIMA (2012) supports her “new record for Pakistan” only with “*single specimen without label, loan from NARC (National Agricultural Research Centre)*”, and FATIMA & al. (2014) repeat the same [by the way, for these authors “*record for Pakistan*” apparently means only “found in Pakistani collections”, even if the respective specimens originate from remote countries; this may be also the case here: the picture (FATIMA 2012) seems to show Arabian *C. aericolor* BL!). Similarly, the records of *C. alfieri* THY. from Saudi Arabia (KUBÁŇ 2006b, VOLKOVITSH 2004) refer almost certainly to the latter, and those from Oman (BÍLÝ & al. 2011), judging from their fig. 61, probably to *C. excisa* MÉN. (what would make also much more geographical sense: the latter is known from all the eastern part of Arabian Peninsula, while for the former Oman is just the least likely area, separated from its known localities – Egypt, Israel – by more than 2000 km. of deserts inhabited by closely related *C. aericolor* BL!).

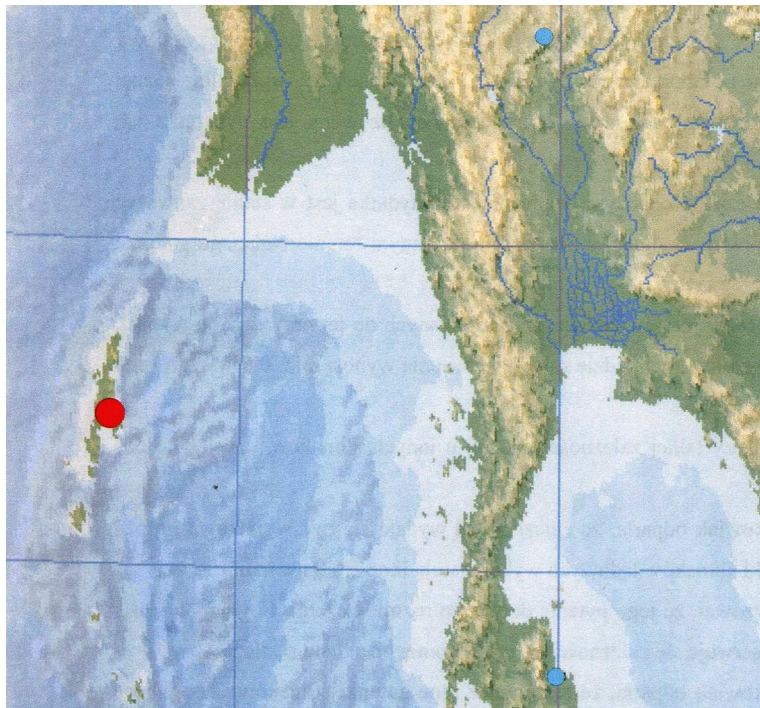
Remarks:

The closest relative of this species is apparently *C. alfierii* THY. [described as its variety, then by (RICHTER 1952) treated as subspecies, but probably separate species]: they share the characteristic structure of femoral excavations on proepisterna, distinguishing them from all other species, but differ in elytral interstriae (subequal in *C. excisa* MÉN., conspicuously unequal in *C. alfierii* THY.)] from Sinai and Israel

***Mirolampetis* g.n.**

Type-species: *Dicercomorpha farinosa* THOMSON 1879a

Very regular elytral costae, prominent all-over their length; virtually lacking striae, and totally dfp intercostal stripes make this monospecific genus easy to distinguish from its closely related *Dicercomorpha* DEYR. It is also separated geographically on the Andaman Islands.



Map 2. Localities of *Dicercomorpha farinosa* THS. and *D. vitalisi* BRG.

● – *D. farinosa* (KR.); ● – *D. vitalisi* BALL.

***Farinosa*-circle**

***Mirolampetis farinosa* (THS.)**

Dicercomorpha farinosa THOMSON 1879a: 63-64

Material examined:

16 o

Characters:

18×7 – 23.5×9.5 mm. [11]. Black with brassy shine; prehumeral foveae, median line, and pair of rather broad spots between them, as well as transverse lateroapical depression and several irregular spaces, on pronotum dfp; intercostal dfp spaces make 5 regular longitudinal stripes on each elytron; on ventral side only indistinct dfp spaces on sides of metacoxae and at anterior angles of sternites. Supraantennal and periocular carinae highly elevated, continuous, smooth; otherwise frontal surface dfp with but few, mostly longitudinal, narrow reliefs. Pronotal sides parallel or very slightly convergent in basal half (not wider at midlength than at base), then abruptly, straightly or somewhat sinuately tapering to apex; disc very sparsely,

sides very densely punctured; median sulcus very deep throughout, prescutellar fovea represented with triangular widening of it; postapical depression rather distinct; prehumeral foveae broad and long, somewhat oblique, accompanied by similar more medial space. Elytral costae high throughout, totally smooth; striae hardly discernible; intercostal interstriae concave, dfp, pubescent and pulverulent. Anterior margin of prosternum deeply semicircularly emarginate; prosternal process covered with moderately coarse and dense puncturation; proepisterna with rather dense ocellate punctures; median parts of metasternum finely and sparsely, rest of ventral side coarsely and rather densely punctured.

Geographical distribution:

Endemic to the Andamans [map 2].

Remarks:

This species stands isolated in both morphological and geographical sense.

***Dicercomorpha* DEYR.**

Dicercomorpha DEYROLLE 1864: 52-53

General characteristics:

Small genus of 12 species in two subgenera, distributed [maps 2-6] from Siam and Andamans to Java, New Guinea and Philippines (apparently absent from Borneo and – except probably [but see remarks under *D. dammarana* sp.n.] for Dammar Is. at the eastern end – Lesser Sundas). Diagnostic (shared only with *Mirolampetis* g.n.) character of *Dicercomorpha* DEYR. is a deep sulcus extending on inner surface of each femur from apex to far behind middle and bordered with a pair of smooth carinae. Besides, it differs from the related genera in characteristic combination of: slender 3. antennomere; more or less carinate elytra with dfp spots (sometimes confluent onto transverse fasciae); bituberculate apical margin of prosternum; regularly convex prosternal process without bordering stria (except *D. dammarana* sp. n.); deeply sulcate metasternum and 1. sternite; metacoxae without distinct denticle; &c. *D. javanica* C.G. (and probably other representatives of *Jadwiszczakia* sg.n.) shows slight sexual dimorphism in apex of anal sternite (rounded in female, truncated in male), not appreciable in the remaining species.

Explanations to figures (→ next two pages)

1. *Cyphosoma turcomanicum* (KR.) (RBH: BPhtx) – Baluchistan: Pasni
2. *Capnodis carbonaria sexmaculata* BALL. ♀ (RBH: BPhtx) – Baluchistan: Quetta
3. *Capnodis indica* THS. ♀ (RBH: BPclp) – India: Himachal Pr.: Kangra Valley
4. *Capnodis parumstriata* BALL. ♂ (RBH: BPhtx) – Pakistan: Campbellpore
5. *Mirolampetis farinosa* (THS.) (RBH: BPghk) – Andaman Is.
6. *Dicercomorpha* (s.str.) *subcincta* DEYR. (RBH: BPhtz) – Boeroe
7. *Dicercomorpha* (s.str.) *interrupta* DEYR. (RBH: BPjwp) – Ceram
8. *Dicercomorpha* (s.str.) *ignicolis* sp.n. PT (RBH: BPlou) – Luzon: Mt. Limay
9. *Dicercomorpha* (s.str.) *mutabilis* SND. (RBH: BPggo) – Philippines
10. *Dicercomorpha* (s.str.) *argenteoguttata* THS. (RBH: BPggu) – Masbate: Aroroy
11. *Dicercomorpha* (s.str.) *dammarana* HOL. PT (RBH: BPhvo) – Dammer I.
12. *Dicercomorpha* (s.str.) *multiguttata saundersi* KERR. (RBH: BPggw) – Samar I.
13. *Dicercomorpha* (s.str.) *multiguttata* DEYR. s.str. (RBH: BPhua) – Halmahera
14. *Dicercomorpha* (s.str.) *multiguttata grosseguttata* THS. (RBH: BPhub) – NE-New Guinea
15. *Dicercomorpha* (s.str.) *albosparsa* (C.G.) (RBH: BPhuh) – Morotai I.
16. *Dicercomorpha* (*Jadwiszczakia*) *javanica* (C.G.) ♀ (RBH: BPhda) – E-Java: Kendeng Mts.
17. *Dicercomorpha* (*Jadwiszczakia*) *vitalisi* BRG. ♀ (RBH: BPhyz) – Siam: Nakhon Sri Tammarat
18. *Zoolrecordia cupreomaculata* (SND.) ♂ (RBH: BPchc) – Siam
19. *Touzalinia psilopteroides* THY. s.str. ♂ (RBH: BPghl) – WNW-Yunnan: Djo-Kou-La
20. *Touzalinia belladonna* HOL. ♀ HT (RBH: BPb-f) – India: Arunachal Pr.: Mishmi Hills



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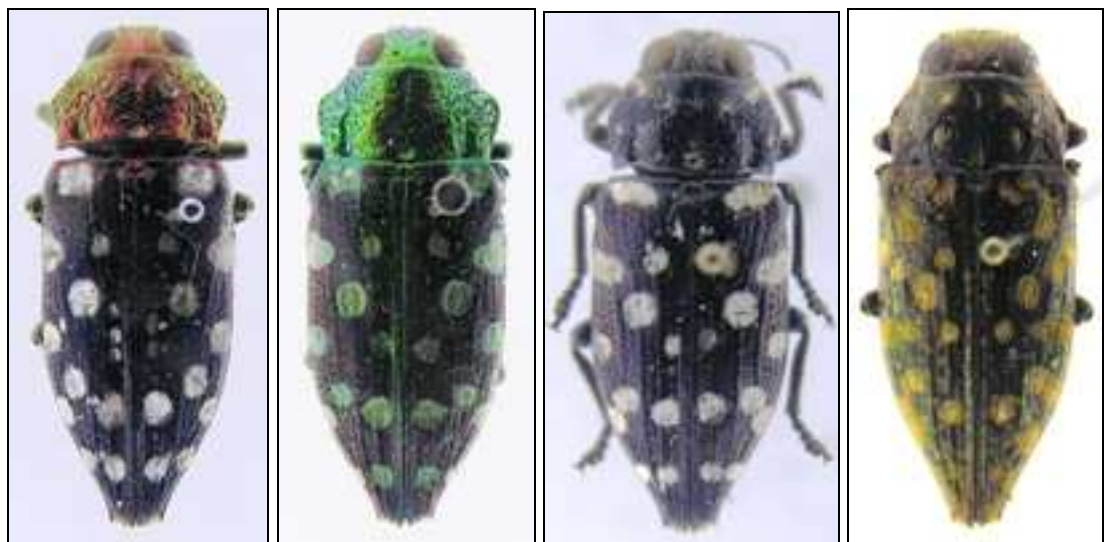


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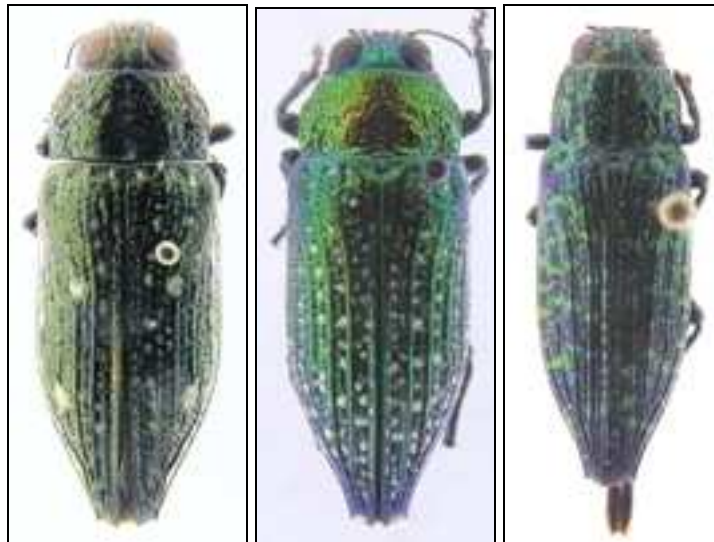


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Key to subgenera of the genus *Dicercomorpha* DEYR.

- 1 (2) Body robust, L:W < 2.65. Pronotal sides distinctly divergent in basal half. Elytra with 1 to 5 transverse fasciae or 9 to *ca.* 25 (at least 4 discal) prominent, pubescent and (in fresh specimens) pulverulent dfp spots, otherwise glabrous or with but few small and indistinct dfp foveolae. Background of elytra black, or if green or bronzed then pronotum with well defined, symmetrically arranged dfp spots *Dicercomorpha* DEYR.
- 2 (1) Body elongated, L:W > 2.7. Basal half of pronotum subparallelsided. Elytra green or dull greenish-bronzed, without or with but few (2 on disc and some along lateral border) regular dfp spots, but instead with dense rows of small pubescent foveolae. Pronotum without distinct dfp spots *Jadwiszczakia* sg.n.

***Dicercomorpha* DEYR. s. str.**

Dicercomorpha DEYROLLE 1864: 52-53

Type-species: *Buprestis albosparsa* CASTELNAU & GORY 1836b: 39

The nominotypical subgenus, including all but three known species, inhabits [maps 2-5] the eastern (E of the Wallace/Huxley Line, with single record from Palawan) part of the distribution area of the genus.

Key to species of the subgenus *Dicercomorpha* DEYR. s.str.

- 1 (6) Elytral dfp spots arranged transversally and at least partly confluent into one, three, or five fasciae
- 2 (5) Pronotum without dfp areas. All elytral spots included into fasciae, covered with long and very dense pubescence
- 3 (4) Elytra with 1 dfp fascia *D. (s.str.) subcincta* DEYR.
- 4 (3) Elytra with 3 dfp fasciae *D. (s.str.) interrupta* DEYR.
- 5 (2) Pronotum with large transverse dfp depression at anterior angles. Elytra, besides 5 fasciae, with some separate spots; pubescence in dfp areas short and moderately dense *D. (s.str.) fasciata* WATH.
- 6 (1) All elytral spots isolated, rounded
- 7(12) Lateral row consists of 4 large spots
- 8(11) Pronotum cupreous-red or bright green
- 9(10) Pronotum cupreous-red *D. (s.str.) ignicollis* sp. n.
- 10 (9) Pronotum bright green *D. (s.str.) mutabilis* SND.
- 11 (8) Pronotum concolorous bluish-black *D. (s.str.) argenteoguttata* THS.
- 12 (7) Lateral row consists of at least 6 small spots
- 13(14) Prosternal process bordered with deep stria *D. (s.str.) dammarana* HOL.
- 14(13) Prosternal process without bordering stria
- 15(16) Body (including epipleura) with no or predominantly green or violaceous (without any purplish) metallic shine. Largest elytral spots more than twice as wide as interstriae *D. (s.str.) multiguttata* DEYR.
- 16(15) Head, pronotum, sternum, antennae and legs with more or less distinct purplish shine, or at least subhumeral part of epipleura with purplish stripe. Largest elytral spots at most by a half wider than elytral interstriae *D. (s.str.) albosparsa* (C.G.)

Subcincta-circle

Dicercomorpha (s. str.) *subcincta* DEYR.

Dicercomorpha subcincta DEYROLLE 1864: 54-55

Material examined:

27 ♂

Characters:

19.5×7.5 – 23×9 mm. [23]. Black with very slight metallic (purplish on pronotum and anterior half of elytra, greenish posteriorly) shine; somewhat obliquely transverse dfp fascia (reaching from lateral margin to about 3. stria) at anterior $\frac{2}{5}$ of elytra, and outer half of metacoxae, covered with very dense (completely concealing surface), long, recumbent golden-orange pubescence. Front with rather coarse and dense, highly elevated smooth reliefs. Pronotum widest at midlength; surface with coarse but sparse punctures at middle, very densely irregularly sculptured on sides; median line with narrow and irregular, coarsely and densely punctured sulcus in anterior half, and small prescutellar fovea at base – undifferentiated in between; narrow sulciform depression along apical margin broadly interrupted at middle; prehumeral foveae deep and long; no dfp areas. Elytral costae prominent on apical half, very indistinct anteriorly; striae more or less continuous, coarsely and densely punctured. Anterior margin of prosternum shallowly triangularly (with deeper incision at middle) emarginate between two prominent tubercles; prosternal process without border, smooth at middle, rather densely punctured on sides; proepisterna coarsely irregularly reticulate; ventral puncturation rather sparse, somewhat denser – but not distinctly dfp – at anterior angles of first 2 or 3 sternites.

Geographical distribution:

This species seems to be endemic of Bouru Is. [map 3]: the single specimen allegedly from Ceram in KBIN has been certainly mislabelled.

Remarks:

D. subcincta DEYR. is the closest relative of *D. interrupta* DEYR., with which it shares the unique feature of well developed transverse, covered with dense and long pubescence, elytral fasciae (otherwise only in *D. fasciata* WATH. elytral dfp spots are partly included into fasciae – in other species they are fully isolated – and in all of them pubescence in the spots is short and rather sparse).

Dicercomorpha (s. str.) *interrupta* DEYR.

Dicercomorpha interrupta DEYROLLE 1864: 55

Material examined:

46 ♂

Characters:

18.5×7.5 – 24.5×9.5 mm. [37]. Black with metallic (slight purplish or blue dorsally, stronger greenish ventrally) shine; three transverse fasciae – one immediately behind base, reaching to first (scutellar not counted) stria; one slightly oblique at anterior $\frac{2}{5}$ of elytra, extending to 3. stria; and one (usually disrupted into 2 or 3 spots) at apical fourth, also touching 1. (sutural) stria; laterally all extend to the marginal stria – on each elytron, and outer half of metacoxae, covered with very dense, long, recumbent orange pubescence. Front with coarse and dense smooth reliefs. Pronotum widest at midlength; surface coarsely but sparsely punctured at middle, very densely, irregularly, confluent punctate-reticulate on sides; median line narrowly, irregularly sulcate in anterior half, foveolate before scutellum, and flat in between; transverse postapical sulcus only laterally distinct; prehumeral foveae deep and long; otherwise pronotum regularly convex. Elytral costae prominent on apical half, almost completely obliterated anteriorly; striae usually not depressed, consist of dense rows of separate punctures. Anterior margin of prosternum shallowly emarginate (in “bracket” – { –

shape) between two prominent tubercles; prosternal process without bordering stria, but with irregular row of deep – though usually not very dense – punctures on its place; median portion smooth or with but few scattered punctures; proepisterna coarsely irregularly ocellate-reticulate; ventral puncturation rather coarse and sparse, somewhat denser – with some small and indistinct dfp spaces – at anterior angles of basal sternites.

Geographical distribution:

The species inhabits [map 3] southern Moluccas: Ceram and Amboyna; the locality “Boeroe” (3 ex. in NNHM) must be a result of mislabelling or accidental introduction.

Remarks:

D. interrupta DEYR. is closely related to *D. subcincta* DEYR., but can be distinguished at glance by having three (rather than one) transverse elytral fasciae; otherwise it differs in usually not distinctly depressed elytral striae, more coarsely punctured interstriae, uniserial (though somewhat irregular) row of punctures bordering the prosternal process, distinctly greenish colouration of ventral side, &c.

***Dicercomorpha (s. str.) fasciata* WATH.**
Dicercomorpha fasciata WATERHOUSE 1913: 182-183

Material examined:

Holotype: “[Type]” “Philippine isl^{ds}” “Sharp Coll., 1905-313.” “*Dicercomorpha fasciata*, (Type) Waterh.” [ø BMNH]

Additional material: None



Map 3. Localities of some species of *Dicercomorpha* DEYR.

○ – *D. subcincta* DEYR.; ▲ – *D. interrupta* DEYR., ● – *D. fasciata* WATH.
 ● – *D. dammarana* HOL., ● – *D. viridisparsa* THY.

Characters:

Ca. 18.5×7.5 mm. (damaged specimen). Violet-black above, bluish-black below; broad transverse (interrupted at middle) postapical depression and small spaces at inner margins of prehumeral foveae on pronotum, five transverse (disrupted into separate spots) fasciae on elytra, posterolateral portion of metacoxae, and large area at anterior angles of 1. sternite, dfp; these dfp spaces brassy, covered with short and rather sparse yellowish (on dorsal side) or denser, longer and darker orange (beneath) pubescence. Front with network of coarse and dense smooth reliefs. Pronotum widest at midlength; puncturation coarse and sparse at

middle, very dense, irregularly reticulate on sides; narrow sulcus in anterior half of median line separated from prescutellar fovea by flat, undifferentiated space; prehumeral foveae deep, sulciform. Elytral costae well developed on apical $\frac{2}{3}$, indistinct anteriorly; striae consist of dense and coarse punctures. Emargination of anterior margin of prosternum semicircular; prosternal process without bordering stria, almost uniformly covered with moderately dense and coarse punctures; proepisterna coarsely, irregularly, confluent ocellate; sides of metasternum rather densely, median parts and abdomen sparsely punctured.

Geographical distribution:

As far as I am aware, only the holotype has been known heretofore, so details of geographical distribution cannot be clarified.

Remarks:

D. fasciata WATH. is morphologically intermediate between *D. interrupta* DEYR. and *D. subcincta* DEYR on the one hand, and *D. argenteoguttata* THS. on the other; its characteristic pattern of separate, but arranged into five fasciae, elytral dfp spots makes it easily distinguishable from all its congeners.

Multiguttata-circle

***Dicercomorpha* (s. str.) *ignicollis* sp.n.**

Dicercomorpha ignicollis HELLER [i.l.?)

Material examined:

Holotype: “Mt. Limay, Luzon” “*Dicercomorpha mutabilis* Saund. v. *ignicollis* Heller” [red label]
“CFBaker collection 1927” [ø USNM]

Paratype: “Mt. Limay, Luzon” “7416” “CFBaker collection 1927” [ø RBH: BPlou]

Additional material: none

Holotype:

21×7.5. Vertex, pronotum and scutellum cupreous-red; front green with contrastingly cupreous elevated reliefs, elytra violaceous-black with green anterior part of suture and bronzed bottoms of dfp foveae (poorly visible because of dense pubescence and white pulverulence); ventral side greenish-bronzed, legs predominantly green. Pubescence very short, semierect, white on front, similar but denser in dfp spots, otherwise body surface practically glabrous.

Epistome rather deeply arcuately emarginate, not separated from trapezoidal front. Frontal sculpture consists of dense and rather coarse puncturation between highly elevated smooth reliefs; vertex with coarser but sparser punctures, without reliefs. Eyes moderately prominent. V:H=0.4:1. First antennal joint egg-shaped, ca. 2× longer than wide; 2. spherical, distinctly narrower than 1.; 3. conical, much shorter and thinner than 1.; 4. club-shaped, as long as 3. but much wider; 5.-10. progressively shorter and flatter; 11. shorter than 10. but not much differing in shape.

Pronotum wide (L:BW:MW:AW=1:1.6:1.7:1.4). Basal angles distinctly acute, sides sinuate to basal third, rounded at midlength, and almost straightly convergent to apex; anterior angles not prominent, definitely obtuse; basal and apical margins bisinuate. Disk convex, shallowly (somewhat deeper in anterior third) sulcate along midline; prescutellar fovea deep, rounded; prehumeral furows narrow, reaching to basal third, coarsely and densely punctured; puncturation on disk moderately coarse and rather sparse, on sides very dense among highly elevated small reliefs; lateral carina entire but anteriorly somewhat irregular. Scutellum small, transversely tetragonal, deeply concave, smooth.

Elytra ca. 1.55× longer than wide; sides obliquely truncated at humeri, somewhat wavy in anterior fifth, then parallel to midlength, arcuately convergent to apical sixth, and sinuately so to obliquely truncate apices; external apical denticle prominent, sutural angle sharply acute but without individualized denticle. Costae prominent (except at base), smooth; striae

continuous, punctures in striae dense, moderately coarse; both costae and striae interrupted by mostly very large, rounded to somewhat elongated dfp spots (11 on each elytron), covered with dense pale pubescence and white pulverulence.

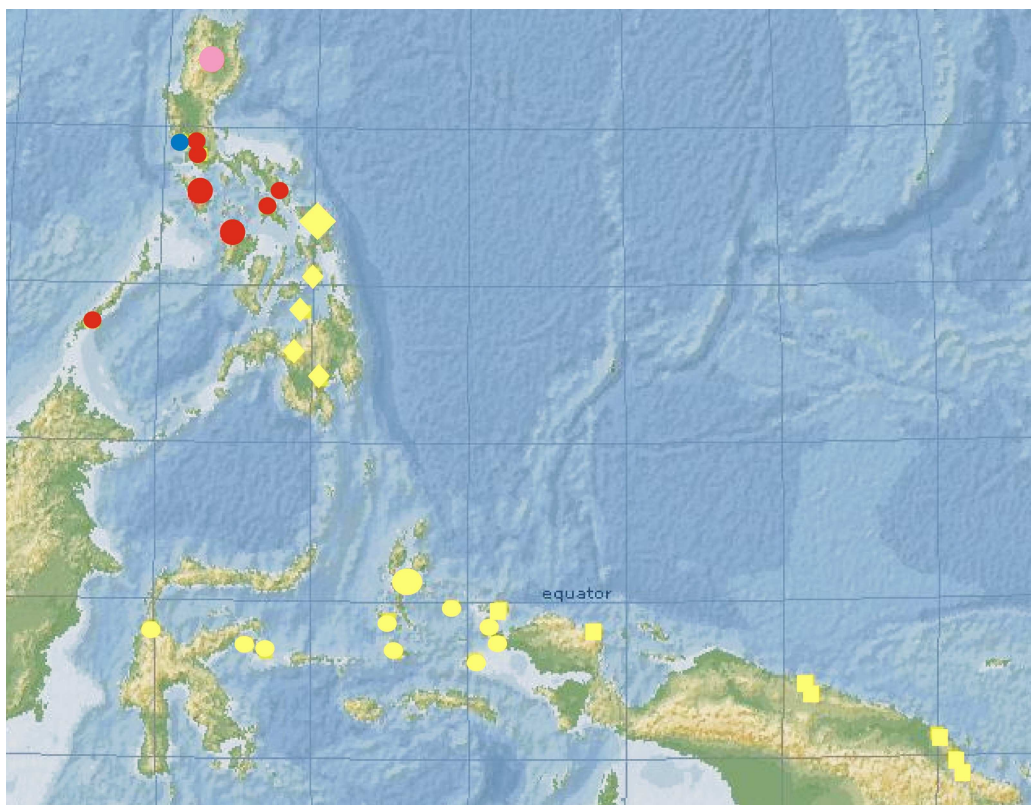
Anterior margin of prosternum broadly emarginate between tuberculate angularities; prosternal process parallelsided to behind procoxae, then cuneately narrowed to rounded apex; surface sparsely (somewhat denser on sides) but coarsely punctured, without lateral striae; proepisternal sculpture consists of rather dense mixture of coarse punctures and very irregular, somewhat elevated reliefs. Metasternum deeply medially sulcate, finely and very sparsely punctured on disk, densely and coarsely on sides; hind margin of metacoxae without dent. Abdomen rather coarsely, almost uniformly punctured with shallow transverse anterolateral depression on each segment; 1. sternite with broad, deep, almost impunctate median depression between careniform ridges; anal sternite coarsely punctate, narrowly rounded at apex.

Paratype:

24.5×8.5 mm. Anterior part of suture, entire ventral side and legs cupreous, only labrum and depressed parts of front green; elytral spots not so large; prosternal disk and depression of 1. sternite somewhat more distinctly punctulate; otherwise very similar to the holotype.

Geographical distribution:

Known only from the type specimens collected by Charles Fuller BAKER on Mt. Limay, Bataan Peninsula, Luzon [map 4].



Map 4. Localities of some species of *Dicercomorpha* DEYR.

- – *D. mutabilis* SND., ● – *D. ignicollis* HOL., ● – *D. argenteoguttata* THS.,
◆ – *D. m. saundersi* KERR., ● – *D. m. multiguttata* s.str., ■ – *D. m. grosseguttata* THS.

Remarks:

The label on the holotype, apparently written by C.F. BAKER, identifies the specimen as “*Dicercomorpha mutabilis* v. *ignicollis* Heller”, but having not found any mention of such name in the available literature, I must have considered it an unpublished collection name. The taxonomic status of this form is not clear: colouration, especially of pronotum, makes *D. ignicollis* sp.n. and *D. mutabilis* SND. easily distinguishable at glance, but I have been unsuccessful in finding any other character consistently distinguishing them from each other! Known localities suggest strict allopatry, i.e. either subspecific or allospecific rank; lack of non-colour diagnostic differences seems to favour the former, lack of intermediates rather the latter interpretation – more material from the border areas is needed!

***Dicercomorpha* (s. str.) *mutabilis* SND.**

Dicercomorpha mutabilis SAUNDERS 1874: 314-315

Material examined:

Holotype: “Type” “Philippin. 161” “*D. mutabilis* E.S. Type” “Saunders 74.18” [ø BMNH]

Additional material: 24 ø

Characters:

14.5×5.5 – 22.5×9 mm. [18]. Head, pronotum, scutellum, part of elytral suture and dfp spots, ventral side and legs vivid green; rest of elytra purplish-black; elytral spots (typically 11 on each elytron) large, rounded, covered with not very dense pale yellowish pubescence and – in fresh specimens – white pulverulence. Front coarsely, irregularly punctured among smooth reliefs. Pronotum widest at midlength; puncturation on disc rather fine and sparse, sides covered with very dense, irregular jumble of punctures and elevated callosities; sulcus on anterior part of midline not reaching prescutellar fovea; prehumeral foveae narrow, deep, long. Elytral costae only apically distinct; striae represented by rows of relatively fine punctures. Emargination of anterior margin of prosternum brace-shaped; prosternal process without bordering stria, sparsely and rather finely punctured all-over; proepisterna coarsely and densely ocellate; ventral surface rather coarsely, sparsely punctured and glabrous; lateral third of metacoxae and anterolateral portions of sternites dfp, covered with not very dense recumbent pubescence.

Geographical distribution:

The labels of most specimens examined by me indicate only the general locality “Philippine Is.”, only two – “Luzon” and “Mt. Province” (also on Luzon) – are more detailed, so little can be said about the range of distribution of this species [map 17].

Remarks:

This species is easily recognizable by its contrasting colouration and combination of large elytral pubescent dfp spots with totally glabrous pronotum.

***Dicercomorpha* (s. str.) *argenteoguttata* THS.**

Dicercomorpha argenteo-guttata THOMSON 1879b: 13-14

?*Dicercomorpha viridicollis* THOMSON 1879b: 14

Dicercomorpha Strandi OBENBERGER 1928b: 176

Material examined:

Holotype: „Philippine” „TYPUS” [red label] „*Dicercomorpha Strandi* m. Type, Det. D^f Obenberger” „Mus. Nat. Pragae, Inv. 21977” [ø EONMP]

Additional material: 54 ex. [1 ♂, 53 ø]

Characters:

Male [1] 14.5×5.5, unsexed [42] 14×5.5-22×9 mm.. Black with slight bluish, violet or purplish shine; sometimes metallic lustre is stronger, cupreous or green (?v. *viridicollis* THS.); transverse lateroapical depression, prescutellar and prehumeral foveae on pronotum, 11 large elytral spots, lateral half of metacoxae, and anterolateral spaces on sternites dfp,

pubescent and covered with white pulverulence. Front with irregular elevated reliefs emerging from narrow, finely and densely punctulated depressions. Pronotum widest at midlength; puncturation on disc coarse but sparse, on sides very dense and irregularly confluent; prescutellar fovea rather broad, anterior sulcus separated from it by undifferentiated space; prehumeral foveae narrow, elongated. Elytral costae obliterated anteriorly; perisutural and lateral striae continuously depressed, others represented by very dense, almost confluent rows of coarse punctures. Anterior margin of prosternum shallowly semicircularly emarginate between pair of tubercles; puncturation of prosternal process variable in coarseness and density, sometimes distinctly concentrated in irregular lateral bands approaching formation of bordering stria; proepisterna with network of narrow smooth reliefs encircling dense ocellate punctures; sides of metasternum rather densely, median parts and abdomen (except extensive anterolateral dfp spaces) sparsely punctured.

Geographical distribution:

The currently available, very scanty and uncertain data seem to suggest vicariant relation between *D. mutabilis* SND. (northern Luzon) and *D. argenteoguttata* THS. (S-Luzon, Mindoro, Palawan, Masbate, Panay). Most of the specifically (*i.e.* not only “*Philippine Is.*”) labelled specimens [map 4] come from Masbate; (I have been unable to find Colombia: Manitousloue on available maps, but the occurrence of *D. argenteoguttata* THS. in South America seems anyway unconceivable).

Remarks:

D. argenteoguttata THS. is apparently related to *D. mutabilis* SND., but dark colouration and dfp spots on pronotum make it easily distinguishable. Superficially it resembles *D. multiguttata* DEYR. (especially ssp. *grosseoguttata* THS.) which, however, has elytral spots smaller and more numerous, median sulcus on pronotum continuous with somewhat elongated prescutellar fovea, and distinct dfp spot on the inner side of prehumeral carina (separating it from the sulciform prehumeral fovea). I do not see anything in the description of *D. strandi* OBB. which would distinguish it from this species, while “*ob viridicollis* Thoms. eine Varietät dieser Art oder eine selbständige Art oder doch nur ein Synonym der mutabilis E. Saund. ist, lässt sich leider nach der lakonischen Thomson’schen Beschreibung nicht feststellen” (OBENBERGER 1928b).

***Dicercomorpha (s. str.) dammarana* HOL.**

Dicercomorpha cupreomaculata damarae HOSCHECK *i.l.*

Dicercomorpha dammarana HOLYŃSKI 2001: 136-138

Material examined:

Holotype: “Dammer Insel” “2598” “[Typus]” “*Dicercomorpha cupreomaculata* Saund. ssp. *Damarae. m. n. ssp., Det. Hoscheck 1942*” [ø KBIN]

Paratype: “Dammer Insel” “2599” “[Typus]” [ø RBH: BPhvo]

Characters:

17.5×7 mm. [holotype; in the original description (HOLYŃSKI 2001b) mistakenly given as 21.5×7.5], 18.5×7.5 [paratype]. Bronzed-brown, with cupreous (covered with short yellowish pubescence and also yellowish pulverulence) spots distributed as follows: four along anterior margin of pronotum, one on each side at basal third, five along base (one in each prehumeral fovea, one at some distance anteromedially to it, and one inconspicuous in prescutellar fovea), 14 larger and numerous smaller on elytra; ventral surface without distinct dfp spaces. Epistome rather deeply arcuately emarginate, separated from front by distinct (though irregular) transverse carina. Front trapezoidal, broadly and deeply excavated in lower half, flat above; supraantennal and periocular carinae distinct; anterior depression finely and very densely granulate, upper part covered with dense irregular network of elevated reliefs contouring punctiform depressions; pubescence long but sparse, yellowish. Eyes rather prominent, *ca.* 1.5× longer than wide. V:H≈0.45. Antennae reaching to *ca.* anterior fourth of

pronotal sides; 1. joint egg-shaped, twice longer than wide; 2. spherical, distinctly narrower than 1.; 3. subconical, as wide as and *ca.* 1.5× longer than 2.; 4. club-shaped, as long as 1 but only as wide as 3.; 5. similar to 4.; 6. as long as but distinctly wider than 4., triangular; 7.-10. progressively shorter, 11. roundedly rhomboidal, as long as 6. Pronotum wide (L:BW:AW=1:1.8:1.3); sides sinuately divergent to midlength, then rounded and almost straightly tapering to just behind apex, where they suddenly become subparallel (forming very distinct “collar”); apical margin rather deeply bisinuate with broadly truncate median lobe, base almost straight. Disk convex, with deep sulciform transverse depression laterally along base, deep sulcus on anterior half of median line (joining – through shallow depression – elongate prescutellar fovea), and depressed dfp spots enumerated above; puncturation coarse, very sparse on disc but very dense and irregularly confluent on sides; surface between punctures distinctly micropunctulate and very finely shagreened; lateral carina smooth, almost entire, broadly produced downwards between basal tenth and apical fourth. Scutellum roundedly trapezoidal (with very small triangular process at middle of posterior margin), concave, finely punctulate and distinctly microsculptured. Elytra 1.8× longer than wide; base slightly wider than that of pronotum; sides subparallel to midlength, then roundedly convergent to apical sixth and sinuately so to obliquely truncate and sharply bidentulate apices. Costae distinct apically, obliterated towards base; striae continuous and depressed between costae, but anteriorly represented by rows of separate coarse punctures; large dfp foveae rounded. Anterior margin of prosternum very shallowly emarginated (almost straight) between two tubercles. Prosternal process subparallelsided to behind procoxae, then cuneately narrowed to broadly rounded apex; deep lateral striae – running close to margins and parallel to them – not joining at tip; lateral rims smooth, median portion very coarsely but sparsely punctured. Proepisterna with irregular (in both shape and distribution) foveolate punctures among network of broad smooth reliefs. Metasternum and 1. sternite broadly and deeply longitudinally depressed along midline (traces of pdf depression discernible also on 2. sternite); median parts of sternum and basal sternite with sparse simple punctures, which on sides are ocellate, very dense, and on abdomen more or less longitudinally confluent. Metacoxal denticle almost totally obliterated. Anterior angles of 1.-4. abdominal segments with smooth reliefs; anal sternite with or without indistinct carinula along midline, with shallow arcuate preapical transverse depression, apex rounded.

Geographical distribution:

Known only from the type-series. The type-locality [map 3] is uncertain: there exist at least two islands of this name (variously spelled as Dammer, Dammar, Damar, or Damma) in Indonesia – one near the southern tip of Halmahera, and another at the eastern end of the Lesser Sunda chain, East of Wetar and Roma – and it is impossible to decide with certainty which of them the type-specimens have been collected on. Morphological distinctiveness and phylogenetic relations suggest long time of its separation, what seems much less conceivable on small islet in the midst of the distribution areas of such expansive species as *D. multiguttata* DEYR. and *D. albosparsa* (C.G.), than on a bigger and isolated island – thence the Lesser Sundan provenience of *D. dammarana* sp.n. seems more probable than its North Moluccan origin.

Remarks:

I cannot imagine why HOSCHECK considered this taxon as a subspecies of “*Dicercomorpha*” *cupreomaculata* SND.: in fact, the latter represents a separate genus (*Zoolrecordia* HOL.) and has virtually nothing in common with *D. dammarana* sp. n.! The new species is evidently a member of the *mutabilis-argenteoguttata-multiguttata-albosparsa*-group, differing from the former in the presence of dfp spots on pronotum, from the latter three in their absence on abdomen, and from all in colouration, excavated anterior part of front, striatomarginate prosternal process, &c.

Dicercomorpha (s. str.) multiguttata DEYR.

Dicercomorpha multiguttata DEYROLLE 1864: 56

This species shows considerable geographical variability in colouration: specimens from Philippines (*saundersi* KERR.) are usually green, those from New Guinea (*grosseguttata* THS.) black, the representatives of Moluccan populations being morphologically intermediate (greenish-black). These forms have been usually treated as separate species, but – the differences (especially between the latter two) being slight (and depending upon the light: *e.g.* the ventral side looks more green in the day and more purplish-black in artificial light) and not always consistent – they evidently represent but poorly differentiated geographical races. The nomenclatural questions have also not yet been satisfactorily clarified, thence some confusion (to which I have also contributed, having until recently attributed the name *multiguttata* DEYR. to Philippinean population, and joining the Moluccan and New Guinean as *grosseguttata* THS...) is seen in collections. *D. multiguttata* DEYR. was described from “*I. Mysol, Key, N. Guinea (Dorey)*”, so the name can only be applied to either Moluccan or New Guinean form; it is certainly somewhat inconvenient to have just the morphologically instable, intermediate, perhaps taxonomically invalid race as nominotypical, but though I have never seen specimens from Mysol or Key, DEYROLLE (1864) describes the type-specimens as “*bronzé verdâtre foncé*“, what fits the typical colouration of Moluccan rather than New Guinean population; on the other hand, the latter is rather widely known as *grosseguttata* THS., so designation of the former as the nominotypical subspecies avoids further nomenclatural confusion. Though some specimens from Mindanao show morphological characteristics of the nominotypical form, and some Moluccan beetles are virtually identical to New Guinean ones, generally the three races can be distinguished as follows:

Key to subspecies of *D. multiguttata* DEYR.

- a (b) Dorsal side green or blue *D. (s.str.) m. saundersi* KERR.
- b (a) Dorsal side black with or without metallic shine
- c (d) Ventral side with distinct greenish shine *D. (s.str.) multiguttata* DEYR. *s.str.*
- d (c) Ventral side (in day-light) with very faint purplish shine or without any
.....*D. (s.str.) m. grosseguttata* THS.

***Dicercomorpha (s. str.) multiguttata saundersi* KERR.**

Dicercomorpha saundersi KERREMANS 1919: 57-58

Dicercomorpha albosparsa var. *nigroviridis* FISHER 1926: 240-241

Material examined:

35 ♂

Characters:

17.5×7 – 23×9 mm. [26]. Uniformly dull green, some specimens darker greenish-blue or even violet-black; five dfp spots along anterior margin, and seven at base, of pronotum, as well as some 20 on elytra, 1 or 2 on each metacoxa, and one transverse anterolateral on each sternite, finely pubescent and covered with white pulverulence. Front with irregular network of elevated reliefs. Pronotum widest at midlength; puncturation on disc coarse but very sparse, on sides very dense and irregularly confluent; prescutellar fovea broad and elongate, almost always confluent with median sulcus; prehumeral foveae narrow, elongated, separated by smooth carina from round additional dfp fovea posited more medially; transverse anterolateral depression on each side disrupted into two dfp foveae, also anterior end of median sulcus, prescutellar and prehumeral foveae dfp. Elytral costae prominent posteriorly, obliterated towards base; striae represented by rows of very coarse, almost confluent punctures. Anterior emargination of prosternum semicircular with more or less distinct incision at middle; puncturation of prosternal process uniform, moderately coarse and sparse; proepisterna with

ocellate punctures of variable density; sides of metasternum with rather dense, median parts and abdomen with sparse and rather fine puncturation.

Geographical distribution:

Exactly labelled material [map 4] has been too scarce for reliable delimitation of the distribution area of this subspecies and the extent of the zone of intergradation with *D. multiguttata* DEYR. *s. str.*: the examined specimens from Samar [2] and Leyte [2] are typical, green; of the remaining 17, collected on Mindanao or labelled only “Philippines”, three are dorsally greenish- or bluish-black and one black with no appreciable metallic shine (one having bluish-black, others dull greenish underside), so being morphologically undistinguishable from other races; the racial identity of a specimen from Palawan remains also unclear.

Remarks:

Both the description and original localities of *D. “albosparsa” v. nigroviridis* FISH. leave little doubt as to its identity with *D. m. saundersi* KERR.

Dicercomorpha (s. str.) multiguttata DEYR. *s. str.*
Dicercomorpha multiguttata DEYROLLE 1864: 56

Material examined:

>237 ♂

Characters:

16×6 – 24×9 mm. [>230]. Dorsally black with greenish or purplish shine, ventrally blackish-green; otherwise as *D. m. saundersi* KERR.

Geographical distribution:

It is not yet possible to demarcate exactly the distribution area [map 4] of this subspecies (see **Remarks** below): it certainly occurs on Celebes, Peleng, Obi, Batjan, Halmahera and Gebeh islands (also single examined specimen from Batanta shows well pronounced characters of the nominotypical subspecies), but it is not clear which race inhabits Palawan on the one hand, and Salawatti, Mysol and Kei on the other.

Remarks:

The Moluccan populations show some variability in colouration: some specimens are decidedly greenish dorsally, approaching the Philippinean race, some others are difficult to distinguish from *D. m. grosseguttata* THS.; besides, until recently I confused the latter with the nominotypical race, what makes my earlier identifications unreliable.

Dicercomorpha (s. str.) multiguttata grosseguttata THS.
Dicercomorpha grosseguttata THOMSON 1878a: 37-38

Material examined:

124 ♂

Characters:

10.5×4 – 23.5×9.5 mm. [98]. Dorsally and ventrally black with or without faint purplish-violet (in day-light) shine; otherwise as the nominotypical race.

Geographical distribution:

Certainly inhabits New Guinea and Waigeo [map 4], the populations of Salwatti, Mysol, and perhaps Kei may also belong here (but see above – **Remarks** on *D. multiguttata* Snd. *s.str.* – for a specimen from Batanta!).

Remarks:

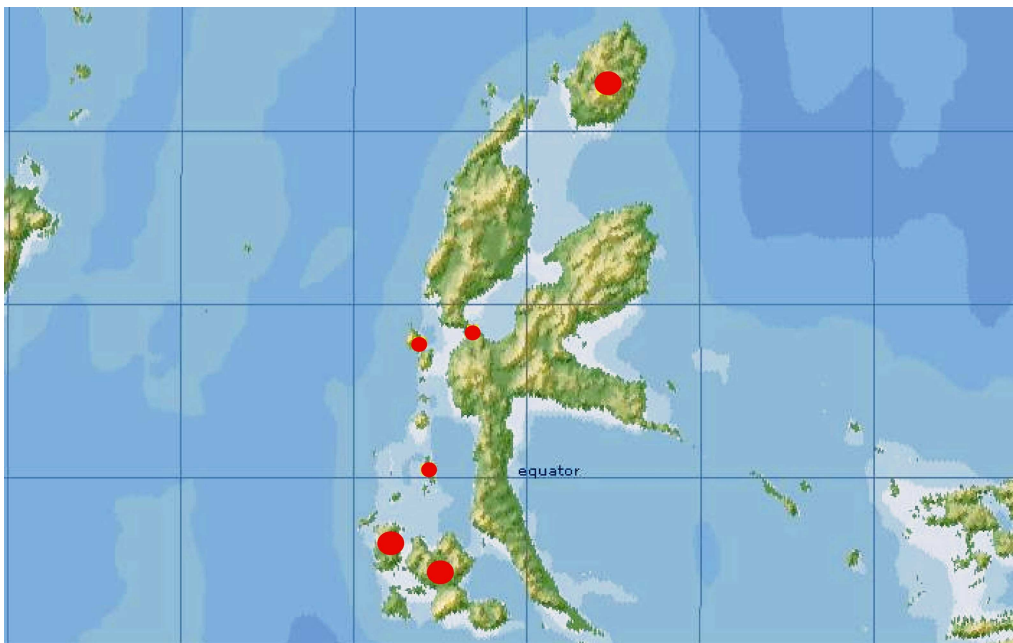
This race is most stable in colouration.

Dicercomorpha (s. str.) albosparsa (C.G.)
Buprestis albosparsa CASTELNAU et GORY 1836b: 39

Material examined:
182 ♂

Characters:

17.5×6.5 – 24×9.5 mm. [159]. Dorsal side bronzed-black with more or less distinct greenish, bluish, or purplish shine; ventrally the shine is usually stronger and almost always totally or partly (at least in basal portion of epipleura) cupreous-red or purplish; 9-12 dfp spots on pronotum, *ca.* 20 on elytra, 2 on each metacoxa, and transverse space on each side of anterior margin of sternites, pubescent and pulverulent (dorsal spots relatively small). Front with irregular network of highly elevated smooth reliefs emerging from densely punctulated depressions. Pronotum widest at midlength; puncturation on disc coarse but sparse, on sides very dense and irregularly confluent; prescutellar fovea prolonged into deep median sulcus; prehumeral foveae narrow, elongated, separated by smooth carina from dfp spots medial to their anterior ends. Elytral costae obliterated anteriorly; first two (from suture) striae composed of rather fine, others of very coarse punctures. Anterior margin of prosternum shallowly semicircularly emarginate, sometimes with indistinct median incision; puncturation of prosternal process uniform, coarse and rather dense; proepisterna with moderately dense ocellate punctures; sides of metasternum rather densely, ventral surface rather finely and sparsely (somewhat less so on metasternal sides) punctured.



Map 5. Localities of *Dicercomorpha albosparsa* (C.G.)

Geographical distribution:

D. albosparsa (C.G.) was described from Java, but does certainly not occur there (I have also seen a specimen labelled “*Sumatra*”, what is equally erroneous). Unfortunately, old labels (especially those quoting “*India*”, “*Java*”, “*Manila*”, “*Singapore*” and some other customary localities) are frequently unreliable; at that, increasing proportion of recently collected specimens are obtained from “dealers” and very often also mislabelled, what makes the clarification of geographical distribution very difficult. Most specimens of *D. albosparsa* (C.G.) bear the labels “*Morotai*”, “*Halmahera*”, “*Ternate*”, “*Kaioa*”, “*Kasiruta*”, or “*Batchian*”, suggesting Northern Moluccas as the species’ homeland [map 5]; occasionally

encountered localities like Ceram, Salawati or New Guinea (Sorong) must be treated with caution.

Remarks:

D. albosparsa (C.G.) is very closely related to – and after clarification of distributional details may prove to be but subspecifically (or not at all) distinct from – *D. multiguttata* DEYR.; it differs from the latter in smaller dorsal spots and cupreous or purplish basal sulcus of epipleura, but none of these characters is fully consistent (variability in spotting in both species makes this feature practically useless in extremal cases, and some – even if very rare – specimens of *D. albosparsa* (C.G.) have all the ventral surface, including epipleura, greenish).

***Jadwiszczakia* sg.n.**

Type-species: *Buprestis javanica* CASTELNAU et GORY 1836b:40

Distinguishable from the nominotypical subgenus by elongate body, basally subparallelsided pronotum, combination of more or less bright green or greenish-bronzed body with lack of pronotal dfp spots, pattern of elytral dfp consisting mainly of minute intercostal pits with at most few larger symmetrically arranged foveae. The geographical distribution of *Jadwiszczakia* sg.n. extends [maps 2, 3, 6] along the westernmost periphery of the genus' area from northern Siam and Laos to Java. The name is intended to honour my Friend, outstanding but no more active expert in ladybird (**Coccinellidae**) taxonomy, Andrzej JADWISZCZAK, whose interest, skill, and knowledge has unfortunately been (as in case of so many others...) overcome by the existential and formalistic realities of the Splendid New World.

Key to species of the subgenus *Jadwiszczakia* sg.n.

- 1 (4) Median sulcus of pronotum basally widened into broad prescutellar depression
- 2 (3) Labrum bronzed-brown, without median ridge. Median sulcus of pronotum rather deep and prominent throughout. Elytra with multitude of small dfp foveolae and two pairs of contrastingly larger spot *D. (s.str.) javanica* (C.G.)
- 3 (2) Labrum bright cupreous, ridged medially. Anterior part of pronotal median sulcus flattened, indistinct. Elytra covered with numerous small dfp foveolae, none of them being conspicuously larger than others *D. (s.str.) viridisparisa* THY.
- 4 (1) Median pronotal sulcus very shallow, indistinct, prescutellar depression reduced to small shallow fovea *D. (s.str.) vitalisi* BRG.

***Javanica*-circle**

***Dicercomorpha* (s. str.) *javanica* (C.G.)**

Buprestis javanica CASTELNAU et GORY 1836b:40

Material examined:

160 ex.: 13 ♂, 61 ♀, 86 ♂

Characters:

Males [13] 14.5×5.5 – 18.5×7; females [54] 16.5×5.5 – 23×8.5 mm. Brassy to bronzed-green, with four (two on each elytron) major and very numerous small (somewhat larger on lateral margins) elytral pulverulent dfp spots; also pulverulent and dfp are two spots on each metacoxa and one transverse at anterior angle of each sternite, and the same white pulverulence covers (at least in fresh specimens) bottom of each puncture, what gives the beetle characteristic farinose appearance. Front with network of irregular smooth elevated reliefs. Pronotum widest at midlength but only slightly narrowed to base; puncturation on disc coarse and dense, on sides very dense and irregularly confluent; median sulcus deep, entire; prescutellar fovea poorly differentiated; postapical depression and prehumeral foveae shallow

and inconspicuous. Elytral costae obliterated anteriorly; striae deep, continuous; interstriae narrow, convex. Anterior margin of prosternum semicircularly emarginate; prosternal process coarsely and rather densely punctured throughout; ocellate punctures of proepisterna moderately dense; ventral surface (except at middle of metasternum and 1. sternite) coarsely and rather densely punctured; apical margin of anal sternite narrowly rounded in female, broadly lamellar and somewhat emarginately truncated in male.



Map 6. Localities of *Dicercomorpha javanica* (C.G.)

Geographical distribution:

D. javanica (C.G.) is an endemic of Java [map 6]; the locality “Ceram” for one specimen in the NNHM is certainly erroneous.

Remarks:

D. javanica (C.G.) makes a well defined group with *D. viridisparsa* THY. and *D. vitalisi* BRG.: besides morphological affinities, the three species are also geographically closest, occupying – unlike the remaining members of the subgenus *Dicercomorpha* DEYR. s. str. – the “continental” (West of the Wallace’s Line) part of its area.

***Dicercomorpha* (s. str.) *viridisparsa* THY.**

Dicercomorpha viridisparsa THÉRY 1935b: 253

Material examined:

Holotype: “A. I. v. H., Solok” “*Dicercomorpha viridisparsa* Thery TYPE” [NNHM]

Characters:

Female [? – sex determined under assumption of the dimorphism in anal sternite as in *D. javanica* (C.G.)] 20.5×7.5 mm. Dull green with cupreous-bronzed shine on reliefs (especially on head, pronotum and sternum; no dfp spots on pronotum, very numerous small foveae (no major spots) on elytra, transverse spaces on metacoxae and at anterior angles of sternites. Front with coarse, highly elevated smooth reliefs and narrow dfp depressions between them. Pronotum widest at midlength, almost imperceptibly narrowed to base, much more strongly to apex; puncturation coarse, dense, confluent throughout, especially so on sides; median sulcus indistinct, prescutellar fovea broad; postapical depression shallow and inconspicuous, prehumeral foveae punctiform. Elytral costae anteriorly obliterated; striae consist of small dfp foveae separated by narrow smooth “bridges”; laterally striae confused; interstriae narrow, convex. Anterior margin of prosternum semicircularly emarginate; prosternal process coarsely and rather densely punctured; proepisterna with broad, irregular, ocellate punctures within network of smooth reliefs; sides of metasternum rather densely, rest

of ventral surface (except at middle of metasternum and 1. sternite) coarsely but somewhat sparser punctured.

Geographical distribution:

Known only from the holotype; Solok [map 3] is a locality on mid-western Sumatra.

Remarks:

Although green colouration, medially ridged labrum, indistinct median sulcus of pronotum, lack of major elytral spots, and punctures of striae replaced with dfp foveae, makes *D. viridisparva* THY. easily distinguishable, it is nevertheless so similar and closely related to *D. javanica* (C.G.), that had the single known specimen been found on Java I would rather consider it an individual variety of the latter; however, its geographical separation suggests that the above-mentioned morphological differences are of real taxonomic value.

Dicercomorpha (*s. str.*) *vitalisi* BRG.

Dicercomorpha vitalisi BOURGOIN 1922: 21

Material examined:

2 ♀

Characters:

Females [? – sex determined under assumption of the dimorphism in anal sternite as in *D. javanica* (C.G.)] [2] 20×7, 21×7.5 mm.. Pronotum cupreous, otherwise bright green with slight (head, elytra, prosternum) to strong (metasternum, abdomen) golden shine; no dfp spots on pronotum, very numerous small, inconspicuous pubescent foveae (no major spots) on elytra, lateral portions and transverse spaces along posterior margins of metacoxae, and indistinct anterolateral areas on sternites, similarly sculptured. Supraantennal and periocular carinae highly elevated, continuous, smooth; otherwise frontal reliefs rather indistinct among relatively broad dfp depressions. Pronotal sides very shallowly sinuate in posterior half, *ca.* as wide at base as at midlength, strongly roundedly tapering to apex; disc with moderately coarse and dense puncturation, sides with deep foveolate depressions within very irregular, dense network of smooth reliefs; median sulcus indistinct, prescutellar fovea small; postapical depression irregular and inconspicuous, narrowly sulciform; prehumeral foveae elongated, somewhat indefinite among coarse irregular reliefs. Elytral costae distinct almost to base; striae consist of rows of fine (sutorally) to very coarse (laterally) punctures; intercostal interstriae flat, with numerous small, shallow dfp foveae. Anterior margin of prosternum semicircularly emarginate; prosternal process coarsely and rather densely punctured; proepisterna with rather dense ocellate punctures; median parts of metasternum and abdomen sparsely punctured, otherwise ventral side with coarse and dense reticulate-punctate sculpture. Metacoxal denticle totally obliterated. Metafemur with well developed sulcus.

Geographical distribution:

D. vitalisi BRG. is the only known continental [map 2] representative of *Dicercomorpha* DEYR.: BAUDON (1966) reported it from Laos, while the specimens examined by me come from northern and southern Siam.

Remarks:

BOURGOIN (1922) considered his new species closely related to “*D.*” *cupreomaculata* SND., to which, indeed, it shows superficial similarity. Closer examination, however, reveals some important differences in structure of pronotum (median sulcus, prehumeral foveae), elytra (number of striae, distribution of dfp spaces), ventral side (almost regularly convex metasternum and 1. sternite, deeply striatomarginate prosternal process), and femoral sulci (weak on posterior, almost absent on anterior legs) strongly suggesting the removal of “*Dicercomorpha*” *cupreomaculata* SND. to a separate genus (*Zoolrecordia* HOL.). In fact, the closest relatives of *D. vitalisi* BRG. are *D. javanica* (C.G.) and, especially, *D. viridisparva*

THY., from which it differs in bright colouration, small prescutellar fovea and barely indicated median sulcus on pronotum, flat interstriae and some other details.

Zoolrecordia HOL.

Type-species: *Dicercomorpha cupreomaculata* SAUNDERS 1867a

General characteristics:

The type-species of this subgenus used to be placed in *Dicercomorpha* DEYR.; however, structure and ornamentation of elytra, striatomarginate prosternal process, sulcate median line of pronotum, and some other peculiarities make its separation at generic level warranted.

Zoolrecordia s.str.

Tristria HOLYŃSKI 2001a: 132-133 [nec STÅL 1873: 40, 80 (*Orthoptera*)]

Zoolrecordia HOLYŃSKI 2005: 7

Type-species: *Dicercomorpha cupreomaculata* SAUNDERS 1867a

***Zoolrecordia cupreomaculata* (SND.)**

Dicercomorpha cupreomaculata SAUNDERS 1867a: 306

Material examined:

[?Holo-]type: "T" "Type" "Laos, Mouhot" "Saunders 74.18" [1 ex. (BMNH)]; "TYPE?" "TYPE" "Mouhot" "Camboja" "Fry Coll. 1905.100" "*Dicercomorpha cupreomaculata* ES." [1 ex. (BMNH)]

?Syntype: "T" "Type" "Laos, Mouhot" "Saunders 74.18" [1 ex. (BMNH)]; "TYPE?" "TYPE" "Mouhot" "Camboja" "Fry Coll. 1905.100" "*Dicercomorpha cupreomaculata* ES." [1 ex. (BMNH)]

Additional material: 1♂

Characters:

Male [1] 17×5.5 mm. Dull golden-green with numerous small spots on elytra (each spot centered on a costa and extending on each side to neighbour interstria), as well as reliefs of pronotum and abdomen, violet-black; elytral dfp foveae and some other depressed areas golden-cupreous; legs green. Epistome rather shallowly, arcuately emarginate. Front flat; trapezoidal, not separated from epistome; sculpture consists of network of very prominent, sharply elevated, predominantly longitudinal smooth ridges and very densely but rather coarsely punctured depressions between them; periocular stripes not distinctly developed; no perceptible pubescence; vertex rather wide; eyes prominent, *ca.* 2× longer than wide. Pronotum wide; sides slightly, almost straightly convergent in basal half and much more strongly, roundedly so before midlength; anterior margin almost straightly truncated, base bisinuate with median lobe protruding to the level of slightly acute posterior angles. Disk convex, prebasal depression inappreciable, lateral carina very irregular but traceable almost to apex; base with deep punctiform fovea near each posterior angle; median line deeply, narrowly furrowed and densely, finely punctulate; broad space on each side of median furrow smooth, elevated, coarsely but sparsely punctured; lateral parts with rather irregular, large elevated reliefs and dense fine punctulation in between. Scutellum relatively large, trapezoidal, much wider than long, convex. Elytral sides obliquely truncated at humeri, then subparallel to midlength, strongly arcuately convergent to ⁶/₇ and deeply sinuate before apices; lateral margin smooth; external apical denticle sharp, sutural not prominent. Each elytron with six (sutural, 4 discal, and marginal) elevated costae, separated by 1, 2, 2, 2, and 2 interstriae; striae not continuously depressed, consist of dense rows of coarse punctures; interstriae (including costae) interrupted here and there with small dfp foveae. Anterior margin of prosternum deeply arcuately emarginated between two prominent denticles; prosternal process parallelsided to behind procoxae, then sinuately narrowed to broadly rounded apex; deep lateral striae extend to apex but remain separate, both narrow lateral rims and 4× wider median space absolutely smooth; proepisterna rather densely, very coarsely, regularly foveolate. Metasternum shallowly sulcate along median line, sparsely and finely

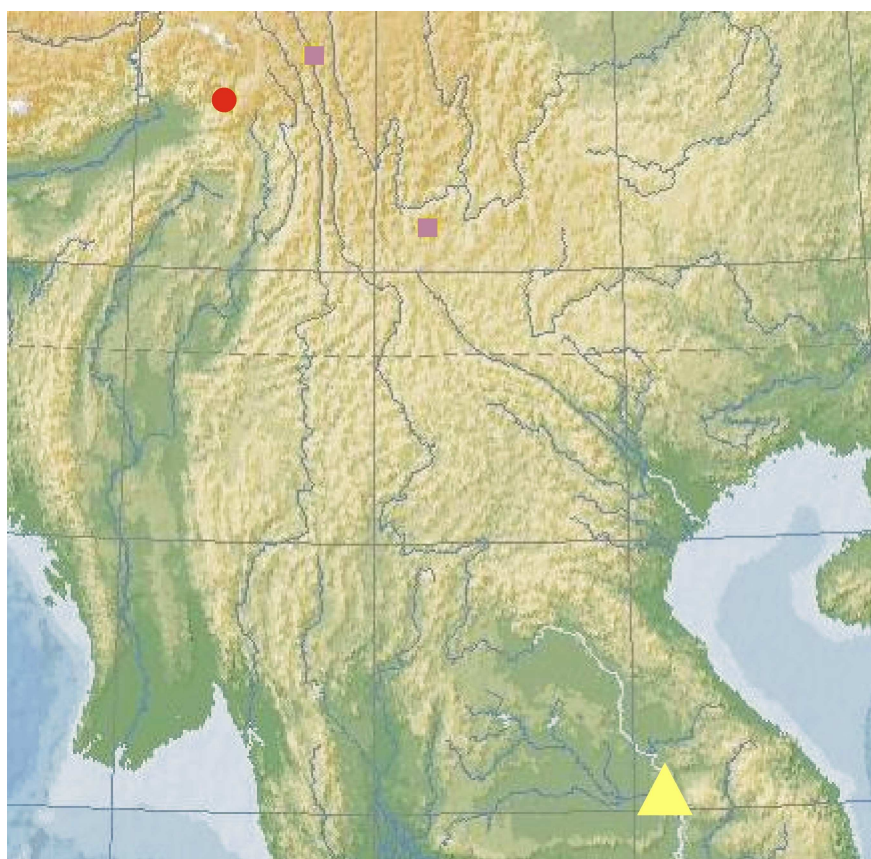
punctured on median parts, coarsely and rather densely, irregularly on sides; hind margin of metacoxae with but broadly rounded obtuse tooth at medial third. 1. sternite convex, median depression represented only by row of punctures on (otherwise smooth) intercoxal process, rest of surface – like that of 2., 3., and 4. segments – very densely and regularly, finely punctulate with some smooth elevated reliefs at sides; anal sternite coarsely and less densely punctured, truncate apically. Aedoeagus chestnut-brown.

Geographical distribution:

This apparently very rare species is known only from Cambodia, Laos and Siam [map 7], but I have not seen any more exactly labelled specimen.

Remarks:

SAUNDERS (1867a) mentioned only Laos as the type-locality, so the second “type” (that from “Camboja”) probably does not belong to the type-series.



Map 7. Localities of Zoolrecordia HOŁ. and Touzalinia THY.

▲ – *Z. cupreomaculata* (SND.), ■ – *T. psilopteroides* THY. s.str., ● – *T. belladonna* HOŁ.,

***Touzalinia* THY.**

Touzalinia THÉRY 1923: 256

General characteristics:

Small (one species with three subspecies) group, occupying the area at the junction of the Indian, Indochinese, and Chinese Provinces of the Indo-Pacific Region [map 7].

Key to species of the genus *Touzalinia* DEYR.

- 1 (2) Colouration (golden- to bluish-) green. Depressed areas on pronotum rather coarsely punctured *T. psilopteroides* THY.
- 2 (1) Colouration purplish-red. Pronotal depressions dfp *T. belladonna* HOŁ.

Touzalinia THY. s.str.

Touzalinia THÉRY 1923: 256

Type-species: *Touzalinia psilopteroides THÉRY 1923*

Psilopteroides-circle

Touzalinia psilopteroides THY.

Touzalinia psilopteroides THÉRY 1923: 256-257

Two subspecies have been recognized.

Key to subspecies of *T. psilopteroides THY.*

- a (b) Pronotal sides subparallel before base *T. p.siamensis D.V.*
b (c) Pronotal sides divergent before base *T. psilopteroides s.str.*

Touzalinia psilopteroides siamensis D.V.

Touzalinia psilopteroides siamensis DESCARPENTRIES et VILLIERS 1963: 264

Material examined:

None

Characters:

This form is unknown to me in nature. According to DESCARPENTRIES & VILLIERS (1963) it differs from nominotypical form in having sides of pronotum subparallel in basal part; puncturation of pronotal disc, elytra and ventral side finer; oblique pronotal depression closer to lateral margin; elytral apices more deeply emarginated; their external denticle longer and sharper; tubercles of the anterior margin of prosternum more prominent.

Geographical distribution:

The type locality quoted as “Thailand”; only the holotype seems to be known.

Remarks:

The validity of the differences quoted by DESCARPENTRIES & VILLIERS (1963) seems doubtful: all show considerable variability also within the Yunnanese population.

Touzalinia psilopteroides s.str.

Touzalinia psilopteroides THÉRY 1923: 256-257

Material examined:

?Paratype: “Paratype” “Pe-Yen-Tsin, Yunnan” “*Touzalinia psilopteroides THÉRY*, paratype, Théry det.” [1♂. (BMNH)]

??Paratype: “TYPUS” “1870” “Koll.D^r.A.Fr.v.Hoschek, Pe Yen Tsin, Yunnan” *Touzalinia psilopteroides Théry*, Det. Hoscheck. 192.” [1♂ (ZIRAN)]

Additional material: 9 ♂ + 8 ♀

Characters:

Males [10] 23.5×9 – 25×10, females [8] 23.5×9.5 – 29.5×11.5 mm. Bright green to dark bluish-green, sometimes with cupreous reflections on elevated surfaces (especially of pronotum and underside); elytral interstriae predominantly black, interrupted with numerous, coarse, green punctures. Some (worn?) specimens are (especially on dorsal side) virtually glabrous, but most are covered with not dense but long, whitish, erect pubescence. Epistome rather shallowly, arcuately emarginate. Front trapezoidal, not separated from epistome; very coarse sculpture consists of rather dense network of prominent, elevated, smooth ridges and very densely and coarsely punctured depressions between them; periocular stripes not distinctly developed; vertex wide; eyes prominent, *ca.* 2× longer than wide. Pronotum wide; sides slightly, somewhat sinuately divergent in basal third, and rather strongly, roundedly convergent anteriorly (the two sections meet usually at obtuse angle, frequently with blunt denticle at junction); apical margin rather deeply, basal shallowly bisinuate. Disk convex,

lateral carina not marked except at very base, sides viewed from above coarsely crenulate; basal depression shallow but distinct; pair of rather deep but very irregular and indefinite depressions at posterior third somewhat closer to sides than to midline, shallowly and still more irregularly obliquely extended to anterior angles; median line not distinguished or with very irregular, indistinct longitudinal relief bordered with pair of densely punctured stripes; otherwise sculpture very coarse and irregular, especially dense towards sides. Scutellum very small, usually trapezoidal or rounded. Elytra *ca.* 1.9× longer than wide; sides obliquely truncated at humeri, then subparallel to midlength, strongly arcuately convergent to $\frac{9}{10}$ and more or less deeply sinuate before apices; lateral margin crenulated due to interruption of marginal carina by coarse punctures; external apical denticle sharp but rather short, sutural not prominent. Striae deep, finely (medial) to very coarsely (lateral) densely punctured; interstriae equally convex, interrupted by coarse punctures. Anterior margin of prosternum deeply arcuately emarginated between two prominent denticles; prosternal process with deep lateral striae, narrow convex lateral rims smooth, 4× wider median space sparsely but very coarsely punctured; proepisterna with narrow, densely punctured depressions among very coarse, irregular, strongly elevated reliefs. Metasternum deeply sulcate along median line, sparsely and finely punctured on median parts, coarsely and rather densely, irregularly on sides; hind margin of metacoxae with very distinct though obtuse tooth at medial third. Sculpture of abdomen consists of very coarse and rather dense, more or less longitudinally confluent punctures; 1. sternite broadly and deeply depressed along midline; apex of anal segment arcuately emarginate in male, roundedly truncate in female. Aedoeagus chestnut-brown.

Geographical distribution:

The specimens of this race examined by me come from three localities in Yunnan: Pe-Yen-Tsin [=Yanfeng, 25°52'N-101°05'E], Djo-Kou-La [?29°01'N-98°36'E] [\[map 7\]](#), and Tche-Ping-Tcheou [?S-Yunnan] which I have been unable to localize.

Remarks:

The original description of *Touzalinia psilopteroides* THY. was based on one – apparently female (“*Dernier segment arrondi au sommet*”) – specimen of 27×12 mm.; THÉRY (1923) mentioned also one “*un peu plus petit*” male, which could be regarded as a paratype. However, it is not clear which – if any – of the “types” listed above is just the specimen in question [the Petersburg (ZIRAN) “Typus” is indeed a male somewhat smaller (23.5×9.5 mm.) than the holotype; unfortunately, having 20 years ago the opportunity to examine the London (BMNH) “paratype” I did not record either sex or measurements, but as that specimen has been labelled as paratype by THÉRY himself, the correctness of this identification seems more probable].

In describing *Touzalinia belladonna* HOL. (HOŁYŃSKI 1981) I had only one specimen of *T. psilopteroides* THY. for comparison; the study of more abundant material has shown, that some characters used then to distinguish the two forms from one another are in fact much less decisive or even simply invalid – for details see the “Remarks” on *T. belladonna* HOL.

Touzalinia belladonna HOL. *Touzalinia belladonna* HOŁYŃSKI 1981: 525-528

Material examined:

Holotype: “BURMA: Mishmi Hills. Lohit River. 1. iv. 1935.” “*Touzalinia belladonna* HOL. det R. Hołyński 1978” “*Touzalinia belladonna* HOŁYŃSKI HOLOTYPE” [♀ (RBH: BPb-f)]

Additional material: none

Characters:

Female [1] 29×11 mm. Bright purplish-red; elytral interstriae between interrupting punctures black; tibiae, tarsi, and some frontal, sternal and abdominal reliefs bluish-black; antennae purplish-black. Body throughout clothed with long, erect, white pubescence. Elytra

more distinctly “caudate”: sides subparallel before apices (decidedly convergent in nominotypical subspecies). Subhumeral and external apical denticles of elytra, as well as those flanking the emargination of the anterior margin of prosternum, more prominent. Otherwise as *T. psilopteroides* THY.

Geographical distribution:

The species is known only from the holotype, collected at the “triple joint” border area of India, China and Burma [map 7]: the label data seem erroneous, as Lohit does not enter Burma and Mishmi Hills do not extend beyond that river – the beetle has been evidently caught in India; the mistake is understandable, as in 1935 both the present state Arunachal Pradesh and Burma were parts of British India and the exact borders were not particularly important.

Remarks:

Neither THÉRY (1922), nor DESCARPENTRIES & VILLIERS (1963) make any mention of dorsal pubescence in the races described by them, and the specimen then in my disposition was also dorsally glabrous, so in 1981 I quoted this character as diagnostic for *Touzalinia belladonna* HOL.; additional material examined later (especially the series from KBIN) has shown, however, that *T. psilopteroides* THY. is either highly variable in this respect, or (more probably) the lack of pubescence is only an effect of wearing: several specimens are almost as hairy as the holotype of *T. belladonna* HOL.! Some other disparities listed in that paper have also proven either (*e.g.* colouration: distinct cupreous shine in many Yunnanese beetles) less contrasting, or (dorsal convexity of the body, shape of scutellum) not exceeding the range of individual variability. Nevertheless, in view of the combination of morphological differences and geographical isolation by series of high mountain ranges and deep river valleys, the reproductive isolation seems highly probable and specific distinction well corroborated.

PHYLOGENETIC RELATIONSHIPS

As in case of my other recent papers, phylogenetic reconstruction has been performed with MICSEQ – the program conceived, and as a basic procedure (“algorithm”) elaborated, by me (HOŁYŃSKI 2001c) and “translated” into several successively improved computerized versions by my Hungarian friend, Márton BERTY; alas, Márton worked on MICSEQ only in his spare time which soon became in too short supply to continue, so the version 5.2 from 2008 is the last available – and will probably remain so: I myself am not a computer programmer, and have not been successful in finding anybody wishing to finish what Márton had started. Fortunately, already in the presently used version all essential faults seem to have been eliminated, it only remains not so “user friendly” as it should be (*e.g.* initial “input” must be done “by hand” and is possible only with MICSEQ 4.1 from which it must then be “imported” to 5.2, &c.). So, although still somewhat cumbersome in handling, as regards its merits MICSEQ 5.2 works correctly.

Characters have been chosen, weighted and interpreted (as “ordered” or “unordered”) according to my – to use Albert EINSTEIN’s formulation (NEWTON 1996) – “*intuition supported by experience*”: so constructed initial data-matrix makes what can be treated as a kind of “null hypothesis” to be verified by the analysis. Also largely intuitive is the selection of outgroups (generic names written in CAPITALS, but the three included species of *Psiloptera DEJ.* serve, in fact, also as an outgroup); both the taxon-sampling (outgroups represented by single – only *Psiloptera DEJ.* by three – species) and character selection having been seriously “biased” towards making the analysis of the *ingroup* pattern most reliable, the “recovered” relationships between the outgroups must not be taken too seriously, and will not be further discussed.

Individually reliable, “solid” characters in the analysed groups are, unfortunately, rare – the majority of those used here must be evaluated as poor: difficult to define, overlapping, with frequent reversals and convergences. Although many scientists would prefer to neglect such traits and avoid to include them in the data-matrix, in my opinion this would mean unjustified loss of potentially useful information: as long as a feature passes, on the average, unchanged through more than every second node, it can improve the reconstruction and so should be used.

The uncertainties concerning outgroups shakes also the reliability of morphological characterization of common ancestor (**ZZ**) of the analysed taxa, so it could only be treated as an approximation allowing to begin the reconstruction of descendants. So, it (**ZZ**) can be described as big (>25 mm.), rather robustly built, uniformly bronzed beetle with dark labrum, no dfp spots or distinct pubescence on dorsal side; subparallelsided epistome, broadly trapezoidal front with short supraantennal carinae, rather narrow vertex; pronotum relatively narrow with basally subparallel sides, distinct oblique depressions but no smooth reliefs on sparsely punctured disk, long lateral carina, sides anteriorly not crenulate; small subequilateral scutellum; elytra slightly caudate, serrulate lateroapically, apices bidenticulate, strongly convex subequal interstriae between rows of coarse punctures, epipleura reaching to apices; anterior margin of prosternum emarginate, striatomarginate prosternal process sparsely, proepisterna densely punctured, metasternum medially sulcate, metacoxal denticle prominent but obtuse, no metacoxal but distinct abdominal dfp spots, 1. sternite regularly convex, 3. antennomere subequal to 4., 1. metatarsal joint not significantly longer than 2; male mesotibia simple, anal sternite without dfp, apex emarginate in male, rounded or truncated in female.

One (**XX**) of the descendant taxa developed also dorsally conspicuous pubescence, frontal sides less strongly divergent, sides of pronotum anteriorly crenulate, elytra markedly caudate and abdomen without dfp spots. It gave rise to **A** and **WW**, where **A** – the ancestral

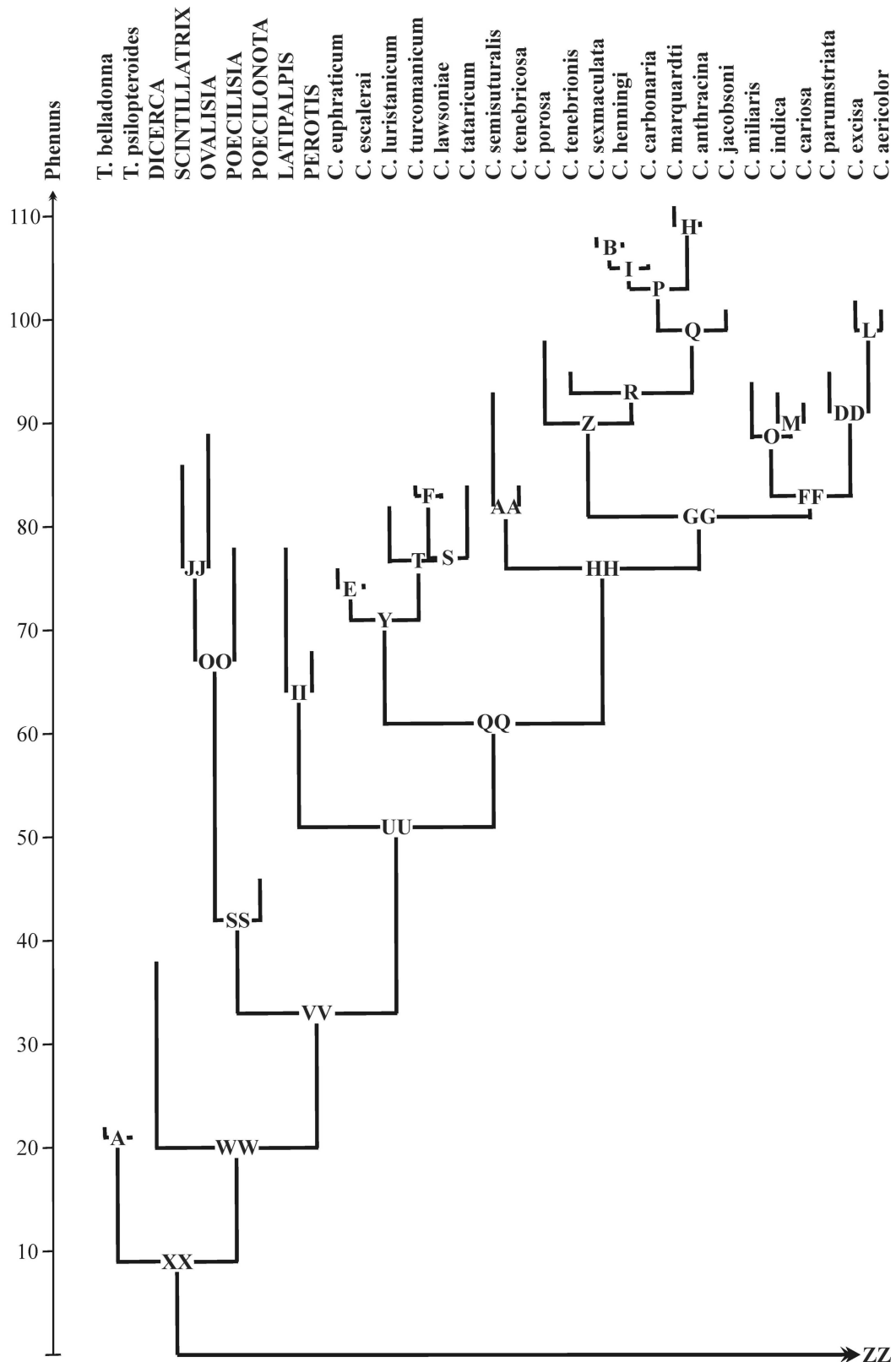
Touzalinia THY. – seemed identical to the recent *T. psilopteroides THY.*, which thus appears to be the paraphyletic “mother-“ rather than “sister-” taxon for *T. belladonna HOL.* *Touzalinia THY.* was intended as an element of the ingroup, but the analysis has placed it outside of a series of outgroups; this result must not be accepted without reservations (because of the above-mentioned not fully adequate treatment of outgroups), but both the position of this genus close to the roots of the **Dicercina** **GISTL** and relatively close affinity of *Cyphosoma MNNH.* to the *Perotis DEJ.-Latipalpis SOL.* clade looks quite conceivable. From the next three nodes (**WW**, **VV** and **UU**) only outgroup clades branched off, so we can start the detailed analysis from **QQ**. As to the biogeographical localization, **XX**, **WW** and **VV** had almost certainly lived in SE-Asia, but the ancestors of **UU** have apparently crossed the western border of the Indo-Pacific Region (or – as suggested by virtual lack of possible intermediates in India – by-passed it north of the Thibetan Plateau) to further evolve in Central Asia and (mainly eastern) Mediterranean.

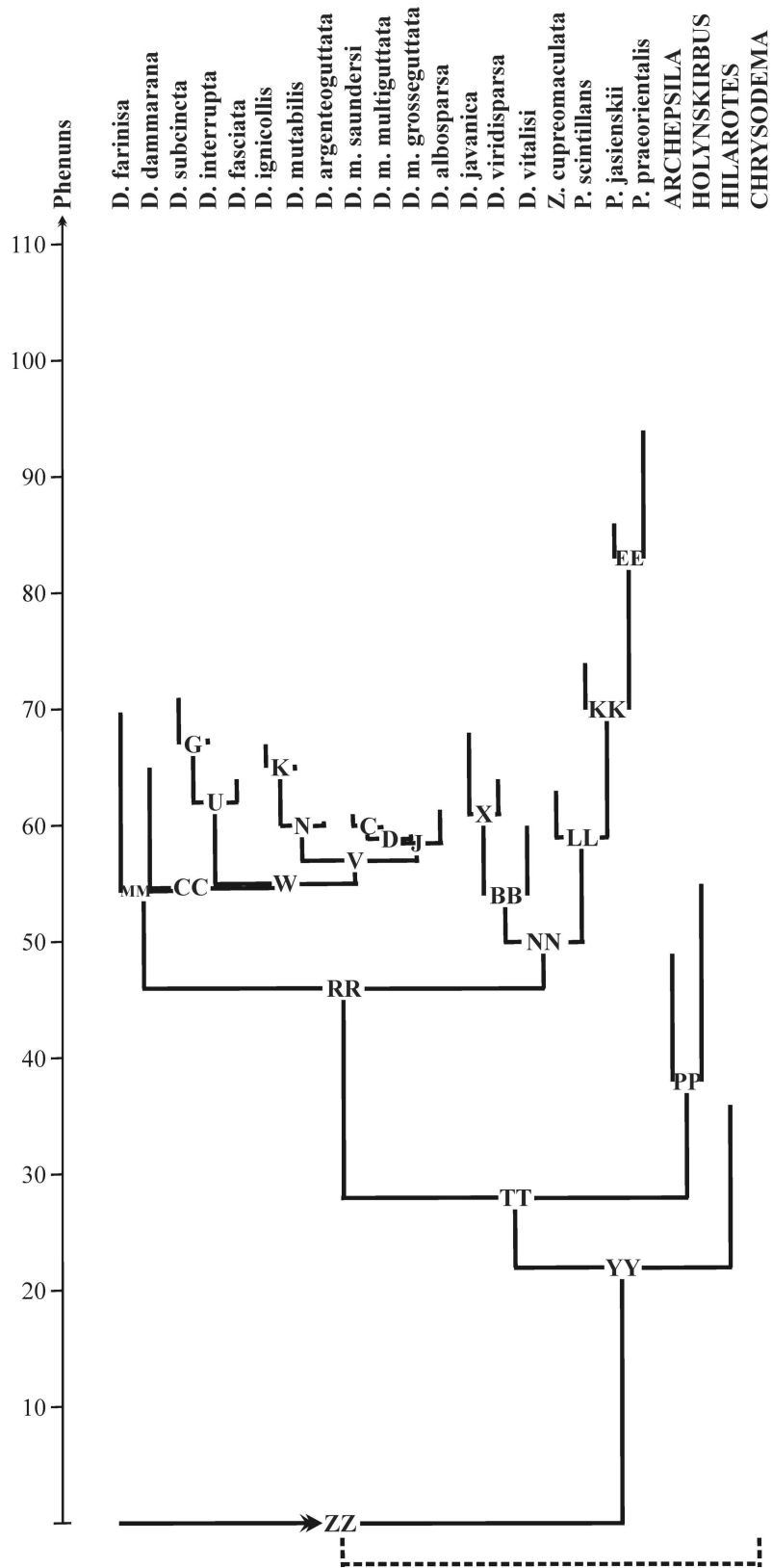
QQ was smaller and stouter than **XX**, inconspicuously pubescent, sides of epistome were expanded under antennal grooves, front but slightly widened downwards, pronotal sides deeply sinuate basally, disk densely and regularly punctured, without oblique depressions, median relief and additional smooth spot poorly developed, lateral carina not crenulate, lateroapical margins of elytra rounded, smooth, apex subtruncate, punctures in striae fine, interstriae flat, epipleura not reaching apex, metasternum flat, 1. sternite regularly convex, 3. antennomere subequal to 2. Its daughter taxa – **Y** and **HH** – were the ancestors of, respectively, *Cyphosoma MNNH.* and *Capnodis ESCH.*

Y differ from **QQ** in wider pronotum, extensive irregular dfp patches on elytra, continuously dfp abdominal margins and longer ($\approx 2.+3.$) 1. metatarsomere. In one of its descendants, Mediterranean **E**, vertex became very wide and midlateral pronotal spots prominent; it seems to have been identical to the recent *Cyphosoma escalerae OBB.*, which appears to be the paraphyletic “mother”-species of differing in loss of abdominal dfp *C. euphraticum (C.G.)*.

The sister-group of **E** was **T**, inhabiting apparently more eastern (Persia, Turkestan) areas and characterized by shallow sinuation of pronotal sides, no discal reliefsk, smooth lateral rim on prosternal process not bordered with stria and no metacoxal denticle. One of its descendants was *C. luristanicum RICHT.* (longer and slenderer, with moderately wide pronotum and striatomarginate prosternal process), the other, **S**, showing no apparent differences, was the ancestor of *C. tataricum (PALL.)* – sides of pronotum more rounded, midline slightly depressed, oblique dfp band double – and **F** (narrower pronotum, its shorter lateral carinae, coarser punctures in elytral striate, single elytral dfp band), which in turn seemed identical to *C. lawsoniae CHEVR.*, paraphyletic “mother” taxon whose northern populations evolved into yellow-pubescent *C. turcomanicum (KR.)*.

The apomorphies of **HH** (“proto-*Capnodis*”) were entire loss of dorsal pubescence, narrower pronotum moderately widened from base to midlength, pronotal disk with minute irregular callosities interspersed between dense puncturation, broad median and distinct midlateral reliefs, crenulate lateral margins, slightly caudate elytra, ocellate proepisternal sculpture and emarginate apex of male anal sternite. In one of its descendants, **AA**, pubescence became yellowish, vertex very wide, pronotal sides shallowly sinuate basally, median relief disappeared and metacoxal denticle almost so; it gave rise to somewhat larger *Capnodis tenebricosa (OL.)* with very fine elytral striae and *C. semisuturalis MARS.* characterized by depressed pronotal midline, lack of median relief, straight anterior margin of prosternum, undifferentiated sides of prosternal process and no metacoxal denticle [the biogeographical history of *Capnodis ESCH.* is, in view of broad and overlapping distribution areas of most species, difficult to disentangle, so I will restrict my comments to few seemingly evident cases].





GG – distinctive by its large size, more elongated body, black colouration and relatively narrower pronotum – split into **Z** (pronotal sides less divergent basally, lateroapical margins not crenulate, coarser punctures in elytral striae, no lateral stria or rim on prosternal process, metacoxal denticles right-angled) and **FF** (rows of punctures connected into entirely confluent elytral striae, apex of male anal sternite truncate). *C. porosa* (KL.) – pronotum regularly densely punctured, without median relief, elytra slightly caudate, no elytral dfp pattern – one of the descendants of **Z**, in previous analysis (HOŁYŃSKI 1999) appeared as hardly differing from the common ancestor of the genus; present reconstruction has not confirmed that result: the branches leading from **HH** to **GG**, and especially from **GG** to **Z** and from **Z** to *C. porosa* (KL.) are relatively long, and the respective support quotients (SQ=17/25, 17/20 and 12/19) not negligible. The “sister”-taxon of *C. porosa* (KL.) was **R** (somewhat smaller, of narrower pronotum with prominent midlateral smooth spots), the ancestor of *C. tenebrionis* (L.) with but slightly divergent frontal sides and obtuse metacoxal denticle, and of somewhat more differentiated (pronotal sides strongly divergent basally, prosternal process with smooth lateral rim, metasternum sulcate, apex of anal sternite truncate in male) **Q**. Increased width of vertex and middle parts of pronotum in Turkmenian populations of **Q** led to *C. jacobsoni* RICHT. [considered by RICHTER (1952) as “closest to *C. cariosa* PALL.”, but apparently showing affinity rather with *C. carbonaria* (KL.)], while the remainder evolved into **P** (body larger, pronotal sculpture with irregularly interspersed microcallosities, distinct median and midlateral reliefs).

One of the descendants of **P** developed striatomarginate prosternal process to become **I**, apparently identical to the recent *C. carbonaria* (KL.) *s.str.*, whose eastern populations lost (or retained only rudiments of) median pronotal relief evolving into **B** (showing, in turn no difference from *C. c. henningi* FALD.), which then spread still further east and developed medially sulcate metasternum as *C. c. sexmaculata* BALL. – so the latter appears to be a “daughter” of *C. c. henningi* FALD.) and “granddaughter” of *C. carbonaria* (KL.) *s.str.*! Also **H** (front but slightly widened downwards, pronotal sides strongly widened at midlength, elytral striae finely punctulated, prosternal process not striate laterally, metasternum flat) – the “sister”-branch of **I** – produced paraphyletic “mother-” [**H** \approx *C. anthracina* (F.-W.)] and “daughter-” (*C. marquardtii* RIT. – no pronotal median relief) species pair.

The sister-group of **Z** is **FF**, evolved from the common ancestor (**GG**) by the transformation of puncture rows into continuous elytral striae and apex of male anal sternite from emarginated into simply truncated. It gave rise to **O** (narrower vertex, wider pronotum, extensive irregular dfp patches on elytra) and **DD** (median pronotal relief entire, elytral interstriae convex, odd ones strikingly wider than even, metasternum medially sulcate, metacoxal denticle acute, distinct smooth reliefs on sides of sternites). **O** evolved further (by reduction of median relief of pronotum and loss of lateral stria of prosternal process) into *C. miliaris* (KL.) and (appearance of prominent midlateral pronotal spots) **M**, which in turn split into western *C. cariosa* (Pall.) with coarser elytral striae and right-angled metacoxal denticle, and eastern *C. indica* Ths. characterized by usually more or less cupreous colouration and disruption of elytral striae into rows of separate punctures. At last, easternmost populations of **DD** evolved into *C. parumstriata* BALL. (with prominent midlateral reliefs on pronotum, coarser striae and no dfp spots on elytra), while those distributed farther west changed (pronotal midline sulcate, very broad median relief triplicate, elytra strongly caudate, 1. sternite slightly longitudinally depressed, anal sternite with distinct dfp sulci) into **L**, apparently identical to near eastern (Sinai, Israel) *C. alfieri* THY. and so “mother”-taxon for both *C. excisa* MÉN. (interstriae flat, reversed to equal width) distributed in and around Persia, and cupreous Arabian *C. aericolor* BLAIR.

The second major branch in this reconstruction started from **YY**, characterized by green colouration, narrower vertex, sulcate midline and lack of oblique depressions on pronotum,

lateral carina not reaching midlength, smooth lateroapical margin of elytra, continuous elytral striae, ocellate sculpture of proepisterna, flat metasternum and truncate apex of male anal sternite. Side branches of **YY** and **TT** (very narrow vertex, sides of pronotum but slightly divergent basally, moderately coarse punctures in elytral striae, densely punctured spaces on proepisterna, no abdominal reliefs) lead to outgroups, so the detailed analysis can be started with **RR** (supraantennal carinae prolonged upwards, lateral carina of pronotum extending far beyond midlength, elytral striae represented by rows of separate punctures, odd interstriae costate, even ones depressed, anterior margin of prosternum bituberculate, sides of prosternal process undifferentiated).

The split between two descending branches looks rather unexpected: one (**NN** – slenderer body, no abdominal dfp, simply subtruncated apex of female anal sternite) leading to *Psiloptera* *DEJ.*, *Zoolrecordia* *HOL.* and *Javanica*-circle [*Jadwiszczakia* *sg.n.*] of *Dicercomorpha* *DEYR.*; the other (**MM** – black body, wide pronotum, mixture of large and small sharply delimited dfp spots on elytra, sulcate metasternum, broadly obliterated metacoxal denticle, rounded apex of male anal sternite) to the “bulk” of the latter genus, which thus appears as paraphyletic “mother”-taxon for the former two! The affinity of the *Javanica*-circle (**BB**) to the *Zoolrecordia* *HOL.* + *Psiloptera* *DEJ.* group rather than to the remaining *Dicercomorpha* *DEYR.* seems well supported (SQ=19/28 for **NN**) but, in view of poor (SQ=20/21 for **LL**) support for the association of *Zoolrecordia* *HOL.* with *Psiloptera* *DEJ.* and only “symbolic” (3 spp.) representation of the latter, such branching pattern must be treated with caution at least until the detailed analysis of the former genus (planned for another publication) has not been performed!

So, **NN** gave rise to **LL** (pronotum very narrow, lateral carina reaching to *ca.* midlength, prosternal process smooth at middle, striated laterally) and **BB** (coarse punctures in elytral striae, interstriae slightly convex, ocellate sculpture of proepisterna), and the descendants of **LL** were **KK** (“proto-*Psiloptera*” – vertex somewhat wider, pronotum subparallelsided in basal half, pronotal midline undifferentiated, apical margin of prosternum straight, no smooth reliefs on sides of sternites) and *Zoolrecordia* *HOL.* (one pair of additional dark spots on pronotum, metacoxal denticle broadly obliterated, sternites without smooth reliefs).

The first split within the *Javanica*-circle (**BB**) separated *D. vitalisi* *BRG.* (undifferentiated pronotal midline, broadly obliterated metacoxal denticle, sternites without reliefs) from **X** (basal part of pronotal sides shallowly sinuate, elytral interstriae alternately subcostate, metacoxal dfp spot prominent, sternites with lateral dfp depressions), the ancestor of but slightly differentiated (pronotal midline shallowly depressed, apex of anal sternite truncate in both sexes) *D. viridisparisa* *Thy.* and much further evolved (blackish-bronzed colouration, short supraantennal carinulae, moderately coarse punctures in elytral striae, small but well defined dfp spots) *D. javanica* (*C.G.*).

The “daughter”-clades of **MM** are extremely unequal: one consisting of single species, *Dicercomorpha* (*Mirolampetis*) *farinosa* *THS.* (unmistakable by its subparallelsided basal part of pronotum, very wide pronotal median and reduced midlateral relief, single additional spot, very fine punctures in elytral striae, and especially its regular longitudinal dfp vittae between prominent elytral costae), the other (**CC**) apparently not differentiated at all but ancestral to the 11 remaining taxa. Interestingly, the next split looks similar: on the one side well characterized (bronzed colouration, continuous elytral striae, simply emarginate anterior margin of prosternum, striatomarginate prosternal process, no abdominal dfp spots) *D. dammarana* *HOL.*, on the other non-differentiated **W**, the ancestor – through **U** (wider pronotum, coarsely punctured elytral striae, two transverse dfp bands, no metacoxal denticle, no abdominal reliefs) and **V** (white pubescence) of all the others.

Thus **MM=CC=W** appears to be the paraphyletic “mother”-taxon to four (*D. farinosa* *THS.*, *D. dammarana* *HOL.*, **U** and **V**) “daughters”! Very interesting is the biogeographic

history of this clade: the ancestral population seems to have inhabited the area between what is now Moluccas and Philippines; from there it expanded to the west – forming by the way increasingly distinctive peripheral forms at the successively overcome barriers [while the “stationary” Moluccan populations remained essentially unchanged – “*frontoactive evolution*” (see HOLYŃSKI 1999, 2011 for the introduction of the term)] – over almost entire classical (in the WALLACEAN sense) Oriental Region, but then must have withdrawn (outcompeted by the descendants of NN?) from all the continental (including Sunda Shelf) part, leaving only *D. farinosa* THS. on Andamans and *D. dammarana* HOL. in Lesser Sundas as the only surviving witnesses of the expansive phase of the group’s history.

U seems to have evolved from southern Moluccan populations of W – the occurrence of apparently relatively primitive (characterized only by three transverse fasciae composed of loosely associated dfp spots) *D. fasciata* WATH. on “*Philippine islds*” [old label of the only known specimen] needs verification; the Buruan population of its sister-taxon, G (no dfp pattern on pronotum or abdomen), apparently not differing from recent (Ceram and Amboyna) *D. interrupta* DEYR., has evolved into *D. subcincta* DEYR. (front markedly widened downwards, pronotal sides conspicuously divergent basally, single transverse dfp band on elytra).

The first split within V must have occurred between (northern?) Philippinean *D. [mutabilis* SND.]- (N: pronotal sides markedly divergent before base, large elytral dfp spots, flat metasternum) and northern Moluccan *D. [multiguttata* DEYR.]- (J: pronotum medially sulcate) superspecies. Recent *D. argenteoguttata* THS. (S-Luzon, Masbate, Panay, Mindoro, Palawan) was apparently identical to N, whose more northern populations (K: pronotum cupreous without anterolateral dfp spots) further evolved into *D. mutabilis* SND. (pronotum green) on N-Luzon and *D. ignicollis* sp.n. (pronotal midline sulcate, elytral striae finely punctulate) known only from two specimens collected on Mt. Limay (Bataan Peninsula flanking Manila Bay from the west).

Clade J is very compact, the terminal taxa differing only in minor details; it was only *D. albosparsa* (C.G.) which has evolved somewhat “away” (purplish epipleura, very small dfp foveolae on elytra) from the common ancestor, whereas the ancestral *D. multiguttata* DEYR. (D) and even its New Guinean subspecies *D. m. grosseguttata* THS. remained apparently unchanged, and only in N-Moluccan C=*D. multiguttata* DEYR. s.str. punctures in elytral striae became coarser and in its “daughter”, S-Philippinean *D. m. saundersi* KERR., colouration of pronotum changed to green.

The present reconstruction should be treated as merely a preliminary approximation, to be tested and supplemented by the planned another one, with Indo-Pacific *Psiloptera* DEJ. as the main targeted ingroup. Anyway, even the results presented above are, with two principal exceptions, generally in agreement with the taxonomy-based expectations; the exceptions (somewhat contra-intuitive positions of *Touzalinia* THY. and *Javanica*-circle of *Dicercomorpha* DEYR.) do not seem unconceivable, but more probably are – at least partly – a result of confusing influence of biased character- (and, as regards *Psiloptera* DEJ., taxon-) sampling for outgroups.

Interesting (but not unexpected) is the high frequency of apparent paraphyly: in 14 of the 40 (35%) ingroup nodes one of the pair of descendants shows no demonstrable differences from their common ancestor, *i.e.* appears to be rather “mother” than “sister” taxon of the other! The majority of such situations concern terminal taxa [*Touzalinia psilopteroides* THY.→*T. belladonna* HOL., *Cyphosoma escaleraei* OBB.→*C. euphraticum* (C.G.), *C. lawsoniae* CHEVR.→*C. turcomanicum* (KR.), *Capnodis carbonaria* (KL.) s.str.→*C. c. henningi* FALD.→*C. c. sexmaculata* BALL., *C. anthracina* (F.-W.)→*C. marquardtii* RTT., *Dicercomorpha interrupta* DEYR.→*D. subcincta* DEYR., *D. argenteoguttata* THS.→K, *D. m. grosseguttata* THS.→*D. m. multiguttata* DEYR. s.str.→*D. m. saundersi* KERR., *D. m. grosseguttata* THS.→*D.*

albosparsa (C.G.]), but do occur also among “deeper” ancestors [*Cyphosoma* T→S] (arrows point from “mother” to “daughter” taxon; in *red* series of three “generations” – where the “daughter” of one taxon becomes itself the “mother” of another – are shown). Some “mothers” have more than one “daughter”: so, e.g., *Dicercomorpha multiguttata grosseguttata* THS. is (see above) the ancestor not only to *D. m. multiguttata* DEYR. s.str. but also to *D. albosparsa* (C.G.), while MM=CC=W had as many as four immediate descendants: *Dicercomorpha farinosa* THS., *D. dammarana* HOL., U and V. Of course I am aware that in some cases the identity may be rather apparent than real – some of these taxa might have been wrongly reconstructed or differed in non-morphological (or for other reasons not considered in the analysis) characters – but anyway paraphyletic origin seems to be rather common phenomenon.

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APPENDIX: Characters used in phylogenetic analyses

Codes and weights

Upper line – codes of character-states; [*bold italics*] – terminal automorphies

Lower line – weights (costs of transformation) [0↔1↔2=2: additively equidistant (distance between 0 and 1 the same (=2) as between 1 to 2, that between 0 and 2 = 2+2 = 4); abc↔de=1: equidistant between groups (a↔d=a↔e=b↔d=b↔e=c↔d=c↔e=1); (bcd) = 1: equidistant within group (b↔c=c↔d=b↔d=1)]

1. Body size – [*0*] <10; [*1*] 10-15; [*2*] 15-25; [*3*] >25
0↔1↔2↔3=1
2. Body proportions (L:W) – [*0*] <2.4; [*1*] 2.4-2.7; [*2*] 2.7-3.0; [*3*] >3.0
0↔1↔2↔3=1
3. Colour: elytra – [*n*] black; [*b*] bronzed; [*c*] cupreous; [*g*] green; [*v*] violaceous
(bcg)=1; bgv↔n=1; g↔v=1
4. Colour: pronotum – [*e*] concolorous; [*n*] black; [*b*] bronzed; [*c*] cupreous; [*g*] green
n↔b↔c↔g=1; nbcg↔e=2
5. Colour: spots – [*n*] none; [*s*] Scintillatrix-type; [*p*] Poecilisia-type
(spn)=2
6. Colour: epipleura – [*0*] concolorous; [*1*] purplish
0↔1=2;
7. Colour: labrum – [*0*] black or metallic; [*1*] pale brown
0↔1=3;
8. Pubescence: dorsal – [*0*] none; [*1*] inconspicuous; [*2*] distinct
0↔1=1; 1↔2=2
9. Pubescence: dfp – [*0*] white; [*I*] yellow
0↔1=2
10. Epistome: sides – [*0*] subparallel; [*I*] expanded before antennal grooves
0↔1=3
11. Front: supraantennal carinae – [*0*] normal, short; [*I*] prolonged upwards
0↔1=2
12. Front: proportions (BW:AW) – [*0*] <0.7; [*1*] 0.7-0.9; [*2*] >0.9
0↔1↔2=1
13. Vertex: width (V:H) – [*0*] <0.4; [*1*] 0.4-0.5; [*2*] 0.5-0.6; [*3*] >0.6
0↔1↔2↔3=1
14. Pronotum: proportions (MW:BW) – [*0*] <1.05; [*1*] 1.05-1.10; [*2*] 1.10-1.15; [*3*] 1.15-1.20; [*4*] >1.20
0↔1↔2↔3↔4=1
15. Pronotum: proportions (MW:L) – [*0*] <1.4; [*1*] 1.4-1.6; [*2*] 1.6-1.8; [*3*] 1.8-2.0; [*4*] >2.0
0↔1↔2↔3↔4=1
16. Pronotum: sides basally – [*0*] deeply sinuate; [*1*] shallowly sinuate; [*2*] straight; [*3*] rounded
0↔1↔2↔3=1
17. Pronotum: oblique depressions – [*0*] none; [*I*] distinct
0↔1=3
18. Pronotum: discal sculpture – [*0*] sparse; [*1*] with interspersed small callosities; [*2*] dense regular
0↔1↔2=1
19. Pronotum: midline – [*0*] undifferentiated; [*1*] shallowly and/or irregularly depressed; [*2*] sulcate
0↔1↔2=2
20. Pronotum: median relief or dark stripe – [*0*] undifferentiated or traces; [*1*] regular reduced; [*2*] regular entire; [*3*] triplicate
0↔1↔2↔3=1
21. Pronotum: median relief or dark stripe – [*0*] none or very narrow; [*1*] narrow; [*2*] broad; [*3*] very broad
0↔1↔2↔3=1
22. Pronotum: midlateral spots/ridges – [*0*] none; [*1*] reduced; [*2*] prominent
0↔1↔2=1
23. Pronotum: number of additional dark spots – [*0*] none; [*1*] 1; [*2*] 2; [*3*] >3
0↔1↔2↔3=1
24. Pronotum: anterolateral dfp spots – [*0*] none; [*I*] present
0↔1=3

25. Pronotum: lateral carina (length) – [0] <<midlength; [1] *ca.* midlength; [2] >>midlength
0↔1↔2=2
26. Pronotum: lateral carina (structure anteriorly) – [0] punctate; [1] crenulate
0↔1=2
27. Scutellum: proportions – [0] small; [1] large, transverse
0↔1=4
28. Elytra: lateroapical margin (shape) – [0] rounded; [1] straight; [2] slightly sinuate; [3] strongly caudate
0↔1↔2↔3=1
29. Elytra: lateroapical margin (structure) – [0] smooth; [1] serrulate; [2] denticulate/crenulate
0↔1=3; 1↔2=1
30. Elytra: apex – [r] rounded/subtruncated; [b] bidentate; [c] cryptotridentate; [t] tridentate
(rbt)=2; b↔c=1
31. Elytra: striae structure – [0] puncture rows; [1] continuous
0↔1=1
32. Elytra: punctures in striae – [0] none or very fine; [1] fine; [2] moderate; [3] coarse
0↔1↔2↔3=1
33. Elytral interstriae: width – [0] equal; [1] alternately unequal
0↔1=2
34. Elytral interstriae: elevation – [0] equal; [1] alternately unequal; [2] strikingly disparate
0↔1↔2=2
35. Elytral intercostate interstriae: convexity – [0] flat/depressed; [1] slightly convex; [2] subcareiform
0↔1↔2=1
36. Elytral dfp: type – [n] none; [f] interstitial foveae; [e] extensive patches; [s] well defined spaces
(nfe)=2; f↔s=2
37. Elytral dfp: patches – [n] none; [i] irregular; [s] single oblique; [d] double oblique
(nis)=2; s↔d=1
38. Elytral dfp: spots – [p] perimarginal; [n] none; [s] small; [m] mixed; [g] large; [c] intercostal; [u] single transverse;
[d] two transverse; [t] three transverse
p↔n=2; n↔s↔m↔g = 1; g↔c = 2; u↔d↔t = 2; udt↔g=2
39. Epipleura: length – [0] reaching to apex; [1] ending far before apex; [2] none behind metacoxae
0↔1=2; 1↔2=1
40. Prosternal apex – [0] straight; [1] emarginate; [2] bituberculate
0↔1↔2=2
41. Prosternal process: sculpture medially (♀) – [0] smooth; [1] sparse; [2] dense
0↔1↔2=1
42. Prosternal process: border structure – [0] none; [1] lateral rim; [2] stria
0↔1↔2=2
43. Proepisterna: sculpture – [0] dense punctures; [1] isolated ocelli; [2] densely sculptured spaces; [3] reticulate
0↔1=2; 1↔2↔3=1
44. Metasternum – [0] flat/depressed; [1] sulcate
0↔1=1
45. Metacoxal denticle – [0] none; [1] broadly obliterated; [2] well marked, obtuse; [3] right; [4] acute
0↔1↔2↔3↔4=1
46. Metacoxal dfp – [0] none; [1] prominent
0↔1=2
47. 1. sternite – [0] regularly convex; [1] flat/inconspicuously depressed; [2] sulcate
0↔1↔2=1
48. Abdomen: lateral reliefs – [0] none; [1] distinct
0↔1=1
49. Abdomen: dfp – [n] none/indistinctive; [c] continuous; [s] spots
(ncs)=2
50. Antennae: 3. joint – [0] ≈ 2.; [1] ≈ 4.
0↔1=3
51. 1. metatarsomere: relative length – [0] ≈ 2.; [1] ≈ 2.+3.
0↔1=3
52. Male mesotibia – [0] simple; [1] angular protrusion
0↔1=3
53. Anal sternite: dfp sulci – [0] none; [1] distinct
0↔1=1
54. Anal sternite (male): apex – [0] rounded; [1] truncate; [2] emarginate; [3] bidenticulate
0↔1↔2↔3=1
55. Anal sternite (female): apex – [a] rounded or truncated; [n] notched; [b] binotched; [e] like in male
(anb)=2; anb↔e=1

Final character-matrix

		1		2		3		4		5		
		12345	67890	12345	67890	12345	67890	12345	67890	12345	67890	12345
Tbe - T.belladonna	31cen	00200	01202	21000	00000	1032b	13002	fnn22	12312	020n1	0002a	= 1
Tps - T.psilopteroides	31gen	00200	01202	21000	00000	1032b	13002	fnn22	12312	020n1	0002a	= 0
DIC - DICERCA	22bes	00200	02303	01010	00002	1030b	00000	fnn01	21012	020n0	0103b	=18
OSC - SCINTILLATRIX	11ges	00000	11002	31201	10001	0121t	00000	nnn21	12110	000n1	0002e	=10
OOV - OVALISIA	00ven	00000	11103	30201	00001	0111r	02000	nnn11	10100	000n1	0003e	=13
OPO - POECILISIA	13bep	00000	11210	21201	00001	0121b	02000	nnn21	20002	001n1	0003e	=11
POE - POECILONOTA	21bes	00001	11212	01001	10002	0021b	01001	fnn01	12000	020n1	0003n	= 4
LAT - LATIPALPIS	22gen	00201	01202	20200	00002	0011b	02000	nnn00	12312	021n1	0003n	=14
PER - PEROTIS	20gen	00201	01102	20201	00002	0000r	11000	nnn00	02312	020n1	0001a	= 4
Ceu - C.euphraticum	10ben	00101	02303	00201	02102	0000r	01000	ein11	12002	000n0	1001a	= 2
Ces - C.escalerai	10ben	00101	02303	00201	02102	0000r	01000	ein11	12002	000c0	1001a	= 0
Clu - C.luristanicum	21ben	00101	02202	10200	00002	0000r	01000	ein11	12001	000c0	1001a	= 5
Ctu - C.turcomanicum	10ben	00111	02203	00200	00001	0000r	02000	esn11	11001	000c0	1001a	= 1
Clu - C.lawsoniae	10ben	00101	02203	00200	00001	0000r	02000	esn11	11001	000c0	1001a	= 0
Cta - C.tataricum	10ben	00101	02223	10210	00002	0010r	01000	edn11	11001	000c0	1001a	= 7
Css - C.semisuturalis	10ben	00011	02321	10110	01102	1020r	01000	fnn10	10100	000n0	0002a	=11
Ctc - C.tenebricosa	20ben	00011	02321	10100	21102	1020r	00000	fnn11	12101	000n0	0002a	= 2
Cpo - C.porosa	31nen	00001	01211	00200	01102	0010r	02000	nnn11	10103	000n0	0002a	= 7
Ctn - C.tenebrionis	21nen	00001	02212	00101	22102	0020r	02000	fnn11	10102	000n0	0002a	= 2
Csx - C.sexmaculata	31nen	00001	01232	00200	01102	0020r	02000	fnn11	12103	000n0	0001a	= 1
Che - C.henningi	31nen	00001	01232	00200	01102	0020r	02000	fnn11	12113	000n0	0001a	= 0
Ccb - C.carbonaria	31nen	00001	01232	00201	11102	0020r	02000	fnn11	12113	000n0	0001a	= 0
Cma - C.marquardtii	31nen	00001	02242	00200	01102	0020r	01000	fnn11	10103	000n0	0001a	= 2
Can - C.anthracina	31nen	00001	02242	00201	11102	0020r	01000	fnn11	10103	000n0	0001a	= 0
Cja - C.jacobsoni	21nen	00001	01341	00101	22102	0020r	02000	fnn11	11113	000n0	0001a	= 2
Cmi - C.millarisi	31nen	00001	01122	00101	11102	1020r	11000	ein11	10102	000n0	0001a	= 5
Cin - C.indica	31cen	00001	01122	00101	22102	1020r	01000	ein11	12102	000n0	0001a	= 3
Ccr - C.cariosa	31nen	00001	01122	00101	22102	1020r	12000	ein11	12103	000n0	0001a	= 2
Cpa - C.parumstriata	31nen	00001	01221	00102	22102	1020r	12101	nnn11	12114	001n0	0001a	= 4
Cex - C.excisa	31nen	00001	01221	00123	31102	1030r	11000	fnn11	12114	011n0	0011a	= 3
Cal - C.aericolor	31cen	00001	01221	00123	31102	1030r	11101	fnn11	12114	011n0	0011a	= 2
Dfr - D.farinosa	21nen	00000	11004	20022	31102	0020b	00120	snc02	10211	021s1	0000e	=15
Dda - D.dammarana	21ben	00010	11013	10010	00012	0020b	12010	snm01	12111	121n1	0000e	=10
Dsu - D.subcincta	21nen	00010	10022	10010	00002	0020b	03010	snu02	10110	120n1	0000e	= 4
Din - D.interrupta	21nen	00010	11012	10010	00002	0020b	03010	snd02	10110	120n1	0000e	= 0
Dfs - D.fasciata	21nen	00010	11012	10010	00012	0020b	03010	snt02	10110	120s1	0000e	= 2
Dig - D.ignicolis	21ncn	00000	11023	10020	00002	0020b	01010	sng02	10102	121s1	0000e	= 2
Dmu - D.mutabilis	21ngn	00000	11023	10010	00002	0020b	02010	sng02	10102	121s1	0000e	= 1
Dar - D.argenteoguttata	21nen	00000	11023	10010	00012	0020b	02010	sng02	10101	121s1	0000e	= 0
Dms - D.saundersi	21gen	00000	10013	10020	00012	0020b	03010	snm02	10111	121s1	0000e	= 1
Dmm - D.multiguttata	21nen	00000	10013	10020	00012	0020b	03010	snm02	10111	121s1	0000e	= 0
Dmg - D.grosseguttata	21nen	00000	10013	10020	00012	0020b	02010	snm02	10111	121s1	0000e	= 0
Dal - D.albosparsa	21nen	10000	10013	10020	00012	0020b	02010	sns02	10111	121s1	0000e	= 3
Dja - D.javanica	22ben	00000	01012	10020	00002	0020b	02011	sns02	10102	121s1	0001a	= 7
Dvs - D.viridisparsa	22gen	00000	11012	10010	00002	0020b	03011	fnn02	10102	121s1	0001e	= 3
Dvt - D.vitalisi	22gen	00000	11012	20000	00002	0020b	03021	fnn02	10101	020n1	0001a	= 6
Zcu - Z.cupreomaculata	22gen	00000	11010	20020	00101	0020b	02120	fnn02	02202	011n1	0001a	= 4
Psc - P.scintillans	22gen	00000	10100	20000	00001	0020b	02020	nnn00	02201	020n1	0001a	= 4
Pja - P.jasienskii	22gen	00010	11102	20001	10002	0020b	12001	fnn00	02102	020n1	0001a	= 3
Ppr - P.praeorientalis	22nen	00010	11003	20000	00002	0010b	10000	fnn00	02003	020c1	0002a	=11
ARC - ARCHEPSILA	23bbn	00000	10102	00020	00000	1010b	12001	fnn00	12202	020c0	0000e	=11
HOL - HOLYNSKIRBUS	31cbbn	00000	10012	20020	00110	1010r	12002	nnn01	21302	121s0	0011e	=17
HIL - HILAROTES	22gen	01000	00101	20020	00000	0020c	13002	nnn21	02104	020n1	1001e	=14
CHR - CHRYSODEMA	33ben	01000	10201	21000	00002	0022r	03001	snp00	21011	120s1	1002a	
A	31gen	00200	01202	21000	00000	1032b	13002	fnn22	12312	020n1	0002a	=12 [1/38]
B	31nen	00001	01232	00200	01102	0020r	02000	fnn11	12113	000n0	0001a	= 2 [1/ 2]
C	21nen	00000	10013	10020	00012	0020b	03010	snm02	10111	121s1	0000e	= 1 [1/ 2]
D	21nen	00000	10013	10020	00012	0020b	02010	snm02	10111	121s1	0000e	= 0 [1/ 3]
E	10ben	00101	02303	00201	02102	0000r	01000	ein11	12002	000c0	1001a	= 3 [2/10]
F	10ben	00101	02203	00200	00001	0000r	02000	esn11	11001	000c0	1001a	= 6 [2/ 9]
G	21nen	00010	11012	10010	00002	0020b	03010	snd02	10110	120n1	0000e	= 5 [2/ 9]
H	31nen	00001	02242	00201	11102	0020r	01000	fnn11	10103	000n0	0001a	= 6 [2/ 8]
I	31nen	00001	01232	00201	11102	0020r	02000	fnn11	12113	000n0	0001a	= 2 [2/ 9]
J	21nen	00000	10013	10020	00012	0020b	02010	snm02	10111	121s1	0000e	= 2 [3/ 9]
K	21ncn	00000	11023	10010	00002	0020b	02010	sng02	10102	121s1	0000e	= 5 [3/ 7]
L	31nen	00001	01221	00123	31102	1030r	11101	fnn11	12114	011n0	0011a	= 8 [5/15]
M	31nen	00001	01122	00101	22102	1020r	11000	ein11	12102	000n0	0001a	= 1 [5/ 8]
N	21nen	00000	11023	10010	00012	0020b	02010	sng02	10101	121s1	0000e	= 3 [7/ 9]
O	31nen	00001	01122	00101	21102	1020r	11000	ein11	12102	000n0	0001a	= 6 [8/13]
P	31nen	00001	01232	00201	11102	0020r	02000	fnn11	11113	000n0	0001a	= 4 [8/ 9]
Q	21nen	00001	01232	00101	22102	0020r	02000	fnn11	11113	000n0	0001a	= 6 [8/10]
R	21nen	00001	01212	00101	22102	0020r	02000	fnn11	10103	000n0	0002a	= 3 [9/12]
S	10ben	00101	02203	10200	00002	0000r	01000	ein11	11001	000c0	1001a	= 0 [9/11]
T	10ben	00101	02203	10200	00002	0000r	01000	ein11	11001	000c0	1001a	= 6 [7/10]
U	21nen	00010	11012	10010	00012	0020b	03010	snd02	10110	120s1	0000e	= 7 [9/10]
V	21nen	00000	11013	10010	00012	0020b	02010	snm02	10111	121s1	0000e	= 2 [9/15]
W	21nen	00010	11013	10010	00012	0020b	02010	snm02	10111	121s1	0000e	= 0 [9/15]
X	22gen	00000	11012	10020	00002	0020b	03011	fnn02	10102	121s1	0001a	= 7 [10/14]
Y	10ben	00101	02203	00201	00102	0000r	01000	ein11	12002	000c0	1001a	=10 [11/26]
Z	31nen	00001	01211	00101	21102	0020r	02000	fnn11	10103	000n0	0002a	= 9 [12/19]

AA	10ben	00011	02321	10100	21102	1020r	01000	fnn11	12101	000n0	0002a	= 6	[13/20]
BB	22gen	00000	11012	20020	00002	0020b	03021	fnn02	10102	021n1	0001a	= 4	[14/15]
CC	21nen	00010	11013	10010	00012	0020b	02010	snm02	10111	121s1	0000e	= 0	[14/22]
DD	31nen	00001	01221	00102	21102	1020r	11101	fnn11	12114	001n0	0001a	= 8	[14/15]
EE	22gen	00010	11102	20000	00002	0020b	12000	fnn00	02102	020n1	0001a	=13	[15/19]
FF	31nen	00001	01221	00101	21102	1020r	11000	fnn11	12102	000n0	0001a	= 2	[15/17]
GG	31nen	00001	01221	00101	21102	1020r	01000	fnn11	12102	000n0	0002a	= 5	[17/20]
HH	10ben	00001	02221	00101	21102	1020r	01000	fnn11	12102	000n0	0002a	=15	[17/25]
II	20gen	00201	01202	20201	00002	0000r	01000	nnn00	12312	021n1	0001a	=13	[18/28]
JJ	11ges	00000	11102	31201	00001	0121t	02000	nnn21	10100	000n1	0003e	= 9	[19/24]
KK	22gen	00000	11100	20000	00001	0020b	02020	fnn00	02202	020n1	0001a	=11	[19/20]
LL	22gen	00000	11010	20020	00001	0020b	02020	fnn02	02202	021n1	0001a	= 9	[20/21]
MM	21nen	00000	11013	20020	00002	0020b	02020	snm02	10211	021s1	0000e	= 9	[19/27]
NN	22gen	00000	11012	20020	00002	0020b	02020	fnn02	10202	021n1	0001a	= 4	[19/28]
OO	21bes	00000	11212	21201	00001	0121b	02000	nnn21	10000	000n1	0003e	=22	[22/31]
PP	21bbn	00000	10012	20020	00000	1010b	12001	fnn01	12202	021s0	0001e	=10	[28/30]
QQ	10ben	00101	02202	00201	00102	0000r	01000	fnn11	12002	000n0	0001a	=10	[25/35]
RR	21gen	00000	11012	20020	00002	0020b	02020	fnn02	10202	021s1	0001e	=18	[26/38]
SS	21bes	00001	11212	01201	00002	0021b	01000	fnn01	12000	020n1	0003e	= 9	[29/32]
TT	21gen	00000	10012	20020	00000	0020b	12002	fnn01	12202	021s1	0001e	= 6	[28/30]
UU	20ben	00101	01202	00201	00002	0000r	01000	fnn01	12002	020n1	0001a	=18	[28/36]
VV	21bes	00001	01202	01201	00002	0020b	01000	fnn01	12002	020n1	0003a	=13	[27/29]
WW	21bes	00200	01202	01000	00002	1030b	01000	fnn01	12012	020n1	0003a	=11	[19/27]
XX	21ben	00200	01202	21000	00002	1032b	03002	fnn01	12012	020n1	0002a	= 9	[23/24]
YY	21gen	00000	00102	20020	00000	0020b	13002	fnn01	12102	020s1	0001e	=22	[19/22]
ZZ	31ben	00000	00202	21000	00002	0022b	03002	fnn01	12012	020s1	0002a		
Σ	21gen	00000	10002	20020	00000	0020b	13002	fnn01	12202	020s1	0001e		
	3 b	1	0	1	1	0	2	2	0	11	n	1	2a
										0			

Species used to represent outgroup taxa

- OOV** – OVALISIA: *Ovalisia (s.str.) purpuricollis* (HOSCH.)
OPO – POECILISIA: *Ovalisia (Poecilisia) gebhardti* (OBB.)
OSC – SCINTILLATRIX: *Ovalisia (Scintillatrix) limbata* (GEBL.)
POE – POECILONOTA: *Poecilonota variolosa* (PK.)
DIC – DICERCA: *Dicerca (s.str.) berolinensis* (HBST.)
LAT – LATIPALPIS: *Latipalpis (s.str.) plana* (OL.)
PER – PEROTIS: *Perotis xerxes* (MARS.)
HOL – HOLYNSKIRBUS: *Holynskirbus lesnei* (THY.)
ARC – ARCHEPSILA: *Archepsila esterensis* (OBB.)
HIL – HILAROTES: *Hilarotes nitidicollis* (C.G.)
CHR – CHRYSODEMA: *Chrysodema (Thymedes) flavicornis* SND.

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