

# A new and a little known species of *Cryptocephalomorpha* Ritsema (Coleoptera: Carabidae: Pseudomorphae)<sup>1</sup>

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## Abstract

A new species of the pseudomorphine genus *Cryptocephalomorpha* Ritsema is described from Laos: *Cryptocephalomorpha maxima* n. sp. The key to the species of *Cryptocephalomorpha* in BAEHR (1997) is updated to include the new species. Two additional records of the unique African pseudomorphine species, *Cryptocephalomorpha generi* Baehr, 1997 are communicated from Botswana and Zambia. They corroborate the occurrence of this species in central southern Africa.

**Key words:** Coleoptera, Carabidae, *Cryptocephalomorpha*, new species, Asia, Africa.

## Zusammenfassung

Aus der Pseudomorphinen-Gattung *Cryptocephalomorpha* Ritsema wird eine neue Art aus Laos beschrieben: *Cryptocephalomorpha maxima* n. sp. Der Bestimmungsschlüssel zu den Arten von *Cryptocephalomorpha* in BAEHR (1997) ist überarbeitet, um die neue Art aufzunehmen. Zwei weitere Exemplare der einzigen afrikanischen Pseudomorphinen-Art, *Cryptocephalomorpha generi* Baehr, 1997 werden aus Botswana und Zambia gemeldet und bestätigen das Vorkommen dieser Art im zentralen südlichen Afrika.

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## 1 Introduction

Through courtesy of W. SCHAWALLER of Staatliches Museum für Naturkunde, Stuttgart, I received a single specimen of the pseudomorphine ground beetle genus *Cryptocephalomorpha* Ritsema for identification which turned out to belong to a new species described herein. Recently R. STALS of Transvaal Museum, Pretoria, sent me a single specimen of an African pseudomorphine for identification. At the same time, I received another specimen from southern Africa through courtesy of D. WRASE, Berlin. Both specimens are communicated herein.

Pseudomorphae is a subfamily of ground beetles of quite curious external morphology which rather remind dytiscids or even colydiids, so that they are not easily recognized as carabid beetles. The biology is as well exceptional, because the species of almost all pseudomorphine genera, except *Cryptocephalomorpha*, are tree-living, mainly occurring under bark or in bark cracks of a

variety of tree species. Moreover, the species of several genera are larviparous which means that the larvae already hatch within the female oviducts and are then born. This type of reproduction is extremely rare in beetles and probably is due to the putative myrmecophilous habits of larvae and adults of all genera.

Even within this subfamily, the genus *Cryptocephalomorpha* is unique in its very convex body shape with the mouthparts and legs largely concealed. So far seven species have been recorded most of which occur in South Asia, but one species each in New Guinea, northern Australia, and South Africa. Almost nothing is known about life history, ecological requirements, and behaviour of the species of *Cryptocephalomorpha*, except that the few recorded specimens of the New Guinean species *C. papua* Darlington were collected by ants. Of most species only few or even single specimens have ever been captured, and most samples were done at light. Hence, probably the species of this genus are not regularly tree-living.

<sup>1</sup> 11<sup>th</sup> supplement to the "Revision of the Pseudomorphae of the Australian Region".

An extensive diagnosis of the genus, a key to all species known at that time, and complete references to the relevant literature can be found in my monograph (BAEHR 1997). One additional species from Borneo was described in BAEHR (2002), which paper includes a partly updated key.

#### Acknowledgements

My sincere thanks are due to Dr. W. SCHAWALLER (Stuttgart), Dr. R. STALS (Pretoria), and D. WRASE (Berlin) for the kind loan or gift of the material, and to P. SCHÜLE (Herrenberg) for directing my attention to the specimen in the collection in Pretoria. Dr. C. HUBER (Bern) and P. SCHÜLE critically reviewed the manuscript.

#### 2 Methods and materials

Dissecting methods and measurements follow BAEHR (1997).

The holotype of the new species is deposited in Staatliches Museum für Naturkunde, Stuttgart (SMNS). The communicated specimens of *Cryptocephalomorpha genieri* are stored in South African National Collection of Insects, Pretoria (SANC) and in the working collection of the author in Zoologische Staatssammlung, München (CBM).

#### 3 Description of *Cryptocephalomorpha maxima* n. sp.

(Figs. 1, 2)

**Holotype** (♀): Laos, CE: Boli Kham Xai prov., Ban Nape (8 km NE), 600 m, 18°21'N 105°08'E, leg. PACHOLÁTKO, 1.–18.V.2001 (SMNS).

#### Etymology

The name refers to the very large size of this species.

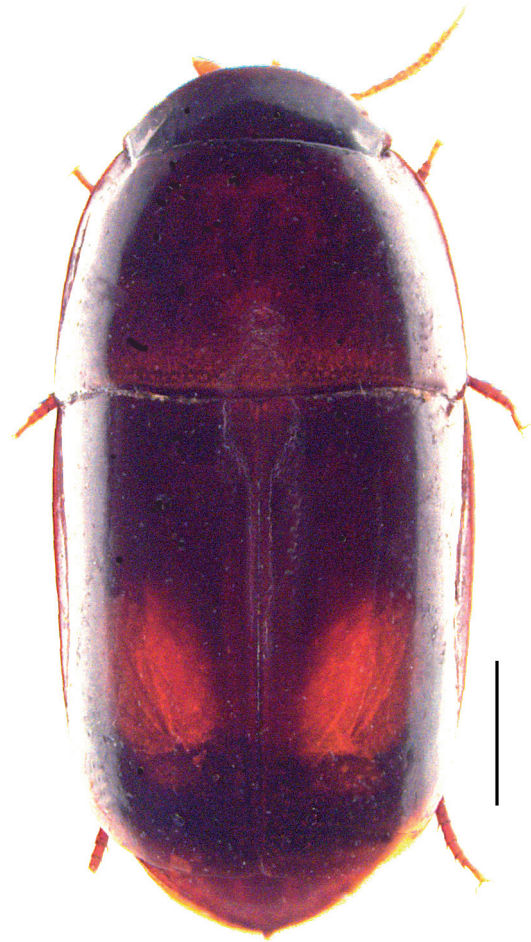
#### Diagnosis

Distinguished from all other species of *Cryptocephalomorpha*, except *C. gigantea* Baehr, 2002, by combination of very large size (in genus), almost circular elytral spots and dark pronotum. From the latter species distinguished by shorter and wider body, in particular shorter elytra, presence of subhumeral and subapical marginal elytral punctures, and slightly explanate lateral margin of elytra.

#### Description

Measurements and ratios. Body length: 6.05 mm; body width: 3.1 mm. Width/length of pronotum: 1.72; width of pronotum/width of head: 1.55; length/width of elytra: 1.22; length of elytra/length of pronotum: 2.11.

Colour (Fig. 1). Surface piceous, but pronotum very slightly lighter, anterior margin of head, all margins of pronotum and elytra, and elytral spots light reddish. Reddish lateral margins of pronotum and elytra narrow and inconspicuous, on pronotum the reddish basal margin wide. Apical reddish margin of elytra narrow, suture dark.



**Fig. 1.** *Cryptocephalomorpha maxima* n. sp., habitus. – Scale: 1 mm.

Elytra with a fairly well delimited, slightly elliptical light reddish spot. Lower surface reddish. Mouth parts, antenna and legs dark reddish to piceous, femora reddish, tibiae and tarsi piceous. Whole surface glossy.

Head (Fig. 1). Short and wide, deeply imbedded in prothorax, anterior margin of head moderately convex, border rather convex, far protruding over mouth parts that are completely concealed from above. Frons convex. Clypeus faintly marked by the very superficial clypeal suture. Labrum very small, invisible from above. Mandibles very small, invisible from above, outer margin very gently angulate. Eye oval-shaped, on lower surface of head triangular. Orbit angulate and slightly projected, partly visible from above. Area behind eye asetose. Antennal groove moderately deep, comparatively short, medially and laterally bordered. Mental tooth moderately wide, elongate, obtusely acute, not pointed down. Wings of mentum wide, laminate, apex widely rounded. Glossa large, apparently completely fused with paraglossae to a moderately wide,

tongue-like, far protruding plate with convex apex that is ventrally keeled and rather pointed down. Glossa at apical margin with ca. eight fairly elongate setae, dorsal surface apparently without hairs. Lacinia inconspicuous, almost invisible. Galea narrow and fairly elongate, fusiform. Terminal palpomere of maxillary palpus elongate and almost parallel. Terminal palpomere of labial palpus very large and wide, markedly securiform, apical margin shorter than lateral margin, more than twice as long as inner margin. Both palpi rather densely pilose. Lateral plate of maxilla inconspicuous. Ventral surface of head rather short. Antenna short and wide, depressed, 7<sup>th</sup>–8<sup>th</sup> antennomeres more than 1.5 times as wide as long. Microreticulation on dorsal surface present, though extremely fine and somewhat superficial, irregularly isodiametric to slightly transverse, punctures extremely fine and sparse, surface impilose, glossy. Gula impilose.

Pronotum (Fig. 1). Wide, dorsally convex, lateral parts of dorsal surface not perpendicular, therefore lateral margin well visible from above. Base much wider than apex. Apex very convex, extremely finely and superficially margined; apical angles shortly produced, obtusely angulate. Lateral margins gently but evenly convex, finely margined, lateral channel absent, margins not at all explanate. Basal angles distinctly produced backwards, evenly rounded off, base in middle slightly convex, irregularly margined. Surface without median line. Microreticulation present, distinct, extremely fine and superficial, irregularly isodiametric to slightly transverse, surface with extremely fine and sparse, barely perceptible punctures, with some extremely fine, irregular wrinkles, impilose, glossy.

Elytra (Fig. 1). Comparatively short, wide, parallel, very convex, very slightly depressed on disk. Lateral parts not incurved ventro-medially, hence lateral margin visible throughout. Apex wide, truncature evenly convex, slightly incurved towards suture, but not dehiscent, lateral apical angles very widely rounded off. Base wide, obliquely convex, basal angles rounded. Basal margin attaining half of distance to suture, whole base including scutellum usually concealed by base of pronotum. Basal border laterally with a few delicate setae. Marginal channel narrow, well visible, in anterior half even slightly explanate. On left side one marginal puncture, on right side three marginal punctures behind humerus, on both sides a single puncture in front of apical curvature, situated very near lateral margin. Scutellar puncture absent. Dorsal punctures absent. Striae including sutural stria absent. Microreticulation present, very fine, irregularly isodiametric to slightly transverse. Punctures extremely fine and sparse, barely recognizable. Surface rather glossy. Posterior wings fully developed.

Lower surface. Anterior border of prosternum in middle without glandular boss. Prosternal process elongate, far surpassing procoxae, narrow, lower surface in front of

coxae impressed, margined inside of procoxae, between coxae very narrow, high, laminate, apex straight, extremely narrow, markedly laminate, surface apparently impilose. Metepisternum elongate, ca. twice as long as wide, posteriorly neither hollowed nor bent. Abdominal sterna bisetose, with coarse, fairly dense punctures and pilosity. Terminal sternum in female quadrisetose, punctate and sparsely pilose, without glandular, densely pilose area. Male terminal sternum unknown.

Legs. Short, first tarsomere of protarsus much longer than wide, tibial groove of profemur deep, symmetric, anterior border almost straight. Femora wide, tibiae rather short, widened towards apex. Metatibia comparatively elongate, ca. 4.5 times as long as wide, first tarsomere of metatarsus more than twice as long as wide. Male protarsus unknown.

Male genitalia. Unknown.

Female genitalia (Fig. 2). Comparatively small, wide. Sternum VIII elongate, apical part rather elongate, triangular, only at tip obtuse, laterally gently angulate, basal process narrow and elongate. Lateral margin of apical part with 4–5 very elongate setae, slightly below tip on upper surface with a tuft of 4–5 shorter setae. Both gonocoxites very narrow and elongate, gonocoxite 1 at apex not widened, gonocoxite 2 spine-shaped, at apex with one fairly elongate seta. Latero-basal angle of basal plate of tergum VIII posteriorly markedly protruding.

Variation. Unknown.

Vivipary. Not confirmed in the examined material.

#### Distribution

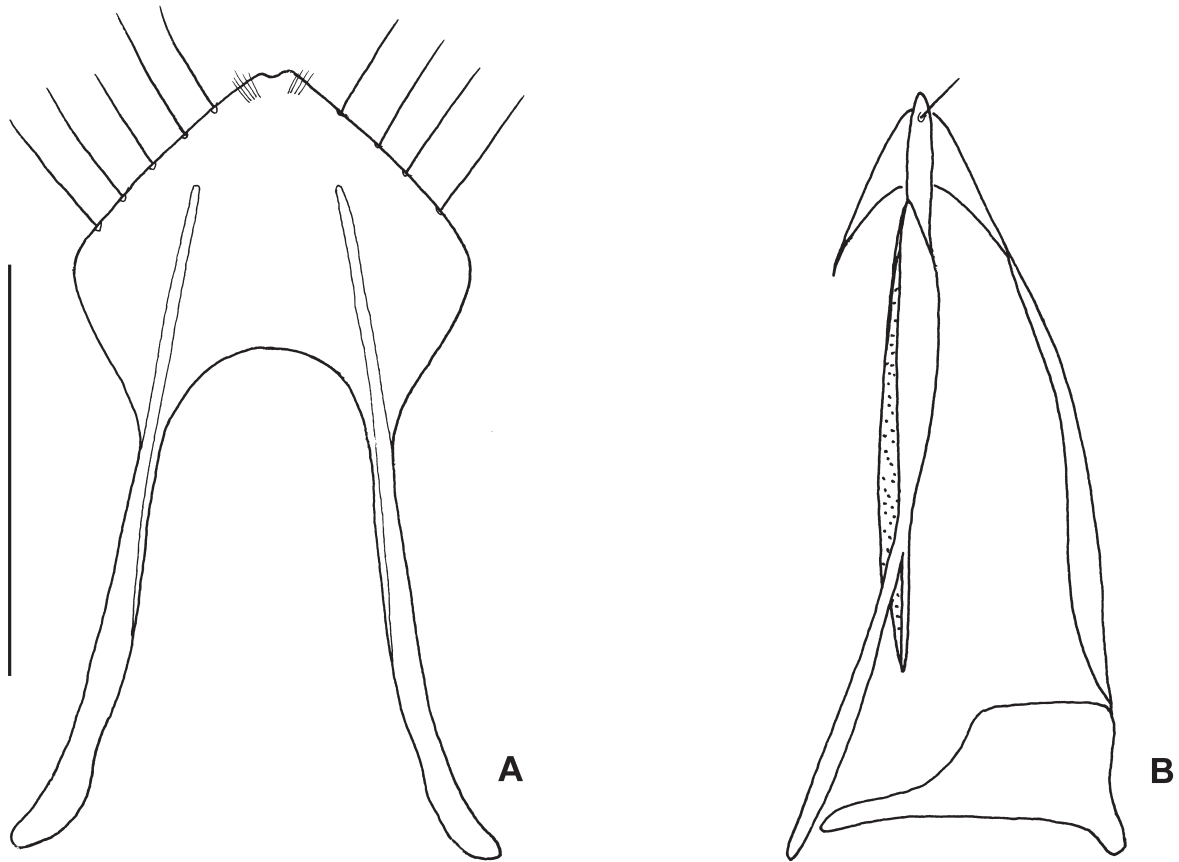
Laos. Known only from type locality.

#### Collecting circumstances

Unknown.

#### Relationships

Although *Cryptocephalomorpha maxima* n. sp. at first glance is very similar to the likewise very large *C. gigantea* Baehr from Borneo, actually it is not closely related. On the contrary, several character states in *C. maxima* apparently are quite plesiomorphic, e. g. the elongate tarsomeres and tibiae, in particular the elongate tarsomeres 1 in all legs; the simple outer margin of the mandible; the regular elytra that are not ventrally incurved; the presence of subhumeral and subapical setiferous punctures on the elytra; the presence of setiferous punctures on the abdominal sterna, as well as on the terminal sternum in the female; the elongate apical seta at gonocoxite 2, and the very elongate marginal setae on sternum VIII. In most of these character states *C. maxima* is more plesiomorphic than *C. gigantea* and also more plesiomorphic than all Oriental-Australian species, except *C. gaverei* Ritsema,



**Fig. 2.** *Cryptocephalomorpha maxima* n. sp., female genitalia, ventral view. – A. Sternum VIII. B. Gonocoxites 1 and 2, tergum VIII. – Scale: 1 mm.

and likewise except the single African species *C. genieri* Baehr. Apparently *C. maxima* shares many characters with *C. gaverei* with which it may be most closely related. It differs from the latter by much larger size, more circular elytral spot, presence of fine microreticulation on the surface, and presence of short setae at apex of sternum VIII.

**4 Recognition of *Cryptocephalomorpha maxima* n. sp.**

According to the presence of an elytral spot in *C. maxima* the key in my revision (BAEHR 1997: 377–378; see also the addition of BAEHR 2002: 128) can be followed on to caption 2. This caption then must be altered as following:

- 2 Size very large, body length ca. 6 mm. Elytral spot about circular or slightly elliptic and pronotum not contrastingly red. . . . . **2a**
- Size smaller, body length < 5 mm. Either elytral spot clearly oblique or pronotum contrastingly red. . . . . **2b**[= 2 of key in BAEHR 1997]
- 2a** Elytra longer, ratio length/width ca. 1.3, without any marginal punctures; lateral margin of elytra incurved ventrad,

- not visible from above; terminal sternum (in female) asetose. – Brunei, Borneo. . . . . **gigantea** Baehr
- Elytra shorter, ratio length/width ca. 1.2, with 1–3 marginal punctures near humerus and 1 puncture near apex; lateral margin of elytra slightly explanate laterad, visible from above; terminal sternum (in female) quadrisetose. – Laos. . . . . **maxima** n. sp.

**5 New records of *Cryptocephalomorpha genieri* Baehr, 1997**

Through courtesy of PETER SCHÜLE (Herrenberg), RIAN STÄLS (Pretoria) and DAVID WRASE (Berlin) I received two pseudomorphic specimens for identification, collected in Botswana and Zambia, southern Africa. Both are females, labelled: “20 km N Maun, Botswana SE, 19, 23, DC, ...[unreadable], 16.I.1978, HOLM, JACOBS, KIRSTEN, SCHOLTZ / National coll. of Insects, Pretoria, S.A.” and: “Zambia NC Mkushi env. E. 16.–18.XII.2004, SNIŽEK, TICHÝ”. They turned out to represent the second and third specimens of *Cryptocephalomorpha genieri* which so far is the single species of the subfamily Pseudomorphae recorded from Africa (BAEHR 1997). The holotype of this

species was from north-western Transvaal close to the Botswana border. The additional specimens considerably enlarge the range of this species which now extends through large parts of central southern Africa. At any rate, the occurrence of a pseudomorphine species in southern Africa is surprising, because this group occurs mainly in Australia and America. Only the aberrant and highly evolved genus *Cryptocephalomorpha* is more common in south-east Asia than in Australia (in terms of species) and through its occurrence in southern Africa it seems to represent a connecting link between the eastern and western pseudomorphine faunas.

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## 6 References

- BAEHR, M. (1997): Revision of the Pseudomorphae of the Australian Region 2. The genera *Pseudomorpha* Kirby, *Adelotopus* Hope, *Cainogenion* Notman, *Paussotropus* Waterhouse, and *Cryptocephalomorpha* Ritsema. Taxonomy, phylogeny, zoogeography (Insecta, Coleoptera, Carabidae). – *Spixiana*, Supplement **23**: 510 pp.
- BAEHR, M. (2002): New species and new records of Australian and Oriental Pseudomorphae – 4<sup>th</sup> Supplement to the Revisions of the Pseudomorphae of the Australian Region (Insecta, Coleoptera, Carabidae). – *Spixiana* **25**: 101–129.

