

# *Procrustomachia*

Occasional Papers of the Uncensored Scientists Group

5, 3: 29-59

Milanówek

31 V 2020

ISSN 2543-7747

---

## Review of the [*Cyphogastra* DEYR.]-supergenous (Coleoptera: Buprestidae) II. The *Tinianica*-, *Armata*-, *Uxorismear*-, *Bruyni*- and *Flavimana*-circles

Roman B. HOLYŃSKI

PL-05822 Milanówek, ul. Graniczna 35, skr. poczt. 65, POLAND

e-mail: [rbholynski@gmail.com](mailto:rbholynski@gmail.com)

### Introduction

In the first part (HOLYŃSKI 2016) of the review I have outlined the hypothetical ways of evolution and current taxonomic differentiation of two small (respectively 1 and 5 species), evolutionarily basal “offshoots” of the [*Cyphogastra* DEYR.]-supergenous: genus *Pleiona* DEYR., and subgenus *Guamia* THY.; this and all the following “chapters” will successively treat the subgroups of the main lineage: the prolific subgenus *Cyphogastra* DEYR. *s.str.*

### Conventions

Like in my other publications (unless “corrected” by editors...), I follow the very useful conventions of applying (of course, except wordly citations, where the original form must be retained) SMALL CAPS to **all** [irrespective of context and full vs. abbreviated version: inconsistent use deprives the display of any sense!] personal family- (**not** given-) names, *italicizing* species- and genus-group names (as well as citations and words in languages different from that of the main text), and writing the suprageneric taxon-names in **Bold** [the latter is not a generally accepted custom, but is often important, as some of such names (*e.g.* of the subtribes **Buprestina** LEACH, **Melobasina** BÍLÝ or **Coraebina** BED.) are (or may easily become) “homonymous” (but valid!) with generic or subgeneric ones (*Buprestina* OBB., *Melobasina* KERR., *Coraebina* KERR.)]

Labels of type-specimens are quoted as exactly as possible, including *italics* and *handwriting* (both represented in my text by *italics*), CAPITAL LETTERS, SMALLCAPS, framing, colour of text and approximate colour of the label. Individual labels are quoted in quotation marks “”, a label glued on another label (frequent *e.g.* in KBIN) in  $\dashv \vdash$ , a label glued on another label on which still another has been glued in  $\dashv \vdash \dashv \vdash$  (so, some may look like “*abc*  $\dashv \vdash$  *def*  $\dashv \vdash$  *ghi*  $\vdash \dashv$ ”). Determination- and type-designation labels added by me are not cited: the former are white, in the form like “*Cyphogastra detecta* HOL., det. R. HOLYŃSKI” with year of determination written vertically on the left side; the latter red [for primary types], *e.g.* “*Cyphogastra detecta* HOLYŃSKI, HOLOTYPE” or green [for paratypes], *e.g.* “*Cyphogastra detecta* HOLYŃSKI, PARATYPE”.

New species will be described in detail, descriptions of others restricted to the characters potentially helpful in identification.

Length of body measured from anterior margins of eyes to elytral apices; length of elytra from anterior margin of scutellum; width of pronotum where it is the widest, width of elytra just behind subhumeral protuberances.

As usual, my phylogenetic reconstruction has been performed with MICSEQ – see HOLYŃSKI (2001) for the general outline of the algorithm with presentation and justification of basic assumptions, and HOLYŃSKI (2016) for the present state of its development and discussion of some aspects of the procedure.

**Explanation of terminology** (used generally in my publications, but not necessarily all terms in any particular paper)

**Epistomal ridge:** Arcuate or biarcuate keel running from one anterolateral angle of epistome to another behind its emarginated anterior margin at the supraepistomal border

**Supraepistomal carina:** transverse ridge above the frontoepistomal border

**Frontal depression:** median concavity of front, widest at epistome and tapering to or beyond the level of upper margins of eyes

**Anterior cavity of front:** deeper anterior part of frontal depression, more or less distinctly separated from the rest by oblique elevations

**Collar:** apical, constricted part of pronotum before truncation

**Truncation:** obliquely convergent part of pronotal sides between anterolateral angles and collar

**Anterolateral angle of pronotum:** angular bend between subparallel basal and abruptly oblique apical portion of sides

**Anterolateral fovea of pronotum:** small, often indistinct fovea near apical angle

**Anteromedian fovea of pronotum:** small, often indistinct fovea placed midlaterally at apical margin

**Anterior foveae of pronotum:** anterolateral and anteromedian

**Lateral margin of pronotum:** between base and anterolateral angle (exclusive of truncation)

**Fossae:** deep laterobasal depressions of pronotum

**Median depression of pronotum:** regular, rather deep concavity along midline

**Midlateral elevations of pronotum:** longitudinal elevations on disk to both sides of median depressions

**Prehumeral relief:** elevated fragment of pronotal surface at basal angles, surrounded anteromedially by fossae

**Shoulders:** humeral part of elytral sides (before subhumeral protrusion)

**Subhumeral protrusion/denticle:** moderately salient/prominently angularly protruding epipleural margin at humeri

**Caudate elytra:** of concave lateroapical margins and dorsal profile

**Abdominal plaque:** elevated surface of 1. sternite, posteriorly delimited by more or less vertical step separating it from the rest of abdominal surface

**Femoral brushes:** long and dense, [semi]erect pubescence on caudal surface of meso- and metafemora

**Midlateral:** lying at *ca.* mid-distance between median line and side margins

**Subrhomboidal:** quadrangular with two neighbour angles right or almost so and one of the opposite strongly obtuse

**Rhomboidally triangular:** quadrangular with one angle right or almost so, the opposite strongly obtuse, and the remaining two acute

**Phenon (pu):** unit of the “cost of transformation” between character states, *i.e.* of phenetic distance between analysed taxa: **1 pu** = distance between two neighbour traits in the transformation chain if the weight has been settled as 1

**Support quotient [SQ: su=x/y (in phenons):** rough estimator of “robustness” of particular pairing, where **x** is the “corrected distance” (at the relevant stage of analysis, *i.e.* when the pairing is being performed) between the paired taxa, and **y** – the shortest distance between any of them and any other remaining “in game”.

#### Abbreviations:

L	=	length
W	=	width
BW	=	basal width
AW	=	apical width
H	=	width of head with eyes
V	=	width of vertex between eyes
♂	=	sex unknown
BP***	=	( <i>e.g.</i> BPfnt): specimen-identifying signature
≈	=	approximately equal
[⊙],[⊙]	=	round type-label in BMNH
[ ]	=	in quare brackets data not specified on labels

#### Collection acronyms:

BPBM	=	Bernice P. Bishop Museum, Honolulu, USA
BMNH	=	Natural History Museum, London, ENGLAND
FRS	=	Forest Research Station, Bulolo, PNG
KA	=	Kôyô AKIYAMA, Yokohama, JAPAN
KBIN	=	Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels, BELGIUM
MCGD	=	Museo Civico di Storia Naturale „Giacomo Doria”, Genova, ITALY
MNHN	=	Muséum National d’Histoire Naturelle, Paris, FRANCE
NNHM	=	Nationaal Natuurhistorisch Museum, Leiden, HOLLAND
RBH	=	Roman B. HOLYŃSKI, Milanówek, POLAND
SB	=	Svatopluk BILÝ, Praha, CZECHIA

## Systematic review

**BUPRESTIDAE LEACH**  
**BUPRESTINAE LEACH**  
**BUPRESTINI LEACH**  
**CHRYSOCHROINA CAST.**  
***Cyphogastra* DEYR.**

***Cyphogastra* DEYR. s. str.**

*Cyphogastra* DEYROLLE 1864: 36-37

[type-species: *Buprestis foveicollis* BOISDUVAL 1835]

### Abbreviated key to the identification of circles of the sg. *Cyphogastra* DEYR. s. str.

- 1(20) No dfp sulci on apical half of elytra; if pronotum black then ventral side also black or fossae irregular with dfp bottoms entirely reduced or almost so
- 2(19) Elytral apices without any trace of cupreous-red; or fossae deep but irregular, not extending to anterior foveae, with bottom spaces not or but indistinctly dfp; or elytral sides arcuately narrowed to extreme apices
- 3(18) Body convex, elongated: L:W>3.0
- 4(17) Anteromedian angle of laterobasal relief definitely obtuse or totally obliterated, pronotal fossae irregular or c-shaped, never broadly ovate, with at most very small dfp areas; or, if extensively dfp and/or anteromedian angle of relief right, then anterior foveae well developed and at least one of them obliquely elongated, joining fossa or but narrowly separated from it. If body black then either tarsi yellow, or pronotal sides convergent, anterolateral angles not protruding, or elytra finely sculptured
- 5(16) Fossae shallow, poorly defined, not dfp; if deep but irregular and dfp bottom areas strongly reduced, then elytra definitely caudate, unicolorous (except bluish-black extreme tips), concolorous with pronotum; if dorsal side black then tarsi dark or abdominal sides entirely broadly dfp
- 6(15) Elytra markedly caudate
- 7(14) Fossae deep, irregular, or dfp and extending anterad to include anterior foveae
- 8(13) If fossae extensively dfp, then connected (or almost so) to anteromedial foveae
- 9(10) Fossae deep, c-shaped, partly dfp. Anterolateral pronotal angles protruding outwards  
..... ***Tinianica*-circle**
- 10 (9) If pronotal fossae c-shaped and partly dfp, then anterolateral angles not protruding
- 11(12) Tarsi yellow ..... ***Uxorismeeae*-circle**
- 12(11) Tarsi dark ..... ***Bruyni*-circle**
- 13 (8) Fossae c- or upturned L-shaped, extensively dfp, connected to well developed anterolateral foveae ..... ***viridis*-group**
- 14 (7) Fossae shallow, poorly defined, not dfp ..... ***Armata*-circle**
- 15 (6) Elytra not or indistinctly caudate ..... ***Flavimana*-circle**
- 16 (5) Fossae deep but irregular, not extending to anterior foveae, with bottom spaces not or but indistinctly dfp. Elytra either multicolorous, or differing in colour from pronotum, or but slightly (if at all) caudate, metallic (green, bronzed or cupreous) with bluish suture and/or black extreme tips; if dorsal side uniformly black and tarsi yellow then lateral dfp areas on abdomen longitudinally divided into marginal and midlateral stripes ..... ***Tuberculata*-, *Satrapa*-, *Javanica*-circles**
- 17 (4) Fossae extensively dfp on bottoms, either right-angledly (in form of upturned L-square) bent, not extending to anterior foveolae, leaving anteromedian angles of

- laterobasal reliefs approximately right; or very large and ovate, broadly extending to anterior margin, with laterobasal reliefs reduced to triangular widening of lateral ridge. Anterior foveae lacking or inconspicuous, not joined to fossae, or body [bluish-]black, tarsi dark, pronotum parallelsided with prominent anterolateral angles, and elytra coarsely punctured .....  
 ..... *Punctatissima*-, *Lansbergei*-, *Mniszechi*-, *Albertisi*-, *Caudata*-circles  
 18 (3) Body flattened, wide: L:W<3.0 ..... *Collarti*-circle  
 19 (2) Elytral apices more or less extensively cupreous; fossae right-angled, extensively dfp; elytral sides sinuately or at most straightly tapering to apices .... *Gloriosa*-circle  
 20 (1) Apical half of elytra with longitudinal dfp depressions, or pronotal fossae in form of upturned L-square with bottoms extensively dfp, pronotum piceous-black and ventral side metallic ..... *Kampeni*-, *Canaliculata*-, *Ventricosa*-, *Venerea*-, *Pistor*-circles

### ***Tinianica*-circle**

**Remarks:** The systematic placement of this monotypic circle is rather enigmatic: morphologically it seems somewhat intermediate between the *Auripennis*-circle of sg. *Guamia* THY. (waxy lustre, elytra narrowed from before midlength, their lateroapical margin not denticulate) and *Armata*-circle of *Cyphogastra* DEYR. s.str. (prominent anterolateral pronotal angles, high abdominal plaque); in view of the results of preliminary phylogenetic reconstruction (HOLYŃSKI 2016) I decided to include it among the latter, but the occurrence in Mariana Arch., otherwise inhabited only by members of the latter, suggests that this classification may eventually not prove adequate.

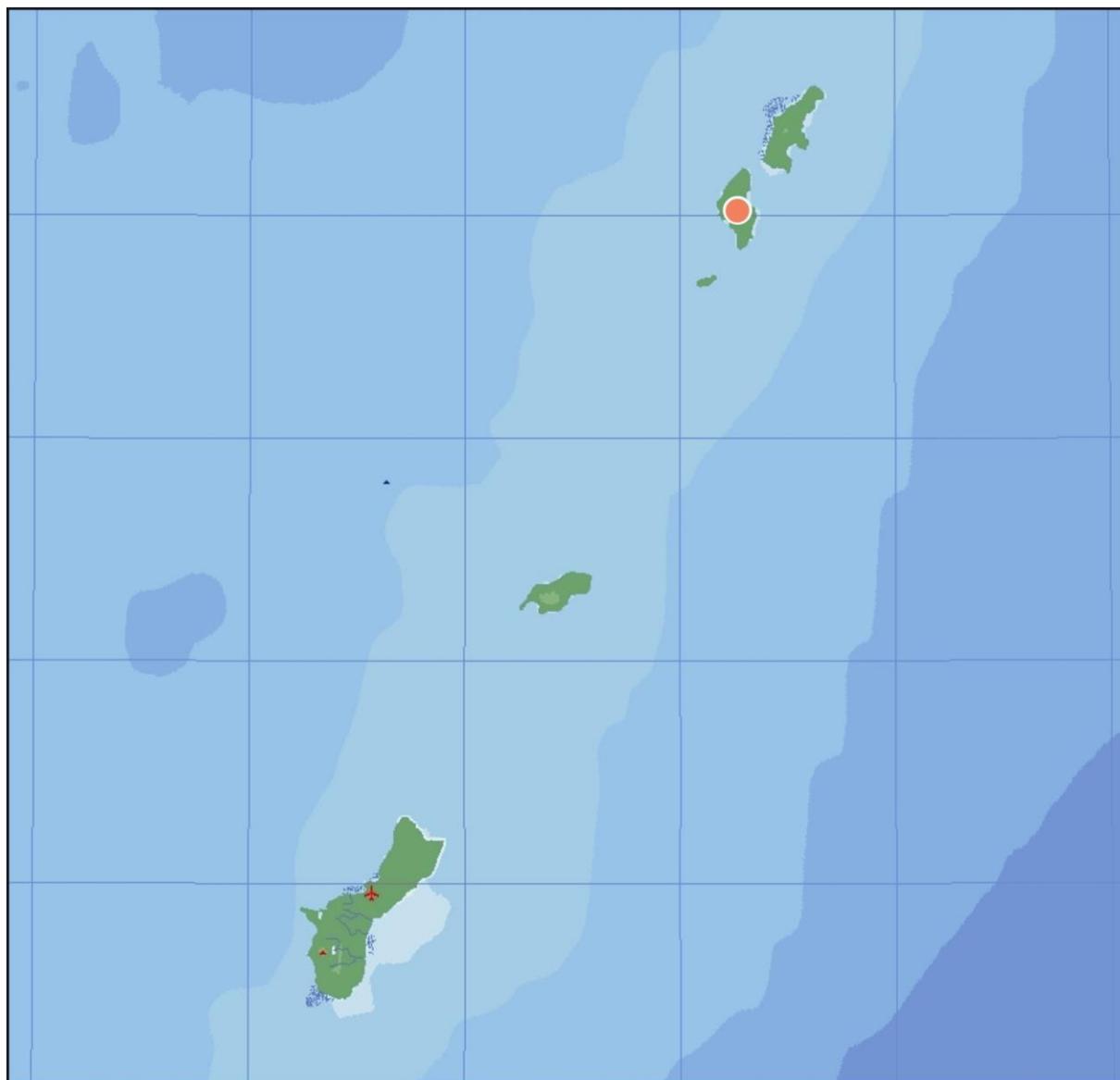
#### ***Cyphogastra* (s.str.) *tinianica* KUR.**

*Cyphogastra tinianica* KUROSAWA 1953: 37-39

**Material examined:** 4 ♂

**Characters [Fig. 1]:** Males [4] 17×5.5 – 21.5×7. Oily bronzed to bronzed-green, gradually becoming blackish towards apex of abdomen; antennae and tip of 5. tarsal joint piceous-brown, tarsi otherwise testaceous. Body glabrous except “brush” of white setae projecting anterad from sides of anterior pronotal margin, and fine white-pulverulent pubescence in dfp depressions. Frontal depression delimited anteriorly by irregular ridge, laterally by longitudinal (narrow and high on frontal part, broad and indefinite on vertex) elevations (lying twice closer to eyes than to median line); coarsely furrowed along midline; with pair of deep, longitudinally triangular dfp depressions in anterior half and similar but smaller and less distinct pair at vertex; oculo-frontal groves deep and wide, reaching to middle of upper margins of eyes; elevated surfaces of head practically impunctate. Apical margin of pronotum deeply sinuate to both sides of straightly truncated median lobe; anterior angles sharply acute in dorsal aspect; collar very well defined, almost parallelsided; truncation very deeply sinuate; anterolateral angles prominently tuberculate, delimited from behind by deep angular incision; fossae deep, more or less regularly c-shaped, partly or entirely dfp; anterolateral foveae barely discernible, anteromedians distinct; pronotal punctulation fine and very sparse. Elytra 2.2 times longer than wide, subparallelsided in anterior <sup>2</sup>/<sub>5</sub>, sinuately tapering behind to narrowly truncate apices; subhumeral protrusion barely discernible; lateroapical margin smooth, with only small but prominent sutural denticle; perihumeral depressions small, surface otherwise regularly convex, covered with dense longitudinal rows of rather fine punctures poorly perceptible among dense irregular wrinkles. Each proepisternum crossed by two parallel, oblique, deep dfp grooves, otherwise impunctate; dfp also narrow median furrow of prosternal process, oblique depression on each side of metasternum, transverse sulcus on metacoxa, lateral margins of sternites, and midlateral

abdominal vittae formed by spots at anterior margins of 1.-4. segments and continuous stripe on anal sternite; elevated surfaces of ventral side very sparsely, finely punctured. Abdominal plaque prominent (hind wall higher than its distance from apical margin of 2. sternite), obtuse-angled in profile; apex of anal segment deeply paraboloidally emarginated. Male genitalia narrowly ligulate, light ferrugineous; tip of penis broadly rounded.



**Map 1**

Geographical distribution of *C. tinianica* KUR.

**[here and on other maps]:**

markings encircled thin black – exact localities; thick white encircling – general area (exact locality unknown); black puncture at middle – probably erroneous data

**Geographical distribution [map 1]:** Apparently endemic to Tinian I. in the Mariana Archipelago.

**Remarks:** The combination of small size, partly dfp bottoms of pronotal fossae, short parallelsided portion of elytra, its non-denticulate apices, yellow tarsi, &c. makes this species easy to recognize.

### *Uxorismeae*-circle

**Remarks:** Monotypic group, designed to accommodate *C. uxorismeae* HOL., a probably relatively basal (close to the ancestor of the subgenus) species amalgamating characters of several (*Armata*-, *Bruyni*-, *Tuberculata*-) circles and thus impossible to include in any.



**Fig. 1**  
*C. tinianica* KUR.  
♂ [BPled], Tinian I.



**Fig. 2**  
*C. uxorismeae* HOL.  
HT ♂ [BPfoe]●, N.Guinea: Bulolo

### *Cyphogastra* (*s.str.*) *uxorismeae* HOL.

*Cyphogastra uxorismeae* HOŁYŃSKI 1994: 3-5

#### Material examined:

**Holotype:** “NEW GUINEA, Bulolo, XII.1988” [♂ (RBH: BPfoe)]

**Paratypes:** “on ground, Rd. 6. Long is. ck., Bulolo, m. prov. 25.IV. 1968, Simon” [1♀ (RBH: BPfnt)]; “Bulolo, P.N.G., I.1987” “Akiyama Collection” [3♂, 2♀ (KA), 1♂ (RBH: BPfnt), 1♀ (RBH: BPfnt)]; “Bulolo, P.N.G., I.1987” “Coll. S. Bily” [2♂, 1♀ (SB)]; “NEW GUINEA, Bulolo, X.1988” [3♀ (RBH: BPfnw–fny)]; “NEW GUINEA, Bulolo, XII.1988” [6♀ (RBH: BPfnz–fod)]; “NEW GUINEA, Bulolo, I.1989” [1♂ (RBH: BPfok), 5♀ (RBH: BPfof–foj)]; “NEW GUINEA, Bulolo, II.1989” [1♂ (RBH: BPfoo), 3♀ (RBH: BPfol–fon)]

**Additional material:** 11♀

**Characters [Fig. 2]:** Males [5] 25×7.5 – 28×9 mm., females [32] 23×6.5 – 36.5×11.5 mm. Bluish- to golden-green above (elytra sometimes cupreous-bronzed, extreme tips of elytra dark blue), golden-cupreous to purplish-red below; last 2 (♀) or 3 (♂) sternites brownish-violaceous; tarsi testaceous. Body glabrous above; pubescence very fine and sparse, hardly discernible below. Pronotal sides markedly convergent, anterolateral angles not prominent; prebasal emargination of lateral margin shallow, limited anteriorly with angular “step”; fossae irregular, without any dfp spaces; anteromedian fovea deep, obliquely elongate; external not developed; pronotal punctulation coarse and dense along sides, fine and sparse on disk. Elytra strongly “caudate”; subhumeral protrusions distinct but broadly rounded; sculpture consists of fine, irregularly arranged punctulation, becoming still finer (but also distinct)

apically, only around humeri punctures are coarser and surface transversely rugose, while in postbasal depression very coarse, very irregular, longitudinal wrinkles dominate. Proepisterna coarsely, sparsely, shallowly punctured; abdominal plaque moderately prominent; midlateral dfp stripes not or barely discernible; otherwise abdominal punctulation sparse and rather coarse; anal sternite deeply and broadly, triangularly emarginate in ♂, narrowly rounded with minute incision at tip in ♀. Male genitalia light ferruginous, tips of parameres laterally paler, tip of penis sharply acute.

**Geographical distribution [Map 4]:** Seems restricted to middle and lower parts of the Bulolo/Watut valley and lowest Markham valley in northern New Guinea, but I have not been able to locate Parawanga – perhaps it is a misspelling of Paukwanga (6°06'S-147°31'E) on northern foothills of Saruwaged Range (Huon Pen.).

**Remarks:** Bright (green dorsal and cupreous-purplish ventral) body colouration; yellow tarsi; irregular not dfp pronotal fossae; strongly caudate, finely sculptured elytra with distinct subhumeral protrusions and no trace of dfp depressions; non-dfp proepisterna and only traces of dfp markings (rudimental midlateral stripes on sternites) elsewhere on ventral side, &c., make it as easy to recognize as difficult to classify.

### *Bruyni*-circle

**Remarks:** The *Bruyni*-circle groups species characterized by peculiar, more or less clearly obliquely sulcate form of pronotal fossae joining (or almost so) obliquely elongate anteromedian (but not anterolateral) foveolae, combined with uniformly (except dark bluish extreme tips) green or black, caudate elytra without dfp markings on apical half. Notwithstanding *C. atramentaria* KERR. (whose exact provenience remains unknown), the distribution of this group extends from North Moluccas along Northern coast of New Guinea to Astrolabe Bay area.



**Map 2**

Geographical distribution of the *Bruyni*-circle

- – *C. wallacei* DEYR.; ● – *C. dohertyi* KERR.; ● – *C. sulcicollis* KERR.; ● – *C. bruyni* LSB.
- [otherwise see [Map 1](#)]

**Key to the identification of species of the Bruyni-circle**

- 1 (8) Ventral side distinctly metallic: green, golden-bronzed or violaceous
- 2 (5) Sulcate structure of fossae poorly marked, sulci irregular, narrow, not or indistinctly dfp, usually broken; laterobasal reliefs poorly delimited but broad. No circumhumeral dfp stripes
- 3 (4) Elytral puncturation finer and sparser, punctures (at least on apical half) distinctly smaller than spaces between them. Dull- to brownish-green, dorsal side with oily lustre ..... *C. (s.str.) wallacei* THY.]
- 4 (3) Elytra coarsely and densely punctured, spaces between punctures narrower than their diameters. Bright green, lustre purely metallic ..... *C. (s.str.) dohertyi* KERR.]
- 5 (2) Fossae well developed, wide, extensively dfp; laterobasal reliefs barely wider than anterior part of lateral margins. Circumhumeral dfp stripes distinct
- 6 (7) Ventral side green to golden-cupreous..... *C. (s.str.) sulcicollis* KERR.
- 7 (6) Ventral side at least partly bluish-violaceous ..... *C. (s.str.) bruyni* LSB..
- 8 (1) Body black, ventral side with at most hardly appreciable brassy hue .....  
..... *C. (s.str.) atramentaria* KERR.

***Cyphogastra (s.str.) wallacei* DEYR.**

*Cyphogastra wallacei* DEYROLLE 1864: 41  
=*Cyphogastra latona* THÉRY 1923: 237-238

**Material examined:** 18 ex.: 1♂, 15♀, 2♂

**Characters [Fig. 3]:** Male [1] 27.5×8.5, females [15] 26×8 – 34×11 mm. Unicolorous green to greenish-bronzed above, extreme tips of elytra dark blue; tarsi dark with metallic lustre. Body above glabrous, below almost so except several small dfp spots (on proepisterna, sides of metasternum and abdomen, and metacoxae). Pronotal sides markedly convergent, anterolateral angles not prominent; fossae irregular, without any dfp spaces; anteromedian fovea deep, obliquely elongate; external not developed; pronotal puncturation coarse and dense along sides, fine and sparse on disk. Elytra definitely “caudate”; subhumeral protrusions not or but slightly indicated; sculpture consists of fine puncturation partly arranged into irregular rows. Proepisterna coarsely, shallowly, irregularly punctured; abdominal plaque well developed but rather low; midlateral dfp stripes entire on anal sternite but reduced to isolated foveae anteriorly; otherwise abdominal puncturation sparse and rather fine; anal sternite deeply and broadly, arcuately emarginate in ♂, narrowly rounded with minute incision at tip in ♀. Male genitalia light ferruginous.

**Geographical distribution [Map 2]:** The only member of the *Bruyni*-circle unquestionably allopatric in respect to all others: endemite of northern Moluccas – Halmahera and nearby islands (Ternate, Kasiruta, Mandioli, Batjan).

**Remarks:** Characterized within the circle by very irregular (no trace of dfp, oblique sulcus barely discernible and not joined to anteromedian fovea) pronotal fossae and dull colouration with oily lustre.

***Cyphogastra (s.str.) dohertyi* KERR.**

*Cyphogastra Dohertyi* KERREMANS 1911: 296

**Material examined:**

**Syntype:** “1644” “Coll. R.I.Sc.N.B., Nouvelle Guinée | Koll. Dr.A.Frh.v.Hoschek | Coll. Meyer-Darcis, Patria Humboldt Bay, Mus Tring |” | *dohertyi*, det. Hoscheck 194 | TYPUS | cf. *Ann.Soc.Ent.Belg.* 1911, 55: 296 | [Syntype] |” “*Dohertyi* Kerr., Théry det.” [♀ (KBIN)]

**Additional material:** 34♂, 52♀



**Fig. 3**  
*C. wallacei* LSB.  
♀ [BPeiy], Halmahera



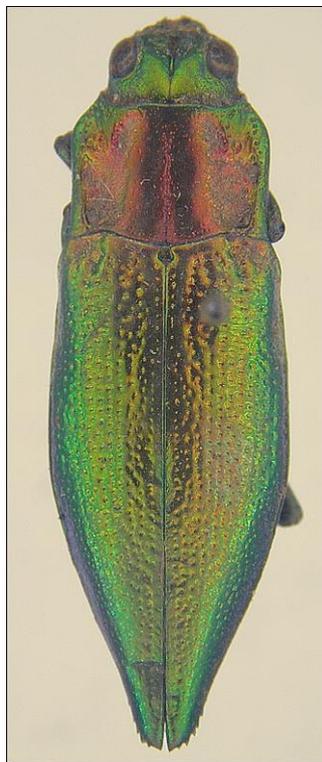
**Fig. 4**  
*C. dohertyi* KERR.  
♀ [BPftc], N.Guinea: Jayapura



**Fig.5**  
*C. atramentaria* KERR.  
HT ♀ [MNHN], N.Guinea



**Fig. 6**  
*C. sulcicollis* KERR.  
♀ [BPejg], N.Guinea: ad Madang



**Fig. 7**  
*C. "clara* KERR."  
♀ [KBIN], N.Guinea: Astrolabe Bay



**Fig. 8**  
*C. bruyi* LSB.  
♀ [BPjuf], Japen I.

**Characters [Fig. 4]:** Males [31] 20×6 – 26.5×8, females [47] 25×7 – 34×10.5 mm. Green to greenish-blue, pronotum paler, ventral side often more golden, dfp depressions usually golden-cupreous; tarsi dark with green lustre. Body above glabrous, below almost so except dfp areas. Pronotal sides markedly convergent; anterolateral angles not prominent; fossae usually narrowly sulciform with dfp bottoms, running obliquely from near basal angles to deep, obliquely elongate anteromedian foveae, but sometimes almost irregular, without any dfp spaces; pronotal punctulation coarse and dense along sides, fine and sparse on disk. Elytra markedly caudate; subhumeral potrusions distinct but not prominent; puncturation irregular, rather coarse, dense, only slightly finer towards apices. Pro- and metepisterna, metacoxae, and midlateral abdominal stripes dfp; abdominal plaque markedly elevated; abdominal punctulation sparse and rather fine; anal sternite deeply and broadly, paraboloidally emarginate in ♂, narrowly rounded with or without shallow minute incision at tip in ♀. Male genitalia light ferruginous, tip of penis subspiniiform.

**Geographical distribution [Map 2]:** Seems to be restricted to Humboldt Bay - Cyclops Mts. - Sentani Lake area.

**Remarks:** Deceptively similar to *C. sulcicollis* KERR., but differs in almost always darker and more bluish dorsal colouration, narrow and less regularly sulciform pronotal fossae, and lack of circumhumeral dfp.

***Cyphogastra (s.str.) sulcicollis* KERR.**

*Cyphogastra sulcicollis* KERREMANS 1895: 206-207

= *clara* KERREMANS 1910: 168 (key) [nec KERREMANS 1896: 356, non KERREMANS 1910: 232 (text)]

= *collaris* OBNBERGER 1917: 253

**Material examined:**

**Syntype:** [Type] ♂ “Nouvelle Guinée, Juni 93” “*sulcicollis* Kerr., Type” “Kerremans 1903·59” [♀ (BMNH)]

**Syntype [of *C. collaris* OBB.]:** “Neu-Guinea” “*Cyphogastra collaris* m. Typus” “Museum Leiden, Ex coll. G. van Roon” [♀ (NNHM)]

**Additional material:** 29♂, 82♀

**Characters [Figs. 6, 7]:** Males [25] 23×6.5 – 28×8.5, females [74] 23.5×7.5 – 36×11 mm. Dorsal side green (pronotum usually greenish-golden), bottoms of pronotal fossae cupreous, ventral side golden-green to cupreous-red; tarsi dark with or without slight metallic lustre. Dfp areas covered with dense recumbent pubescence and ochraceous pulverulence, otherwise body practically glabrous. Pronotal sides usually markedly convergent but specimens with parallelsided pronotum also occur; anterolateral angles not prominent; fossae broadly sulciform with dfp bottoms, running obliquely from near basal angles to deep, obliquely elongate anteromedian foveae; pronotal punctulation coarse and dense along sides, very fine and sparse on disk. Elytra caudate; subhumeral potrusions barely appreciable; sculpture consists of rather coarse, dense, irregular puncturation only slightly finer towards apices. Proepisterna, extensive areas on sides of metasternum, midlateral abdominal stripes and some spots near margins of sternites dfp; abdominal plaque moderately elevated; abdominal punctulation rather sparse and not very fine; anal sternite deeply and broadly, paraboloidally emarginate in ♂, narrowly rounded with or without shallow minute incision at tip in ♀.

**Geographical distribution [Map 2]:** Widely distributed along north coast of New Guinea between Geelvink Bay and Huon Peninsula (seems restricted to lowlands). The specimen in FRS labelled “Central Pr.: Owen Stanley Range, 27 II 1975” might, perhaps, have been introduced, while “Bismarck Arch.”, “Amboyne”, and “Brasilien” are certainly mislabellings).

**Remarks:** Widely sulcate pronotal fossae, conspicuous circumhumeral dfp stripes, combined with golden or cupreous ventral side make the unambiguously diagnostic set of characters. Specimens with dark cupreous pronotal disk and unusually wide basal part of fossae were misidentified by KERREMANS as *C. clara* KERR., what led THÉRY (1926) to logical (he considered *C. sulcicollis* KERR. and *C. bruyni* LSB. conspecific) but false conclusion that *C. clara* KERR. is a variety of *C. bruyni* LSB. [see HOLYŃSKI 2020 for details].

***Cyphogastra (s.str.) bruyni* LSB.**

*Cyphogastra Bruynii* LANSBERGE 1880: 133

= *nigra* KERREMANS 1908: 303 [issp.]

= *Horni* OBENBERGER 1924: 253

**Material examined:**

**Holotype** [of *C. horni* OBB.]: „N. Guinea Exped., Mamberano Riv., W.C.v.Heurn, Juni-Juli20, Pionierbivak” „**TYPUS**” „Mus. Nat. Pragae, Inv. 20 019” „*Cyphogastra Horni m. Type*, Det D<sup>f</sup> Obenberger” [♀ (EONMP)]

**Not type:** “Type” “N<sup>LE</sup> GUINÉE, *Djamna*, Rouyer” “*Cyphogastra Mniszeczii?* W<sup>28/10</sup> N.Guinée” “*Cyphogastra Bruyni Lansb.*” „ex coll Steinmetz, *Cyphogastra Bruyni-Lansb.*” [♀ (KBIN)]

**Additional material:** 1♂, 28♀

**Characters [Fig. 8]:** Male [1] 26.5×8, females [27] 25×8 – 34×10.5 mm. Head and ventral side dark bluish-violaceous; pronotum [brownish-]green to brownish-black; elytra in typical form green, in *var. nigra* KERR. black with slight violaceous shine, in one of the examined specimens [also otherwise somewhat aberrant: pronotal disk brownish-black, sides parallel, anterolateral angles accentuated, middle parts of fossae very wide, apical cuneate part of elytra unusually short] dark bronzed. Dfp areas covered with dense recumbent pubescence and ochraceous pulverulence, elevated parts of the body practically glabrous. Pronotal sides usually strongly convergent; anterolateral angles not prominent; fossae broadly sulciform with dfp bottoms, running obliquely from near basal angles to deep, obliquely elongate anteromedian foveae; pronotal punctulation coarse and dense along sides, fine and sparse on disk. Elytra strongly caudate; subhumeral protrusions inapparent; sculpture consists of coarse, dense, mostly irregular puncturation, slightly finer towards apices. Proepisterna, extensive areas on sides of metasternum, midlateral abdominal stripes and some spots near margins of sternites dfp; abdominal plaque elevated; abdominal punctulation of moderate coarseness and density; anal sternite deeply and broadly emarginate in ♂, narrowly rounded with at most minute shallow emargination at tip in ♀.

**Geographical distribution [Map 2]:** Inhabits western part of the north coast of New Guinea from Jobi (Yapen) I. to Astrolabe Bay – occurrence in Chimbu Prov. looks unlikely and demands confirmation, on Misima I. may be the result of introduction, while “Molukken”, if not misidentified [examined many years ago, according to my notes extremely large (34×10.5 mm.) and unusually coloured (“*head & pronotum black, elytra blackish-violaceous, ventral side greenish-blue*”)], then almost certainly mislabelled.

**Remarks:** At least partly violaceous head and ventral side clearly distinguishes *C. bruyni* LSB. from other members of the circle.

***Cyphogastra (s.str.) atramentaria* KERR.**

*Cyphogastra atramentaria* KERREMANS 1919: 56-57

**Material examined:**

**Holotype:** “N. Guinée, Meyer D.” “*atramentaria Kerrem. Type*” [♀ (MNHN)]

**Additional material:** 1♀

**Characters [fig. 5]:** Females [2] 38×11.5-12 mm. Entirely black, lustrous, dorsal side (esp. elytra) with more or less distinct brassy hue. Dfp areas densely pubescent, otherwise

above glabrous, below covered with short, sparse, semirecumbent pilosity. Pronotal sides markedly convergent; anterolateral angles obliterated; fossae obliquely sulciform, entire, dfp; pronotal punctulation coarse and dense along sides, finer and much sparser on disk. Elytra with rather prominent subhumeral protrusions; sides subparallel in anterior fourth, markedly widened to just before midlength, and sinuately tapering to strikingly narrow, minutely subspathulate (arcuately swollen on last 2 mm.), obliquely truncated apices; sculpture consists of moderately coarse and dense, mostly irregular puncturation. Almost entire pro-, meso- and metepisterna, outer parts of metacoxae, midlateral abdominal stripes and some spots near margins of sternites dfp; abdominal plaque moderately prominent; abdominal punctulation of relatively fine and sparse; anal sternite rounded with or without minute, shallowly triangular emargination at tip (♀).

**Geographical distribution:** Unfortunately practically unknown: the type is labelled as “N. Guinée” without any details, the only other specimen known to me as “N. Guinée, Maralu [Mafalu? Maialu? Malalu? Matalu?]” which I am unable to identify...

**Remarks:** Large size, entirely black colouration and extreme “caudateness” of elytra make this species unmistakable.

### The *C. viridis* KERR.-group

**Remarks:** A group of suspect validity, preliminarily created here to accommodate three species showing suggestive similarity to the *Bruyni*-circle (esp. to *C. wallacei* LSB.) but also some disappointing discrepancies making the close affinity (even to each other...) uncertain.



**Map 3**

Geographical distribution of the *C. viridis* KERR.-groups

● – *C. maura* sp.n.; ● – *C. nearnsi* sp.n.; ● – *C. viridis* KERR.

[otherwise see [Map 1](#)]

### Key to the identification of species of the *viridis*-group

- 1 (2) Body black ..... *C. (s.str.) maura* sp.n.
- 2 (1) Body green
- 3 (4) Bright green, elytra finely and sparsely punctulated ..... *C. (s.str.) nearnsi* sp.n.
- 4 (3) dull bronzed-green, elytral puncturation coarser and denser . *C. (s.str.) viridis* KERR.

*Cyphogastra (s.str.) maura sp.n.*

**Material examined:**

**Holotype:** “Ile de Gébé, Coll. Bruijn 1877” “*Cyphogastra Wallacei* H.Deyr.”  
“Museum Paris, ex Coll. R. Oberthur” [1♀ (MNHN)]

**Additional material:** none

**Holotype [Fig. 9]:** Female 35×11 mm. Entirely piceous-black. Glabrous above and almost so below, only medial sulcus of prosternal process covered with dense semirecumbent, and dfp depressions with recumbent pubescence.

Epistome rather shallowly emarginated, separated from front by transverse depression; front much wider than long, sides slightly divergent; frontal depression broad and deep, coarsely punctured in anterior cavity, finely and sparsely in upper part; vertex moderately wide (V:H≈0.5), somewhat more densely punctured; eyes slightly protruding, periocular furrows deep, with dense row of coarse punctures on bottom. Antennae long and slender, reaching to *ca.* basal fourth of pronotal sides; 1. joint club-shaped, 4× longer than thick; 2. cylindrical, as long as wide,  $\frac{2}{3}$  of width and  $\frac{1}{6}$  of length of 1.; 3. thin, somewhat shorter than 1., clavate at distal end and there as thick as 2.; 4. perceptibly shorter than 3., flattened, elongately triangular, at apex as wide as 1.; 5.-10. progressively shorter, narrower – 10. as wide as 2. but distinctly longer – and more rhomboidal; 11. ovate, somewhat thinner but longer than 10.

Pronotum wider than long (W:L≈1.35), sides distinctly convergent, anterolateral angles subobliterated, collar well marked; prebasal emargination of lateral margin deep; apical margin shallowly sinuate on each side of narrowly emarginated median lobe; basal margin shallowly bisinuate, basal angles distinctly acute. Median depression moderately wide and deep, bottom narrowly dfp in basal  $\frac{4}{5}$  of median line, median stria barely marked; fossae deep, c-shaped, dfp; anteromedian fovea deep and large, dfp, at base transversely connected to linearly narrow furrow representing anterolateral, and from there both narrowly but distinctly connected to fossa; prehumeral reliefs very coarsely punctured, elongately quadrangular with prominent anteromedian angles. Scutellum almost equilaterally triangular, deeply sulcate along midline.

Elytra 2.2× longer than wide, markedly caudate; sides obliquely truncate at humeri, with rather prominent subhumeral protuberances, subparallel in anterior third, somewhat divergent to *ca.* midlength and sinuately convergent to jointly rounded, sharply denticulate apices (with 3–4 widely spaced denticles also on sides). Elytral surface regularly convex except for deep irregular fovea at each humerus; sculpture very coarse and somewhat irregularly rugose around humeri, becoming much finer, here and there arranged into irregular rows, backwards and inwards.

Extensive areas of proepisterna dfp, meso- and metepisterna entirely so, outer half of metacoxae with dfp depression,; midlateral abdominal stripes indistinct, sides of sternites with but some very small dfp speckles; sternum very sparsely and rather finely punctulated along median, very coarsely so on midlateral parts; abdominal puncturation moderately coarse and sparse. Abdominal plaque very low, rounded in profile; apex of anal sternite subtruncated, minutely depressed and shallowly emarginate at tip (♀).

**Geographical distribution [Map 3]:** Holotype collected on Gébé I. (NW of New Guinean Vogelkop Peninsula, midway between Waigeo and Halmahera Islands).

**Remarks:** Similar in size and proportions to *C. nearnsi sp.n.* but easily differentiated by entirely black colouration, convergent sides and subobliterated anterolateral angles of pronotum, not interconnected anterior foveae, much coarser elytral sculpture, inconspicuous midlateral stripes of abdomen, &c.

*Cyphogastra (s.str.) nearnsi sp.n.*

**Material examined:**

**Holotype:** "Ile Cretin, (Tami)" "22 I 1899" "N.Guinea, Biró 1899" [1♀ (RBH: BP:eye)]

**Additional material:** none

**Holotype [Fig. 10]:** Female 35×11 mm. Entirely green with slight golden (pronotum) or bluish (elytra) oily shine; bottoms of pronotal fossae and anterior foveae greenish-golden; tarsi piceous-black. Glabrous above; very sparsely, almost imperceptibly pilose on median parts of ventral side; dfp areas covered with dense recumbent pubescence and ochraceous pulverulence.



**Fig. 9**

*C. maura sp.n.*

HT ♀ [MNHN], Gébé I.



**Fig. 10**

*C. nearnsi sp.n.*

HT ♀ [BPeje], Tami I.



**Fig.11**

*C. viridis KERR.*

♀ [BPejg], N.Guinea: Lae

Epistome deeply arcuately emarginated, separated from front by transverse depression and elevated transversely {-shaped carina; front much wider than long, sides slightly divergent; frontal depression broad and deep, finely and very sparsely punctulated, anterior cavity poorly delimited; vertex moderately wide ( $V:H \approx 0.5$ ) finely and sparsely punctulate; eyes slightly protruding. Antennae (except three basal joints of the left) missing.

Pronotum slightly wider than long ( $W:L \approx 1.3$ ), subparallelsided to not appreciably protruding anterolateral angles; collar well marked; Lateral margin (in dorsolateral view) deeply emarginated before base; apical margin bisinuate with median lobe widely truncated; basal margin shallowly bisinuate, basal angles distinctly acute. Median depression moderately wide and deep, with narrow stripe of very fine and dense punctulation at bottom, median stria barely marked; fossae deep, c-shaped, dfp; anterior foveae deep and rather large, finely but rather sparsely punctured, between punctures dfp; anterolateral very narrowly connected with fossa; prehumeral reliefs elongately quadrangular, coarsely punctured, with prominent anteromedian angles. Scutellum trapezoidal, as long as wide, transversely sulcate at anterior third and longitudinally so along midline.

Elytra 2.3 times longer than wide, markedly caudate; sides obliquely truncate at humeri, with inconspicuous humeral protrusion, subparallel in anterior third, then distinctly divergent to *ca.* midlength and sinuately convergent to jointly rounded, sharply but very irregularly denticulate apices (with 3–4 widely spaced denticles on sides). Elytral sculpture very coarse and somewhat irregularly rugose around humeri, becoming much finer, here and there arranged into irregular rows, backwards and inwards; no distinct dfp or other depressions.

Extensive areas of proepisterna dfp, rest of surface coarsely but shallowly irregularly punctured; sulcus of prosternal process with very dense brush of very short semierect setae along midline, wide elevated lateral rims – like medial parts of metasternum – almost impunctate; meso- and metepisterna, almost continuous midlateral stripes on abdomen, and small spots on sides of sternites dfp. Abdominal plaque well developed but rather low (height much less than length of 2. sternite), angles (in profile) rounded; apex of anal sternite broadly rounded (♀).

**Geographical distribution [Map 3]:** Known only from the holotype collected on Tami I. off SE-angle of Huon Peninsula (New Guinea).

**Remarks:** Differs from *C. viridis* KERR. in more robustly built body, much finer and sparser elytral puncturation and other minor details – more abundant material is needed to decide whether these differences are diagnostic at specific (100%) or but subspecific (>75%) level.

***Cyphogastra (s.str.) viridis* KERR.**

*Cyphogastra viridis* KERREMANS 1898: 116-117

**Material examined:**

**Syntypes:** “Syntype”<sup>⊙</sup> “N. Guinée, Stauding.” “*viridis* Kerr., Type” “Kerremans 1903-59” [3♂ (BMNH)]

**Additional material:** 9♂, 113♀

**Characters [Fig. 11]:** Males [9] 24.5×7.5 – 28.5×8.5, females [2] 25×7.5 – 38×12.5 mm. Usually greenish-bronzed, but green, greenish-blue or even dark blue individuals also occur, in any case with characteristic oily lustre. Glabrous (dorsally) or almost so (ventral side) except for densely pubescent dfp areas. Pronotal sides slightly convergent or parallel; anterolateral angles not protruding but usually distinctly accentuated, collar more or less conspicuous; anterior foveae variably developed, anterolateral usually narrowly connected to broadly c-shaped, dfp fossae, laterobasal reliefs nearly right-angled. Elytra definitely caudate; subhumeral protrusions slightly marked; apices distinctly truncated, sharply denticulate; coarsely, densely, mostly irregularly puncturate. Extensive parts of proepisterna and metasternal sides, midlateral stripes on abdomen and shallow c-shaped depressions partly encircling elevated reliefs on sides of sternites dfp; abdominal plaque moderately prominent; median part of abdomen sparsely but rather coarsely punctured; anal sternite broadly and deeply (♂) or minutely (♀) triangularly emarginated at tip; aedoeagus slender, testaceous with dark apices of penis and parameres.

**Geographical distribution [Map 3]:** Reliably ascertained distribution area extends along the mid-northern coast of New Guinea from Ramu Riv. to Huon Gulf; occurrence at higher altitudes (Wau, Aseki) needs confirmation.

**Remarks:** Deceptive similarity to *C. wallacei* DEYR. may suggest close affinity of *C. viridis* KERR. to that species (and, consequently, of the *Viridis*- to the *Bruyni*-circles), but different conformation of pronotal fossae (pointing, rather, in the direction of *C. abdominalis* WATH. and other representatives of the *Gloriosa*-circle) warns of the probability of misleading convergence, and wide separation of geographical distribution areas supports that morphology-based suspicion.

### Armata-circle

**Remarks:** Strongly caudate elytra with no trace of dfp depressions in combination with poorly developed pronotal fossae make the representatives of this circle rather easy to recognize. Species belonging here occur (as currently known) only on western half of New Guinea.

#### Key to the identification of species of the *Armata-circle*

- 3 (8) Ventral side dull, similar in colour to dorsal
- 4 (7) Tarsi dark
- 5 (6) Body strikingly elongated:  $L:W > 3.4$ ,  $EL:EW > 2.5$ . Elytra with narrow but distinct perisutural sulci in apical half. Apex of anal sternite in female with minute, narrow but deep incision ..... *C. (s.str.) longicauda* THY.]
- 6 (5)  $L:W < 3.4$ ,  $EL:EW < 2.5$ . Elytra evenly convex. Apex of anal sternite in female with indistinct, shallow incision ..... *C. (s.str.) wollastoni* WATH.]
- 7 (4) Tarsi yellow ..... *C. (s.str.) armata* THY.
- 8 (3) Dorsal side cupreous, ventral bright green ..... *C. (s.str.) stephensae* BMY.



Map 4

GEOGRAPHICAL DISTRIBUTION OF UXORISMEAE- AND ARMATA-CIRCLES

- – *C. uxorisemae* HOL.; ● – *C. longicauda* THY.; ● – *C. armata* THY.; ● – *C. wollastoni* WATH.; ● – *C. stephensae* BMY.
- [otherwise see Map 1]

#### *Cyphogastra (s.str.) longicauda* THY.

*Cyphogastra longicauda* THÉRY 1923: 234-236

#### Material examined:

**Holotype:** “Arfak Mts., 5100 ft., Pratt, D.N.Guinea” “*Cyphogastra longicauda* Thery, Type unique” “MUSEUM PARIS, 1935, Coll. A THÉRY” [♀ (MNHN)]

**Additional material:** none

**Characters [Fig. 12]:** Female [1] 36×10.5 mm. Large, strikingly elongated species. Dorsal side greenish- or cupreous-bronzed according to light, ventral green, epipleura contrastingly purplish-violaceous; tarsi piceous-brown. Pronotum and elytra glabrous, median

parts of ventral surface with indistinct, very sparse, rather long erect pilosity; irregular spaces on proepisterna, sides of metasternum and metacoxae, entire meso- and metepisterna and broad (each occupying almost  $\frac{1}{3}$  of the width of sternites) lateral bands of abdomen dfp, covered by dark rusty pulverulence. Front very densely irregularly sculptured on sharply delimited stripe along middle of anterior cavity, sparsely coarsely punctured otherwise. Pronotal sides decidedly convergent; anterolateral angles not protruding, truncation rather deeply sinuate; fossae shallow, poorly delimited, very coarsely irregularly punctured; anteromedian fovea deep, anterolateral not discernible; disk finely sparsely punctured; median sulcus broad but shallow, poorly delimited. Elytra strongly “caudate”; subhumeral denticle moderately prominent; epipleura sharply delimited, sulciform; apical (and 3-4 mm. long portion of lateral) margin sharply denticulated; sutural denticle moderately prominent. Surface regularly convex except for linear perisutural depression distinct in apical third; puncturation irregular, fine except near base; microsculpture conspicuous, rather dense. Proepisternal surface uneven, elevated areas coarsely punctured, irregular narrow alveoli dfp; median sulcus of prosternal process coarsely and densely irregularly punctured. First sternite regularly convex, abdominal plaque prominent, but not so high as length of 2. sternite; apex of anal sternite with narrow deep incision at middle (♀).

**Geographical distribution [Map 4]:** Known only from the holotype, collected in Arfak Mts. (New Guinea: Vogelkop Peninsula), apparently together with the type[-s?] of *C. stephensae* *BMJ*.

**Remarks:** Deceptively similar to *C. wollastoni* *WATH*. besides larger size, more elongated body and definitely sulciform, contrastingly violaceous epipleura differs only in several minor, not easy to describe characters like more trapezoidal pronotum with shallower median sulcus, more extensively denticulate lateral margins of elytra, prevalent coarse puncturation of proepisterna, or narrow deep incision of female anal sternite.

***Cyphogastra (s.str.) wollastoni* WATH.**

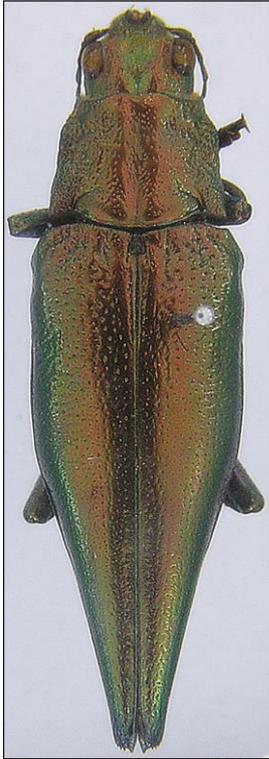
*Cyphogastra wollastoni* WATERHOUSE 1915: 506-507

**Material examined:**

**Holotype:** “[Type]” [O] “Dutch New Guinea, A.F.R. Wollaston, 1914-139” “*Camp-Pundok-Padang*” “*Cyphogastra wollastoni* (*Type*) *Waterh.*” [♀ (BMNH)]

**Additional material:** 4♂, 4♀

**Characters [Fig. 13]:** Males [4] 24×7 – 27.5×8.5, females [5] 30×9.5 – 31×10 mm. Dorsal colouration variable (from dull green to cupreous-bronzed or bronzed-brown), ventral golden-green; tarsi brownish-black with slight violaceous shine. Median sulcus of prosternal process with sparse erect pilosity; extensive parts of proepisterna, sides of metasternum and metacoxae, and midlateral stripe of abdomen dfp; otherwise body glabrous above, with very sparse, rather long, fine erect pilosity below. Frontal puncturation coarse and very dense in anterior part, somewhat finer and sparser behind. Pronotal sides slightly convergent; anterolateral angles not protruding; fossae shallow, poorly delimited, coarsely irregularly punctured; anteromedian fovea hardly, anterolateral not discernible; disk finely sparsely punctured. Elytra strongly “caudate”; subhumeral denticle prominent; epipleura poorly delimited; apical margin sharply denticulated; sutural denticle moderately prominent. Surface regularly convex except for linear perisutural depression distinct in basal fourth; puncturation fine except near base; microsculpture conspicuous, rather dense. Proepisterna dfp; median furrow of prosternal process relatively wide, coarsely and densely punctured. First sternite sulcate along midline; abdominal plaque prominent, its height subequal to length of 2. sternite; apex of anal sternite deeply triangularly emarginated in ♂, minutely shallowly incised in ♀. Aedoeagus ferruginous, narrow, subparallelsided; penis sharply acute.



**Fig. 12**  
*C. longicauda* THY.  
HT ♀ [MNHN], Arfak Mt.



**Fig.13**  
*C. wollastoni* WATH  
♀ [BPizw], Snow Mts.: Araboebivak



**Fig. 14**  
*C. armata* THY.  
HT ♂ [MNHN], Arfak: Momi Vy.



**Fig. 15**  
*C. stephensae* BMY.  
♀ [MNHN], Arfak Mt.

**Geographical distribution [Map 4]:** This is the only representative of the *Armata*-circle not inhabiting the vicinities of Arfak Mts. (Vogelkop Peninsula): all specimens known to me have been collected in Snow Mts. [Indonesian: Pegunungan Sudirman] E or SE of Wissel Lakes [Ind.: Danau Paniai], at *ca.* 1500-1800 m. asl.

**Remarks:** *C. wollastoni* WATH. shows extensive variability in colouration, but all variants, together with dark tarsi, clearly distinguish from other representatives of the *Armata*-circle except *C. longicauda* THY. which, however, differs in greater size, more elongated body, distinct perisutural sulcus in apical half of elytra, narrow and deep apical incision of female anal sternite, &c.

***Cyphogastra (s.str.) armata* THY.**  
*Cyphogastra armata* THÉRY 1923: 226-228

**Material examined:**

**Holotype:** “Momi Valley, 1600 ft. Pratt, D.N.Guinea” “*Cyphogastra armata* Thery, Type unique ♂” “MUSEUM PARIS, 1935, Coll. A THÉRY” [♂ (MNHN)]

**Additional material:** 3 ♀

**Characters [Fig. 14]:** Male [1] 27×8, females [3] 27.5×8.5 – 30.5×9.5 mm. Dorsally dark (females somewhat paler than male) bronzed-brown, median parts of ventral side blackish with more or less distinct bronzed lustre, sides dull blackish-green. Glabrous above, very sparsely inconspicuously pilose on median parts of ventral side, broadly dfp with rufous pulverulence along sides of sternum and abdomen. Frontal depression elongately triangular, reaching far behind upper margins of eyes; anterior cavity very poorly individualized; puncturation of vertex coarse and rather sparse; eyes rather markedly convex; pericocular sulci broad, deep but short. Pronotal sides distinctly convergent; anterolateral angles not prominent but rather distinctly marked in male, almost totally obliterated in females. Median depression rather shallow, sparsely punctured; fossae moderately deep, elongated, but very irregular and poorly delimited, with no trace of dfp spaces; anteromedian foveae poorly developed, anterolateral not discernible at all. Elytra strongly caudate; subhumeral denticle very prominent, rectangular at tip; lateroapical margin smooth, only apical truncature with 3-4 small denticles on each side and definitely stronger sutural one. Disc regularly convex; puncturation coarse at base, becoming progressively finer and confused towards apex. Prosternal process deeply sulcate, sulcus very coarsely irregularly rugosopunctate; sides of sternum and abdomen almost uniformly dfp; basal sternite in male strongly, in female somewhat less distinctly sulcate along midline; abdominal plaque prominent, its height subequal to length of 2. sternite in male, distinctly less so in females. Anal sternite deeply paraboloidally emarginated between rather narrowly rounded lateral lobes (♂) or narrowly rounded with minute shallow incision at tip (♀).

**Geographical distribution [Map 4]:** Like almost all (the only exception being *C. wollastoni* WATH.) representatives of the circle, *C. armata* THY. seems to occur exclusively in the northwesternmost part of New Guinea: one female bears the uncertain (dealer's) label “Wamena”, otherwise all specimens seen by me or reported by THÉRY (1923) have been collected in the Arfak Mts. area of the Vogelkop Peninsula

**Remarks:** Among members of the *Armata*-circle this species is easily recognizable by its dark bronzed- to blackish-brown colouration combined with testaceous tarsi and strongly caudate elytra with prominent, definitely angular subhumeral denticle. Its closest relative seem to be *C. wollastoni* WATH., the only other member of the *Armata*-circle showing medially sulcate first abdominal segment but differing in dark tarsi, less prominent subhumeral denticle and much paler colouration.

***Cyphogastra (s.str.) stephensae* BMY.**

*Cyphogastra stephensae* BELLAMY 2004: 156

*Cyphogastra palliditarsis* THÉRY 1923: 229-230 [nec KERREMANS 1903: 87]

**Material examined:**

**Holotype:** “Arfak Mts., 5100 ft., Pratt, D.N.Guinea” “*Cyphogastra palliditarsis* Thery, Type unique” “MUSEUM PARIS, 1935, Coll. A. THÉRY” [♀ (MNHN)]

**Paratype?:** “Cotype” [⊙] “Arfak Mts., 5100 ft., Pratt, D.N.Guinea” “*Cyphogastra palliditarsis* Théry, Typ. Théry det.” “Ex. Coll. A. Théry, B.M. 1923-364” [♀ (BMNH)]

**Additional material:** none

**Characters [Fig. 15]:** Females [1] 28-29×9.5 mm. Body markedly flattened, bright cupreous above, golden-green below, tips of elytra dark blue; tarsi testaceous. Dorsal side glabrous, median furrow of prosternal process with sparse erect whitish pubescence, lateral parts of sternum and abdomen very broadly dfp covered with ochraceous pulverulence, otherwise also ventral side practically glabrous. Epistome and anterior cavity of front very coarsely irregularly sculptured, punctulation of upper parts fine and sparse. Pronotum trapezoidal, sides strongly convergent; anterolateral angles obliterated, truncation straightly (without obvious sinuation) oblique; fossae shallow, poorly delimited, coarsely irregularly punctured; anteromedian fovea shallow but densely punctulate, anterolateral not developed; disk finely sparsely punctured. Elytra relatively wide (L:W≈2.1), strongly “caudate”; subhumeral protrusions broadly rounded but distinct; apical margin sharply denticulated; sutural denticle prominent. Surface regularly convex without any distinct depressions; sculpture consists of dense punctures (coarse at base, becoming finer apically) and very distinct but not dense microsculpture in between. Proepisterna dfp; median furrow of prosternal process narrow, coarsely and densely punctured. Basal sternite not sulcate along midlength; abdominal plaque prominent, its height subequal to length of 2. sternite; anal sternite narrowly rounded (♀).

**Geographical distribution [Map 4]:** Hitherto known only from the type-locality: Arfak Mts. on Vogelkop Peninsula, western New Guinea.

**Remarks:** The specimen in BMNH labelled as “Cotype” of *C. palliditarsis* THY. agrees well with the original description, but has probably only been **compared with** type: THÉRY (1923) writes apparently of single specimen and the MNHN beetle is labelled as “Type unique”. Colouration of this species is (rarely) approached by some individuals of *C. wollastoni* WATH. which, however, differ in narrower body, almost parallelsided pronotum with well marked lateroapical angles and usually distinctly sinuated truncation, dark tarsi, &c.

***Flavimana*-circle**

**Remarks:** Two of the hitherto proposed nominal species-group taxa are assignable to this circle: *C. flavimana* LANSBERGE 1880 and *C. palliditarsis* KERREMANS 1903, but seven years after description the latter was synonymized by its author (KERREMANS 1910) with the former, and this interpretation has been almost unanimously accepted by later students (OBENBERGER 1926, BELLAMY 2008). Initially I have also taken the synonymy for granted, and uncritically recorded all specimens examined in various collections as *C. flavimana* LSB. – it was not before early 1990’s that I realized that under this name (or, in some collections, under *C. palliditarsis* KERR.) two different (so different that now I find it difficult to understand how could I have ever confused them...) species hide: one (let’s refer to it as **A**) bronzed to blackish-brown, with rather coarsely punctured and distinctly microsculptured elytra, and almost totally obliterated abdominal plaque; the other (**B**) pure black, with elytra lustrous, not microsculptured, very finely and sparsely punctulate, and abdominal plaque prominently elevated. With this discovery two nomenclatural questions emerged: which of the

two species is the true *C. flavimana* LSB., and does the name *C. palliditarsis* KERR. refer to the other or is really synonymous with it?

LANSBERGE's (1880) description is based on (at least) two specimens: one, apparently considered typical, "*Supra nitida, nigra*", and the other ("Var.") "*supra obscure aenea*", what might suggest that the former – and, consequently, the name *C. flavimana* LSB. – refers to **B** and the latter to **A** as a simple variety. It was apparently such interpretation that resulted in persistent treating of **A** and **B** as taxonomically insignificant variants of the same species. However, except the initial "*nitida, nigra*", nothing in the description matches **B** better than **A**, some formulations ("*Élytres ... fortement ponctués ... les points serrés*"; "*ponctuation sur les élytres est plus forte que dans aucune autre espèce*"; "*Abdomen ayant un espace lisse au milieu*" [no mention of elevated plaque!]) being even simply incompatible with the former! Long ago I have seen in MNHN a specimen being apparently the type of *C. flavimana* LSB., but unfortunately my notes contain only its label-data ["Timor" **TYPE**] and measurements [32.5×10 – in reasonably good agreement with 33×9 given in the description]; it is now not available to me for examination, but it seems reasonable to assume that the **TYPE** belongs to the taxon **A**, the seemingly discordant "*nigra*" being simply inexact description of what in fact is a *bronzed*-black (like *e.g.* the male in my collection) beetle. Such supposition may be supported by the analogous situation with the type of *C. palliditarsis* KERR.: KERREMANS' (1903) description reads: "*entièrement noir en dessus*", but the examination of the type has shown (according to my notes from BMNH) that it is "*dark brown (decidedly not black) above*", and indeed further remark on "*plaque of 1. abdominal sternite very low, barely indicated*" leaves no reasonable doubt that it also belongs to **A**. Thus, it seems evident that:

- a) the name *C. flavimana* LSB. refers to the taxon **A**: bronzed, relatively coarsely sculptured, with largely obliterated abdominal plaque;
- b) *C. palliditarsis* KERR. is a synonym of *C. flavimana* LSB.;
- c) taxon **B** – lustrous black, with finely punctulated elytra and prominent, markedly elevated abdominal plaque – remains unnamed and should be described as new (see below!).

#### Key to the identification of species of the *Flavimana*-circle

- 1 (2) Abdominal plaque inconspicuous, very low, in profile broadly rounded at apex. Dorsal side bronzed-black (♂) or bronzed-brown (♀) ..... *C. (s.str.) flavimana* LSB.
- 2 (1) Abdominal plaque prominent, high, apex in profile acute-angled. Dorsal side deep black ..... *C. (s.str.) detecta* sp.n.

#### *Cyphogastra (s.str.) flavimana* LSB.

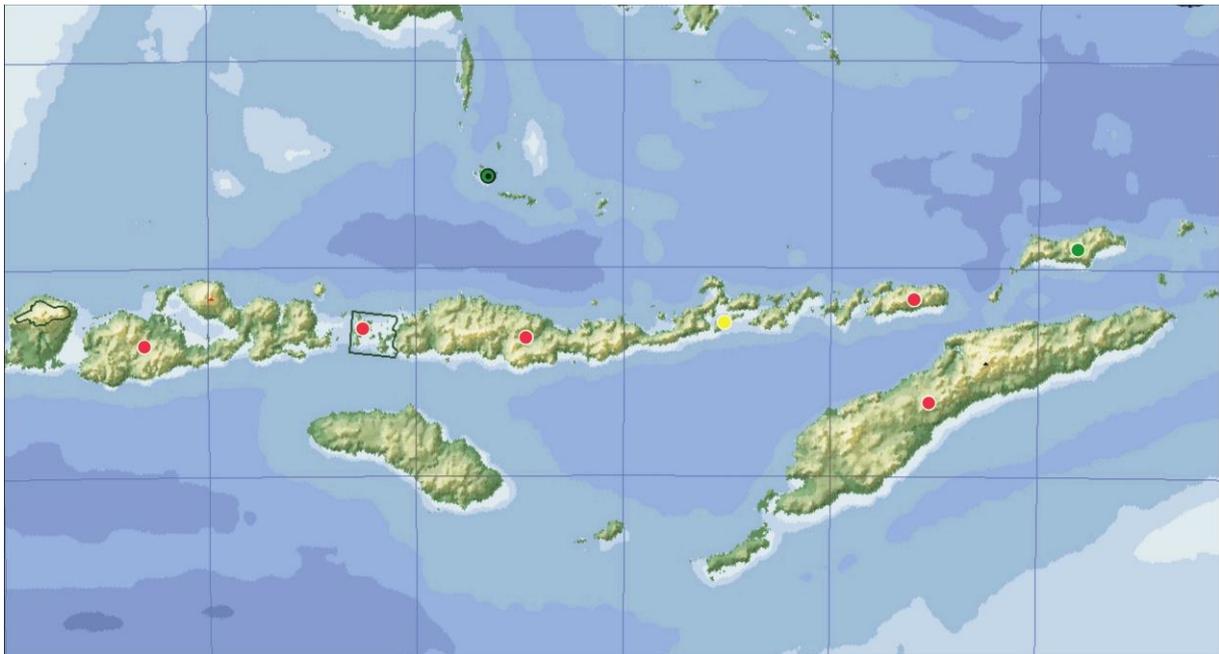
**Characters:** Dark bronzed to bronzed-black, rather matt; median parts of ventral side blackish with more or less distinct bronzed lustre, sides sometimes dull blackish-green. Glabrous above and on narrow median part of abdomen, very sparsely inconspicuously pilose on median parts of sternum, dfp with ochraceous or rufous pulverulence along sides of sternum and abdomen (very broad abdominal dfp area divided by less densely punctured/pubescent zone into perimarginal and midlateral stripes). Frontal depression elongately triangular, reaching far behind upper margins of eyes; anterior cavity poorly individualized; puncturation of vertex moderately coarse and rather sparse. Pronotum subparallelsided; anterolateral angles not protruding but distinctly marked. Median depression moderately deep, sparsely punctured; anterior foveae barely discernible. Elytra not caudate; no subhumeral denticle. Disc regularly convex; puncturation coarse and confluent into transverse wrinkles at base, becoming progressively finer towards apex. Abdominal plaque almost totally obliterated.

**Geographical distribution:** Lesser Sunda Is.

**Remarks:** Extreme reduction of abdominal plaque is almost (except *C. lansbergei* THS.) unique among *Cyphogastra* DEYR. *s.str.*

**Key to subspecies of *C. flavimana* LSB.**

- 1 (2) Pronotal fossae shallowly but coarsely punctured. Elytra arcuately tapering from midlength ..... *C. flavimana* LSB. *s.str.*
- 2 (1) Fossae impunctate. Elytra subparallelsided to apical third ..... *C. f. solorensis* THY.



**Map 5**

Geographical distribution of the *Flavimana*-circle

- – *C. flavimana* LSB. *s.str.*; ● – *C. f. solorensis* THY.; ● – *C. detecta* sp.n.  
[otherwise see [Map 1](#)]

***Cyphogastra (s.str.) flavimana* LSB. *s.str.***

*Cyphogastra flavimana* LANSBERGE 1880: 134-135

=*Cyphogastra palliditarsis* KERREMANS 1903: 87

**Material examined:**

**Holotype (*flavimana* LSB.):** “Timor” “TYPE” [♀ (MNHN)]

**Holotype (*palliditarsis* KERR.):** “[Type]” [♂] “Alor Staud.” “*palliditarsis* Kerr. Type” “Kerremans 1903-59” [♀ (BMNH)]

**Additional material:** 2♂, 5♀

**Characters [Figs. 16, 19]:** Males [2] 27.5×8.5 – 30.5×9, females [61] 29.5×8.5 – 37×12 mm. Body relatively narrow, convex above and below. Bronzed to bronzed-black; median parts of ventral side blackish with more or less distinct bronzed lustre, sides sometimes dull blackish-green. Punctulation in sulcus of median depression of pronotum definitely denser than on elevated parts of disk; fossae coarsely punctured at bottom. Lateroapical elytral margin with 3-4 small denticles also on sides (besides those on apical truncature). Prosternal process rather coarsely punctured in median sulcus. Anal sternite broadly emarginated between also rather broadly rounded lateral lobes (♂) or rounded with small arcuate incision at tip (♀).

**Geographical distribution [Map 5]:** Lesser Sunda Is.: from Sumbawa, through Komodo and Flores to Alor and Timor.



**Fig. 16**

*C. flavimana* LSB. s.str.  
♀ [BPBM], Komodo I.



**Fig. 17**

*C. f. solorensis* THY.  
HT♀ [MNHN], Solor I.



**Fig. 18**

*C. detecta* sp.n.  
HT ♂ [KBIN], Wetar I.



**Fig. 19**

*C. flavimana* LSB. s.str. (same ex. as on fig. 7)



**Fig. 20**

*C. detecta* sp.n. (same ex. as on fig. 9)

**Remarks:** Due to the uncertainties as to the identification of many examined specimens the measurements and localities should be treated with caution.

***Cyphogastra (s.str.) flavimana solorensis* THY.**

*Cyphogastra flavimana* ssp. *solorensis* THÉRY 1926: 68

**Material examined:**

**Holotype:** “Solor (Doherty)” “*solorensis* Thery, Type, Théry det.” “MUSÉUM PARIS, 1935, Coll. A. THÉRY” [♀? (MNHN)]

**Additional material:** none

**Characters [Fig. 17]:** Female? [1] 33×10.5 mm. Body broad, markedly flattened. Bronzed above, black (with bronzed lustre on sides) below. Punctulation in sulcus of median pronotal depression definitely denser than on elevated parts of disk; fossae impunctate, each with small somewhat irregularly creasy area. Lateroapical elytral margin without denticles on sides (with few only on apical truncature). Median sulcus of prosternal process finely punctured. Anal sternite with “medium-sized” (very small for ♂, unusually large for ♀) arcuate emargination at tip (?♀).

**Geographical distribution [Map 5]:** Solor I. off the eastern end of Flores in Lesser Sunda chain.

**Remarks:** The status of this single known specimen is difficult to reliably establish: it may equally well be abnormal specimen of *C. flavimana* LSB. s. str. as separate species.

***Cyphogastra (s.str.) detecta* sp.n.**

**Material examined:**

**Holotype:** “I. Wetter” “collection Dr. LOTTE” “*Cy. flavimana* Lansb., Thery det.” “*Cyphogastra flavimana* LSB., det. R. Holynski, 1995” “*Cyphogastra palliditarsis* KERR., det R. HOLYŃSKI, 2008” [♂ (KBIN)]

**Paratype:** “Wetar, Mei. 2004” “*Cyphogastra palliditarsis* KERR., det R. HOLYŃSKI, 2005” [1♂ (RBH: BPizz)]

**Additional material:** (2♀)

**Holotype [Figs. 18, 20]:** Male [1] 30.5×9.5 mm. Rather robustly built; lustrous black with distinct bronzed shine along lateroapical margin of elytra, on abdominal plaque and along inner margins of metacoxae; basal two antennomeres piceous-black, 3.-10. reddish-brown; tarsi testaceous. Glabrous above; very sparsely, almost imperceptibly pilose on median parts of ventral side, broadly dfp with rufous pulverulence along sides of sternum and abdomen.

Epistome shallowly arcuately emarginated, with fine transversely arcuate carinula above midlength and short longitudinal one along midline; separated by very prominent, carinately elevated anterior margin of front; front parallelsided, decidedly wider than long; frontal depression broad, very shallow, poorly delimited, rather coarsely but shallowly punctured except for almost smooth, wide but short and not deep anterior cavity; median line deep and coarse on front, fine on moderately wide (V:H≈0.5) finely and sparsely punctulate vertex; eyes slightly protruding. Antennae reaching to ca. midlength of pronotal sides; 1. joint thick, club-shaped, ca. twice longer than wide; 2. ring-shaped, much shorter than wide and much thinner than 1.; 3. flattened, elongately triangular, ca. as long and (at apex) almost as wide as 1.; 4.–10. triangular, slightly wider than 3., progressively shorter and minimally narrower (but 10. still 1.5× longer than wide); 11. missing.

Pronotum 1.3× wider than long, subparallelsided to slightly protruding anterolateral angles; prebasal emargination of lateral margin long but very shallow; apical margin bisinuate with median lobe very shallowly biarcuate; basal margin somewhat angularly bisinuate, basal

angles distinctly acute. Median depression moderately wide and deep, punctulation at bottom not much different from that on sides of disk; fossae shallow, wide, somewhat uneven, coarsely but rather sparsely punctured; anterior foveae confluent into shallow, flat, transverse, coarsely irregularly punctured anterolateral depressions; prehumeral reliefs elongately triangular, prolonged anteriorly into prominently carinate lateral margins. Scutellum small, trapezoidal, convex.

Elytra 2.3 times longer than wide, not caudate; sides obliquely truncate at humeri, without humeral denticle, subparallel to *ca.* midlength, then cuneately convergent to jointly rounded, sharply denticulate apices (with 3–4 wider spaced denticles just before on sides). Each elytron with 3 rather deep elongate foveae at base, regularly convex otherwise; lateral margin bordered with distinct stria, starting as deep, punctulated furrow behind humeri and becoming fine and smooth on cuneate part of elytral sides. Elytral sculpture consists of fine punctulation arranged into irregular rows, becoming still finer (but also distinct) apically but rather coarse laterobasally; no appreciable microsculpture.

Proepisterna – like entire broad lateral parts of ventral side – dfp, covered with rufous pulverulence; sulcus of prosternal process finely but very densely, median parts of ventral side otherwise finely and sparsely (somewhat denser and coarser on abdomen) punctured. Abdominal plaque not very high but strongly protruding backwards (markedly acute-angled in lateral aspect), overhanging 2. sternite; anal sternite deeply arcuately emarginate. *Aedoeagus* narrowly lingular, ferrugineous, parameres lateroapically paler yellow; tip of penis sharply pointed.

**Variability:** Paratype (male) slightly larger (32.5×10 mm.), with still somewhat finer elytral sculpture, but otherwise virtually identical to holotype. Besides, my notes mention two females [31×9.5 mm. from Philippines and 34×11 mm. from Djampea I. (S of SW-Celebes)] determined – like those from Wetar – as *C. palliditarsis* KERR., but as well the localities as colouration (“ventrally sides bright green”) seem strongly suspect and the specimens are not available to me now for verification...

**Geographical distribution [Map 5]:** Known for sure only from Wetar I.: the occurrence of *C. detecta* sp.n. on Djampea and – especially – Philippines does not seem believable.

**Remarks:** *C. detecta* sp.n. shows most superficial similarity to *C. tuberculata* THS. which, however, is larger, bright metallic (from green and bronzed to purplish) on ventral side, has dark tarsi, much more prominent anterolateral angles and characteristically quadridentate anterior margin of pronotum), deep and regularly c-shaped fossae, &c.

### Phylogenetical reconstruction

To “root” the tree, a “complex” of *Metataenia ocellata* (L.S.) and *Iridotaenia curta* DEYR. was included in the reconstruction as out-group but not shown: its *a priori* constrained position makes superfluous to show it in the cladogram, while, as only the characters variable **within in-group** have been taken into consideration, the discussion of its morphological evolution also would be pointless. *Pleiona* DEYR., *Guamia-A* and *Guamia-E* [ancestors ([A] and [E]) of, respectively, *Taitina*- and *Auripennis*-circles as reconstructed in HOLYŃSKI 2016 (fig. 22)] have been included separately to check for possible paraphyly of *Guamia* THY.

Initially performed reconstruction led to glaringly erroneous pattern [not shown]; close examination of the details allowed to easily disclose the source of confusion, illustrating simultaneously one of the weaknesses of the currently available version of MICSEQ [difficulty in “algorhythmic” recognition of automorphies] and one of its most important strengths [“step-by-step” reconstruction making the errors relatively easy to locate, identify,

and correct]. After “manual” introduction of the necessary minor modification – constraining black colours of *C. maura* sp.n. as automorphy, what the program failed to recognize – not only that species and *C. atramentaria* KERR. “came back” to the place they evidently should occupy, but also the relations close to the root (among *Guamia* THY., *C. tinianica* KUR. and *C. uxorismae* HOL.) look now sensible from the morphological, biogeographical or historical perspective!

The present analysis confirms the “intuitive”, supported already by the previous (HOLYŃSKI 2016) reconstruction, hypothesis that *Guamia* THY. (including – besides the recent representatives of the *Taitina*- and *Auripennis*-circles – the ancestral species [M], [P] and probably also [S]) is the basal, mono- but not holophyletic taxon, ancestor at least of *Pleiona* DEYR. but conceivably of *Cyphogastra* DEYR. s.str. as well morphological characteristics of the ancestral *Guamia* THY. have been reconstructed already in HOLYŃSKI (2016), so I will not repeat them here]. The present analysis, including different “in-group” taxa, has naturally modified the reconstruction of the common ancestor [R] of *Cyphogastra* DEYR. s.str.: it now seems to have been a near-uniformly green beetle with dark antennae, yellow tarsi (except claw-joint); distinctly collared rectangular pronotum of weakly marked anterolateral angles; broad, shallow, normally punctured fossae; finely punctulated laterobasal reliefs; shallow laterobasal emargination of pronotal margins; not caudate, moderately punctured elytra without dfp depressions, poorly developed subhumeral denticle, finely denticulate rounded apices; prominent abdominal plaque; prometasterna entirely dfp, midlateral abdominal pdf stripe distinct, almost no dfp on sides of ventral surface. This animal seems [cf. the discussion and fig. 23 in HOLYŃSKI (2016)] to have lived in Late Oligocene on the westernmost islands of South Caroline Arc, at that time closely approaching northern New Guinea perhaps near the present Adelbert Range.

Contrary to the suggestions formulated in HOLYŃSKI (2016) and based on seemingly unshakeable biogeographical evidence, according to the present analysis first to split off was [H], the ancestor of the *Flavimana*-circle, only followed by Marianese *C. tinianica* KUR.; such sequence might, however, have resulted from what can be considered a kind of “long branch distraction”: the *Flavimana*-circle seems rather remotely related to the *Uxorismae*-, *Bruyni*- or *Armata*-circles, and later inclusion of other groups will perhaps fill the gap and clarify the situation. Anyway, the present, partial analysis, recovered [H] (metallic lustre, entire sides of abdomen dfp) as the basalmost offshoot, “sister” of the ancestor ([Q], characterized by deep laterobasal emargination of pronotal margins, weakly but distinctly developed subhumeral protrusion of strongly caudate, apically truncated elytra, and partly dfp proepisterna) of all the remaining representatives of *Cyphogastra* DEYR. s.str. Only now would *C. tinianica* KUR. (bronzed-green, male abdomen partly non-metallic, tarsi entirely (including claw-joint – but not claws themselves) yellow; anterolateral angles of pronotum and subhumeral elytral denticle prominent, fossae c-shaped and partly dfp, elytral sculpture rather coarse) have split off and spread through Mariana Ridge to Tinian I. Its “sister” ([O]: convergent pronotal sides, coarsely punctured laterobasal reliefs, proepisterna not dfp) invaded northern coasts of New Guinea, giving then rise to *C. uxorismae* HOL. (metallic lustre, contrasting cupreous-red sternum, irregular pronotal fossae, rudimental midlateral stripes on abdomen) on the East (the present Morobe Prov.) and ([N]: tarsi dark, collar indistinct, anterolateral pronotal angles obliterated) on the northwestern parts of the island. The immediate descendants of [N] were ancestors of the *Bruyni*- ([L]: pronotal fossae in form of oblique dfp sulci) somewhere between Geelvink Bay and Huon Gulf, and *Armata*-circle ([G]: shallow basal emarginations of pronotal lateral margins, entirely dfp proepisterna) in the Arfak Mts. (Vogelkop Peninsula). The westernmost population of the former expanded further to the West to remain almost unchanged (only subhumeral protrusion lost) on North Moluccas as *C. wallacei* DEYR., while

the remainder ([K]: metallic lustre, coarser elytral sculpture, proepisterna partly dfp) spread over the greater part of northern coast of New Guinea. After splitting off (geographical context of this branching remains unclear) of the ancestor ([J]: distinct collar, L-shaped pronotal fossae) of the *viridis*-group, the “mother”-taxon (now as [I], indistinguishable – according to the present reconstruction – from, so probably conspecific with, [K]) split further into black, lustrous, finely sculptured *C. atramentaria* KERR. with shallow basal emargination of pronotal lateral margins and prominent subhumeral denticles (geographical provenience of that species remains effectively unknown) and [E] (proepisterna entirely dfp, otherwise apparently identical to [I]). [E] probably inhabited what is now Humboldt Bay area, to which (lowlands around Sentani Lake?) also now the distribution of one of its descendants (*C. dohertyi* KERR.: pronotal fossae not or indistinctly dfp) seems restricted, and where (Cyclops Mts.?) also its other descendant ([D]: distinct perihumeral dfp stripe) probably developed. It spread to the West as far as Jobi (Yapen) I. to become *C. bruyni* LSB. (head and sternum violaceous-blue, sides of abdomen entirely dfp), while eastern populations extended to surroundings of Astrolabe Bay and evolved into *C. sulcicollis* KERR. (distinct collar, partly dfp proepisterna), then both invaded each other’s territory to establish apparent (at least in “macro-scale”: some altitudinal separation – *C. bruyni* LSB. seems to prefer [sub-]mountainous localities while *C. sulcicollis* KERR. apparently avoids them) sympatry.

The *viridis*-group (descendants of [J]) must have originally occupied almost (except the southeasternmost part) all the northern coasts of New Guinea, but now – apparently outcompeted by members of the *bruyni*-group – persisted only on both extreme ends of the supposedly former distribution area: on Gébé Island (to the northwest of the Vogelkop Peninsula) black *C. maura* sp.n. with obliquely truncated elytral apices and poorly developed abdominal plaque, and between southern coast of Astrolabe Bay and Huon Gulf area (with isolated record from Dugamur near Hatzfeldhafen, ca. 115 km. NW Madang) [B], the ancestor of apparently unchanged *C. viridis* KERR. and its insular (Cretin = Tami I. off the SE promontory of Huon Peninsula) “daughter”, *C. nearnsi* sp.n., characteristic by its large size and fine dorsal sculpture what is presently northern New Guinea.

Meanwhile [G] diverged (apparently still in the Arfak Mts. area, which appears to be the arena of almost all the evolutionary radiation of not only the *Armata*-circle) into [F] (bronzed, with yellow basal 4 joints of tarsi) and almost (except slightly accentuated anterolateral angles of pronotum) unchanged [C]; the former gave rise to *C. armata* THY. with prominent subhumeral denticles and broad, dorsally brightly cupreous *C. stephensae* BMY., both remaining within the area of origin) inhabited also by one (*C. longicauda* THY.: distinct collar, partly dfp proepisterna) of the descendants of [C], whereas the second (coloristically variable *C. wollastoni* WATH. with well developed subhumeral denticle) invaded Snow [=Sudirman] Mts. SE of the Geelvink Bay.

Whereas the distribution area of the descendants of [Q] barely (by *C. maura* sp.n. on Gébé I. and *C. wallacei* DEYR. on N-Moluccas) extends beyond New Guinea, members of the [G]-clade (*Flavimana*-circle) invaded Lesser Sundas: [A] (bronzed, with low abdominal plaque) evolved probably on Flores and now, as apparently identical *C. solorensis* THY., survived only on tiny Solor I. off the eastern end of that island, its slenderer paraphyletic “daughter” with transversely truncated elytral apices, *C. flavimana* LSB., has spread throughout the archipelago from Sumbawa to Alor and Timor, while black, lustrous, finely sculptured *C. detecta* sp.n. inhabits Wetar I., the northeasternmost large island of the chain.

One of the results of the above reconstruction was the confirmation of ubiquitous occurrence of paraphyly (also *terminal*, as in case of *C. viridis* KERR.= [B] vs. *C. nearnsi* sp.n. or *C. solorensis* THY.= [A] vs. *C. flavimana* LSB.) [*non-terminal* taxa are of course by *definition* paraphyletic – it is only the “logical jugglery” of dogmatic cladists (“*sister groups*

are those sharing the last common ancestor, but that ancestor... *did not exist*!) that allow them to “make” all “valid” taxa holophyletic!].

Note that the present analysis (like those performed in further parts of the Review) has aimed only at the clarification of *internal* relationships *within* particular circles – as already observed above (*cf.* remarks on the “order of precedence” between *C. tinianica* KUR. and [H]), the reliable reconstruction of the branching sequence and, consequently, characteristics of ancestors *among* circles will be possible only in the last, concluding part, when the defensible hypotheses as to the structure of *all* subgroups of *Cyphogastra* DEYR. *s.str.* will be available.

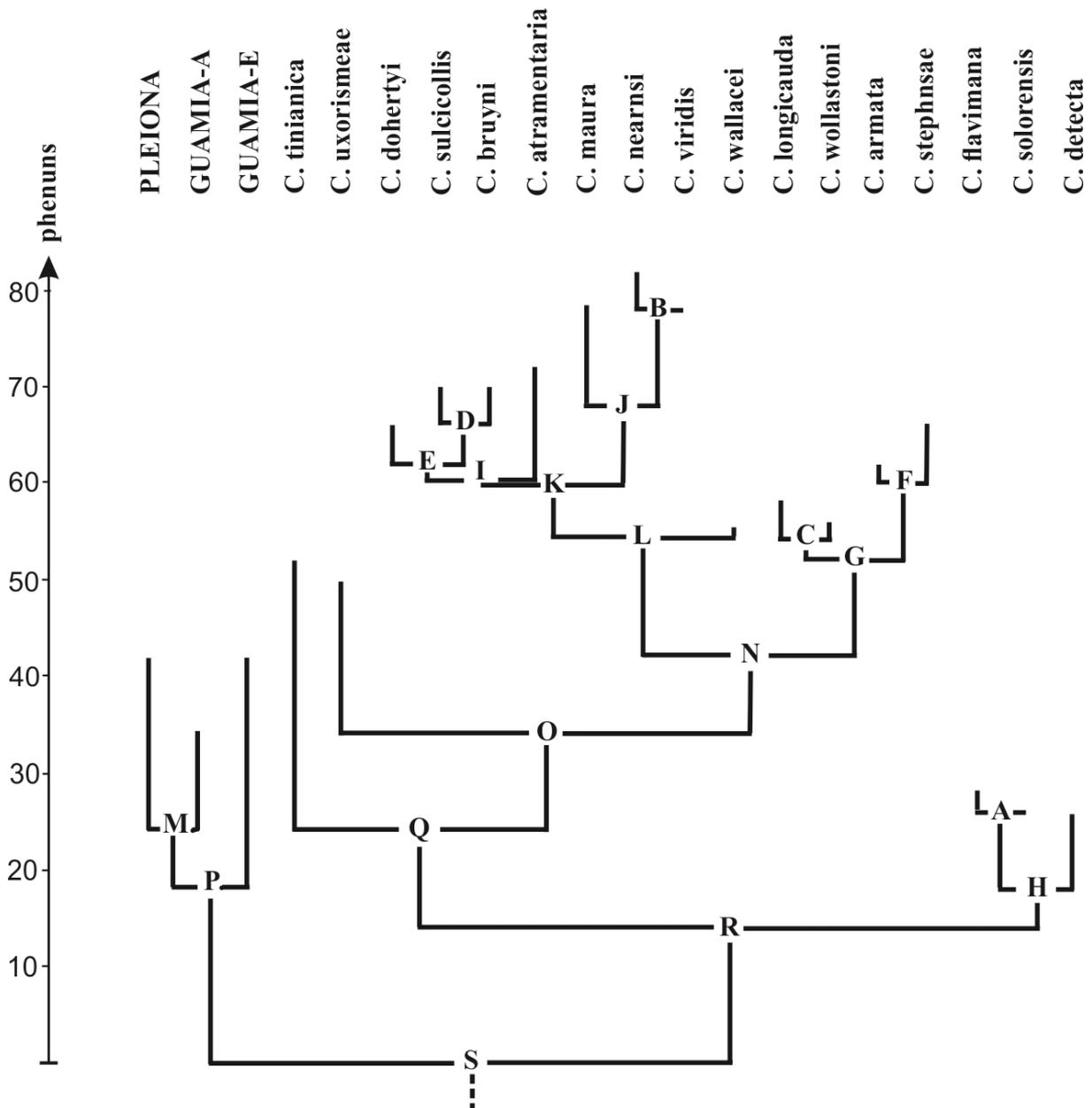


Fig. 21

Phylogenetical relations between and within the analysed circles

## Acknowledgements

I can only repeat my deep gratitude to all those – by far too numerous to be listed here... – who offered me material, help and advice in my four decades long studies on the Indo-Pacific faunae in general and *Cyphogastra* DEYR. in particular: without them I would never be able even to start planning a project like this. My special thanks are due to Eugenio (“Gino”) NEARNS for his kind help in access to critically important publications.

## Literature:

- BELLAMY C.L. 2004. New replacement names in Buprestidae (Coleoptera). *Folia Heyr.* **11** [2003], 3-4: 155-158
- BELLAMY C.L. 2008. A world catalogue and bibliography of the jewel beetles (Coleoptera: Buprestoidea). *Pensoft Series Faunistica* **76**, 1: 1-625
- DEYROLLE H. 1864. Description des Buprestides de la Malaisie recueillis par M. Wallace. *Ann. Soc. Ent. Belg.* **8**: 1-272; 305-312
- HOLYŃSKI R.B. 1994. Three new species of Buprestinae (Coleoptera: Buprestidae) from the Indo-Pacific Region. *Jew. B.* **3**: 1-9
- HOLYŃSKI R.B. 2001. MICSEQ, a new method of phylogenetic analysis, with example reconstruction of *Dicercomorpha* DEYR. (Coleoptera: Buprestidae). *Ann. Upp. Sil. Mus. (Ent.)* **10-11**: 139-158
- HOLYŃSKI R.B. 2016. Review of the [*Cyphogastra* DEYR.]-supergen (Coleoptera: Buprestidae) I. Mysteries of early evolution: *Pleiona* DEYR. and sg. *Guamia* THY. *Procrustomachia* **1**, 5: 72-95
- HOLYŃSKI R.B. 2020. *Cyphogastra clara* KERR. – who are you? (a taxonomic thriller). *Procrustomachia* **5**, 2: 23-28
- KERREMANS C. 1895. Buprestides Indo-Malais. Deuxième partie. *Ann. Soc. Ent. Belg.* **39**, 4: 192-224
- KERREMANS C. 1896. Viaggio di Lamberto Loria nella Papuasias Orientale. XVI. Buprestides. Deuxième mémoire. *Ann. Mus. Civ. St. Nat. Genova* (2) **16** (36): 353-360
- KERREMANS C. 1903. Coleoptera Serricornia. Fam. Buprestidae 2. *Gen. Ins.* **12b**: 49-112
- KERREMANS C. 1908. Buprestidae. In: *Nova Guinea. Résultats de l'expédition scientifique néerlandaise à la Nouvelle Guinée en 1903 sous les auspices de Arthur Wichmann* **5** (Zool.), 2: 303
- KERREMANS C. 1910. Monographie des Buprestides. **Bruxelles: Janssens** **4**, 6-9: 161-288
- KERREMANS C. 1911. Remarques synonymiques sur quelques espèces du genre *Cyphogastra* (Col. Bupr.). *Ann. Soc. Ent. Belg.* **55**, 10: 294-297
- KUROSAWA Y. 1953. A new Buprestidae from Marianne Islands, Micronesia. *Kontyû* **20**, 1-2: 36-39
- LANSBERGE M.G. van. 1880. Description de quelques Coléoptères de la Malaisie et de la Papouasie. *Ann. Soc. Ent. Belg.* **23**: 118-139
- OBENBERGER J. 1917. Neue Cyphogastren (Coleoptera-Buprestidae). *Ent. Bl.* **13**, 10-12: 253-256
- OBENBERGER J. 1924. Ein neuer Prachtkäfer (Col., Buprestidae). *Nova Guinea* **15**, 1: 88
- OBENBERGER J. 1926. Buprestidae I. *Col. Cat.* **84**: 1-212
- THÉRY A. 1923. Études sur les Buprestides (troisième partie). *Ann. Soc. Ent. Belg.* **62** [1922]: 193-270
- THÉRY A. 1926. Recherches synonymiques sur les Buprestides et descriptions d'espèces nouvelles. *Ann. Bull. Soc. Ent. Belg.* **66**, 1-2: 33-74
- WATERHOUSE C.O. 1915. CYPHOGASTRA WOLLASTONI, sp. n. [In: ARROW G.J., G.A.K. MARSHALL, C.J. GAHAN, K.G. BLAIR. 1915. *Report on the Coleoptera collected by the British Ornithologists' Union Expedition and the Wollaston Expedition in Dutch New Guinea*]. *Trans. Zool. Soc. Lond.* **20**, 16, 1: [497-542]: 506-507

## Appendix

### Character definitions

Upper line – codes of traits [“character-states”]; [*bold italics*] – terminals of a transformation chain

Lower line – weights (costs of transformation) [ $0 \leftrightarrow 1 \leftrightarrow 2 = 1$ : additively equidistant (distance between 0 and 1 the same (=1) as between 1 to 2, that between 0 and 2 = 1+1 = 2); (*abc*)=1: equidistant (distance  $a \leftrightarrow b = b \leftrightarrow c = c \leftrightarrow a = 1$ );  $a \leftrightarrow x/y = 2$ : alternatively equidistant ( $a \leftrightarrow x = a \leftrightarrow y = 2$ ;  $x \leftrightarrow y = a \leftrightarrow x + a \leftrightarrow y = 2 + 2 = 4$ )

#### Colour

1. Body lustre: [*g*] glass; [*m*] metallic; [*o*] oily  
(gms)=1
2. Elytra (disk): [*g*] green; [*c*] cupreous; [*b*] bronzed; [*n*] black; [*p*] bicolorous  
(gcbnp)=2
3. Elytra (postero-lateral band): [*0*] none; [1] short, inconspicuous; [*2*] large, contrasting  
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$
4. Pronotum: [*0*] concolorous; [*1*] contrasting  
 $0 \leftrightarrow 1 = 1$
5. Sternum: [e] concolorous; [*g*] contrasting green; [*c*] contrasting cupreous; [*v*] contrasting violaceous  
(gcv) $\leftrightarrow$ e=1
6. Abdomen (anal sternite ♂): [*0*] metallic; [*1*] discoloured  
 $0 \leftrightarrow 1 = 2$
7. Antennae: [*0*] dark brown; [*1*] yellow  
 $0 \leftrightarrow 1 = 2$
8. Tarsi: [*0*] dark brown; [1] 1.-4. joints yellow, claw joint dark; [*2*] only claws dark  
 $0 \leftrightarrow 1 = 2$ ;  $1 \leftrightarrow 2 = 1$

#### Pronotum

9. Side margins: [*0*] subparallel; [*1*] distinctly convergent  
 $0 \leftrightarrow 1 = 2$
10. Collar: [*0*] none or inappreciable; [*1*] distinct  
 $0 \leftrightarrow 1 = 1$
11. Anterolateral angles: [*0*] not prominent; [1] slightly tuberculate; [*2*] projecting outwards  
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$
12. Lateral fossae: [*s*] oblique sulci; [*i*] irregular; [c] c-shaped; [*a*] L-shaped; [*b*] broad  
 $i \leftrightarrow c \leftrightarrow a = 1$ ;  $c \leftrightarrow (s/b) = 2$
13. Lateral fossae: [*0*] not dfp; [1] slightly dfp; [*2*] extensively dfp  
 $0 \leftrightarrow 1 \leftrightarrow 2 = 2$
14. Laterobasal reliefs: [*0*] coarsely punctured; [*1*] finely punctulated  
 $0 \leftrightarrow 1 = 1$
15. Laterobasal emargination: [*d*] short deep; [*s*] long shallow; [*a*] long angular  
 $0 \leftrightarrow 1 = 1$

#### Elytra

16. Subhumeral protrusion: [*0*] none; [1] discernible; [*2*] prominent  
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$
17. Apical half: [*0*] not caudate; [1] slightly caudate; [*2*] strongly caudate  
 $0 \leftrightarrow 1 = 1$ ;  $1 \leftrightarrow 2 = 2$
18. Lateroapical margins: [*0*] multidenticulate; [*1*] smooth except sutural denticle  
 $0 \leftrightarrow 1 = 2$
19. Apices: [*0*] markedly oblique/jointly rounded; [*1*] transversely truncate  
 $0 \leftrightarrow 1 = 1$
20. Perihumeral dfp: [*0*] none; [*1*] distinct  
 $0 \leftrightarrow 1 = 2$
21. Sculpture: [*0*] very fine; [1] moderate; [*1*] relatively coarse  
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$

#### Ventral side

22. Prometasternal ledge: [*0*] none; [*1*] prominent  
 $0 \leftrightarrow 1 = 3$
23. Abdominal plaque: [*0*] none; [1] slight; [*2*] prominent  
 $0 \leftrightarrow 1 \leftrightarrow 2 = 2$
24. Proepisterna: [*0*] entirely dfp; [1] partly dfp; [*2*] entirely lustrous & relieved  
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$
25. Midlateral dfp stripes on abdomen: [*0*] none/inconspicuous; [*1*] distinct at least on anal sternite (often confluent with lateral)  
 $0 \leftrightarrow 1 = 1$
26. Lateral dfp depressions on abdomen: [*0*] none or inconspicuous; [1] extensive; [*2*] entire sides  
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$

### Character matrix

*red italics*: apomorphies; *last two columns* = distance from last ancestor [Support Quotient]

PLEIONA	og10e	00110	<i>0c20s</i>	10000	01000	0 = 9
GUAMIA-A	og10c	01100	1c21s	00000	00021	0 = 5
GUAMIA-E	oc20e	10011	1c01s	01100	00021	0 = 12
C. tinianica	ob10e	10201	<i>2c11d</i>	<i>22110</i>	20211	0 = 15
C. uxorismeae	mg00c	10111	1i00d	12010	10220	0 = 8
C. dohertyi	mg00e	00010	0s10d	12010	20201	1 = 2
C. sulcicollis	mg00e	00011	0s20d	12011	20211	1 = 2
C. bruyani	mg00v	00010	0s20d	12011	20201	0 = 2
C. atramentaria	gn00e	00010	0s21s	22010	20211	0 = 6
C. maura	mn00e	00011	0a20d	12000	20111	0 = 5
C. nearnsi	og00e	00001	1a20d	12010	00211	1 = 2
C. viridis	og00e	00001	1a20d	12010	20211	1 = 0
C. wallacei	og00e	00010	0s00d	02010	10221	0 = 1
C. longicauda	og00e	00011	1b00s	12010	10211	2 = 2
C. wollastoni	og00e	00010	1b00s	22010	10201	2 = 1
C. armata	ob00e	00110	0b00s	22010	10201	2 = 1
C. stephensae	mc00e	00110	0b00s	12010	10201	2 = 3
C. flavimana	mb00e	00101	1b01s	00010	10101	2 = 1
C. solorensis	mb00e	00101	1b01s	00000	10101	2 = 0
C. detecta	gn00e	00101	1b01s	00000	00201	2 = 4
A	mb00e	00101	1b01s	00000	10101	2 = 4 [ 1/ 6]
B	og00e	00001	1a20d	12010	20211	1 = 5 [ 2/ 9]
C	og00e	00010	1b00s	12010	10201	2 = 1 [ 3/ 5]
D	mg00e	00010	0s20d	12011	20201	1 = 2 [ 3/ 5]
E	mg00e	00010	0s20d	12010	20201	1 = 1 [ 3/ 7]
F	ob00e	00110	0b00s	12010	10201	2 = 4 [ 4/ 5]
G	og00e	00010	0b00s	12010	10201	2 = 3 [ 5/12]
H	mg00e	00101	1b01s	00000	10201	2 = 2 [ 6/13]
I	mg00e	00010	0s20d	12010	20211	0 = 0 [ 7/ 9]
J	mg00e	00011	0a20d	12010	20211	0 = 4 [ 8/ 9]
K	mg00e	00010	0s20d	12010	20211	0 = 3 [ 8/10]
L	og00e	00010	0s00d	12010	10221	0 = 4 [ 9/11]
M	og10e	00110	1c21s	00000	00021	0 = 3 [ 9/13]
N	og00e	00010	0b00d	12010	10221	0 = 2 [10/10]
O	og00e	00111	1b00d	12010	10221	0 = 5 [ 9/15]
P	og10e	00111	1c11s	00000	00021	0 = 9 [13/13]
Q	og00e	00101	1b01d	12010	10211	0 = 6 [15/16]
R	og00e	00101	1b01s	00000	10201	0 = 7 [ 6/11]
S	og00e	00111	1b01s	00000	00001	0
T (METATAENIA+IRIDOTAENIA)	mg00e	00110	0b01s	00000	00000	1
U (T+S)	og00e	00111	1b01s	00000	00001	0
m		0		1	0	1
						2

2

METATAENIA = *M. (Chalcomroczkowska) ocellata* (L.S.)  
 IRIDOTAENIA = *I. (Euiridotaenia) curta* DEYR.

**Open access**

Edited, published and distributed by:  
Informal *Uncensored Scientists Group*  
c/o Roman B. HOLYŃSKI  
e-mail: [rbholynski@gmail.com](mailto:rbholynski@gmail.com)