

Research article

Submitted: February 25th, 2019 - Accepted: April 20th, 2019 - Published: May 31st, 2019

Revision of the genus *Opisthozemius* Kolbe, 1916, with description of a new species and designation of a new genus (Coleoptera: Brentidae, Cyphagoginae)

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Abstract

The Afrotropical genus *Opisthozemius* Kolbe, 1916 is revised. The genus now includes four species, one of which is described as new: *Opisthozemius naamae* sp. nov., from Tanzania and Zambia. *Opisthozemius sulcithorax* Damoiseau, 1967, from Java, is removed from the genus *Opisthozemius* and included in *Euparagogus* gen. nov. *Opisthozemius honestus* is placed in synonymy with *Opisthozemius vittatus* (new synonymy). A key for the identification of the species of *Opisthozemius* and some distributional data are also given. *O. appendiculatus* is quoted for the first time from Ghana; *O. vittatus* for the first time from Central African Republic, Ghana and Uganda.

Key words: Brentidae, *Opisthozemius*, *Euparagogus*, new species, new genus, new synonymy, Afrotropical, Oriental, new records.

urn:lsid:zoobank.org:pub:AAD6488B-C4D2-4A16-BC7C-48F28FFB1EBD

Introduction

The genus *Opisthozemius* was erected by Kolbe (1916), and in his paper he gave a rather short description of two new species, *Opisthozemius appendiculatus* and *O. vittatus*, both from Cameroon. Kleine (1936) described another species, *O. honestus*, based on a female specimen from the Democratic Republic of Congo. However, this species was later synonymized by Damoiseau (1961) with *Opisthozemius appendiculatus*. De Muizon (1955) erected the new genus *Acidotus*, describing *Acidotus villiersi*, and four years later (De Muizon 1959) he described *Acidotus hautmanni* and *Acidotus vaneyeni*. The genus *Acidotus* was later synonymized by Damoiseau (1961) with *Opisthozemius*. Damoiseau considered *Acidotus hautmanni* as a synonym of *O. vittatus*, and *Acidotus villiersi* became the third species of *Opisthozemius*; *Acidotus vaneyeni* (De Muizon, 1959) was placed by Damoiseau in the new genus he erected – *Azenius* Damoiseau, 1961. Finally, Damoiseau (1967b) described the fourth and last *Opisthozemius* species known so far and the only one from the Oriental region (Indonesia): *O. sulcithorax* Damoiseau, 1967.

The genus *Opisthozemius* belongs to the subfamily Cyphagoginae Kolbe, 1892, tribe Cyphagogini Kolbe, 1892, which is the most diverse brentid tribe in the Afrotropical Region, consisting of 106 species, about 38% of all the fauna of this family in the region. The species of

Opisthozemius are poorly represented in collections, and very little, if not even nothing at all, is known about their ecology and biology. The purpose of this work is to carry out the taxonomic revision of the genus, and to describe a new genus and a new species found during the study of the material.

Material and methods

Our study is based on 25 adult specimens of *Opisthozemius* obtained on loan from several institutions and private collections indicated in the following list. Acronyms for institutional depository collections are those used by Sforzi & Bartolozzi (2004); for private collections a coden has been designated, based on the initials of the collection owner:

- EOC** Mr. Eylon Orbach Collection, Qiryat Tivon, Israel
- IRSNB** Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium
- MNHN** Museum National d'Histoire Naturelle, Paris, France
- MNHUB** Museum für Naturkunde der Humboldt-Universität, Berlin, Germany
- MRAC** Musée Royal de l'Afrique Centrale, Tervuren, Belgium

MZUF Museo di Storia Naturale, Sezione di Zoologia “La Specola”, Università di Firenze, Italy

The dissection of the genitalia was made by softening the dried specimens in boiling distilled water for 5 minutes, then taking off the entire abdomen with a pair of fine forceps. The abdomen was placed in a cold 10% potassium hydroxide (KOH) solution for 8-10 hours, then removed to a petri dish with distilled water, where further dissection and clearing of the genitalia was made. The cleared genital parts were glued for further examination and comparison to a glue board using transparent water based glue – dimethyl hydrantoin formaldehyde resin.

Specimens were examined using either a Leica MZ APO binocular at magnifications varying 8x to 80x, or a stereo microscope BMS 140 Bino Zoom at magnifications varying 7x to 45x. Digital photographs were prepared using a microscope Leica M205 C and dedicated software Leica Z-stac LAS V4 3.

Results

Genus *Opisthozemius* Kolbe, 1916

Opisthozemius Kolbe, 1916: 58.

Acidotus De Muizon, 1955: 506 (syn. Damoiseau, 1961: 2).
Type species: *Opisthozemius appendiculatus* Kolbe, 1916.

Diagnosis. Transverse head, not or faintly separated from neck; distinct temples, their width not less than half of eye diameter; rostrum as long and as large as head; inter-antennal width more than 3/4 of head width; elytra dull; sutura prolonged in a point shortly protruding posteriorly; second interstia reaching declivity; trochanter very transverse, long and flat; all femurs ending internally with distinct flat lamina; hind femora with longitudinal external depression; protibiae with shallow cleaning organ, and ending with strong curved spine.

Opisthozemius appendiculatus Kolbe, 1916 (Fig. 2)

Opisthozemius appendiculatus Kolbe, 1916: 58.

Material. Holotype ♂ (Fig. 2) [card mounted, with aedeagus glued to card], **Cameroon**: “Kamerun”, Johann-Albrecht-Höhe [no date] (MNHUB); 1 ♂, Cameroon, Center, Mar 1996, M. Desfontaine (MZUF); 1 ex., near Kribi, Feb-Mar 1997, T. Bouyer (IRSNB); 2 ♂♂, **Democratic Republic of the Congo**: Pangala [no date and collector name] (IRSNB); 1 ex., **Ghana**: Eastern Region, Kibi, Mar 1999, C. Joly (IRSNB).

Geographical distribution. Angola, Cameroon, Democratic Republic of the Congo, Ghana (first record), Republic of the Congo.

Remarks. Damoiseau (1961, 1967a) considered *Opisthozemius honestus* to be synonym of *O. appendiculatus*, but we believe that it is actually synonym of *O. vittatus*.

Opisthozemius villiersi (De Muizon, 1955) (Fig. 3)

Acidotus villiersi de Muizon, 1955: 506.

Material. Holotype, **Ivory Coast**: IFAN-1946, Yapo C.I., 5-15 Oct, A. Villiers (MNHN).

Geographical distribution. Ivory Coast.

Remarks. Even if it was not possible to examine the Holotype, due to the new rules of MNHN about the shipment of Type material, we got a very good and detailed photo of the specimen (Fig. 3). This species is clearly distinct from its congeneric taxa by the antennomeres 3-8 long and oval and by the elytral interstriae that all have the same width except the second one.

Opisthozemius vittatus Kolbe, 1916 (Fig. 4)

Opisthozemius vittatus Kolbe, 1916: 58.

Opisthozemius honestus Kleine, 1936: 22 (**new synonymy**).

Acidotus hautmanni De Muizon, 1959: 76 (syn. Damoiseau, 1961: 5).

Material. Holotype of *Opisthozemius vittatus* (Fig. 4), **Cameroon**: “Kamerun”, Ebolowa, 1 Apr 1912, S.G. von Rothkirch (MNHUB); Holotype of *Opisthozemius honestus*, **Democratic Republic of the Congo**: Uelé, Dawa, Jul 1933, H.J. Bredo (MRAC); Holotype of *Acidotus hautmanni*, **Democratic Republic of the Congo**: Kivu, Lubongola, 1939, Dr. Hautmann (MRAC); 1 ex., **Cameroon**: Ebolowe, Stede Nkoenvone, May 1971, B. de Mire (IRSNB); 1 ex. **Cameroon**: Edea, Kiloza, 24-25 Feb 1993, T. Bouyer (IRSNB); 2 ex., **Cameroon**: surroundings Kribi, Feb-Mar 1997, leg. T. Bouyer (IRSNB); 1 ex., **Cameroon**: Ebogo, May-Jun 1993, T. Bouyer (EOC); 1 ex., **Central African Republic**: “Bei Hokou”, Bayanga, Mar 1996, P. Moretto (EOC); 1 ex., **Democratic Republic of the Congo**: Luebe [no date], D.W. Snyder, ex coll. USNMNH (MZUF); 1 ex., **Ghana**: West region, Daboase, Mar 1999, C. Joly (IRSNB); 1 ex., **Ivory Coast**: Binger-ville, May 1962, J. Decelle (MRAC); 2 ex., **Uganda**: Hoi-ma District, near Rwera, 1 Jun 2001 (EOC).

Geographical distribution. Cameroon, Central African Republic (first record), Democratic Republic of the Congo, Ghana (first record), Ivory Coast, Uganda (first record), Zambia.

Remarks. We had the opportunity to examine the Holotype of *Opisthozemius honestus*, synonymized by De Mui-

zon (1960) and Damoiseau (1961, 1967a) with *O. appendiculatus*, and found it to be actually nearly identical to the Holotype of *O. vittatus*. Therefore, we delete *O. honestus* from the synonyms of *O. appendiculatus* and place it under *O. vittatus* as a new synonym.

***Opisthozemius naamae* sp. nov.** (Figs 1, 5, 6)

Material. Holotype ♂ (card mounted, with genitalia glued to card), **Tanzania:** Dodoma Prov., near Mitundo, 10-16 Dec 1999, Werner & Lizler (MZUF, collection number 19621). Paratypes: 1 ♀, **Tanzania:** Dodoma Prov., near Babati, 3-6 Dec 1997, Werner & Lizler (MZUF, collection number 19622); 1 ♂, **Zambia:** NW Prov., near Kabompo, 4-7 Dec 2001, Werner & Lizler (MZUF, collection number 19623); 1 ♂, **Zambia:** NW Prov., 20 km NW Mwinilunga, 17-18 Nov 2003, Werner & Smrz (EOC); 1 ♂, **Zambia:** NW Prov., 80 km S Mwinilunga, 18-19 Nov 2003, Werner & Smrz (EOC).

Diagnosis. *Opisthozemius naamae* sp. nov. is related to *O. appendiculatus* and *O. vittatus* and similar to these two taxa in body shape, but can immediately be separated by the very dark and uniform color of the body and by the presence of two shiny longitudinal areas on the pronotal disc. The new species can be distinguished from *O. villiersi* by the different shape on the antennae: *O. villiersi* has antennomeres 3-8 long and oval, whilst in the new taxon they are perliform.

Description. Holotype ♂ (Fig. 1). Length from tip of rostrum to apex of elytra: 11,1 mm; width across humeral calli: 2,3 mm. Color: very dark brown, nearly black; head about 1.5 times broader than long, separated from neck; eyes large, not very protruding laterally, temples shorter than half the diameter of eyes; rostrum as long as head in dorsal view, metarostrum as wide as head, very short, with small superficial median fovea, mesorostrum narrowing on scrobes, prorostrum widely enlarging to same width of head, anterior margin deeply concave in semicircular shape, the margin of this concavity reaches backwards of mesorostrum; the entire head and rostrum densely punctuated, dull, except the prorostrum which is shiny. Mandibles prominent, strong, protruding forward, very finely punctuated; underside of head flat, with weak medial groove reaching transversal carina separating head from rostrum which is deeply notched anteriorly; head finely punctuated, inside the punctuation very tiny golden appressed setae, rostrum a little more coarsely punctuated.

Antennae short, antennomere 1 partially concealed within the scrobe, antennomere 2 long, conical, antennomere 3 shorter than 2, subconical, enlarged at apex, antennomeres 4 to 8 perliform, subequal in length, 9 and 10 as 4 to 8 but longer and as wide, 11 as wide as 10, acute apically, long but shorter than 9 and 10 together; 2 to 11 with long, black hairs directed anteriorly.



Figs 1-4 – Habitus. **1,** *Opisthozemius naamae* sp. nov., holotypus; **2,** *O. appendiculatus*, holotypus; **3,** *O. villiersi*, holotypus; **4,** *O. vittatus*, holotypus (scale bars = 1 mm).

Prothorax robust, piriform, grooved medially from base to nearly the neck, where a collar constriction is present; pronotum densely, finely and evenly punctuated on disc, dull but with longitudinal shiny bands on sides of medial groove reaching the widest area of pronotum, where the pronotal punctuation changes into small dense tubercles, each one bearing a short appressed scale; prosternum shiny, with medial groove widely enlarging anteriorly; mesosternum and metasternum glabrous, convex, metasternum longitudinally grooved medially.

Elytra slightly longer than head and prothorax together, apically pointed; humeri rounded; interstria 2 narrowing towards apex and disappearing on declivity, 3 two times wider than 2 on disc, 4 as wide as 2, 5 carinated and slightly elevated, 6 to 9 nearly equal; all interstriae with



Fig. 5 – *Opisthozemius naamae* sp. nov., anterior right femur and tibia, with femoral internal apical axe shaped lamina (scale bar = 1 mm).



Fig. 6 – *Opisthozemius naamae* sp. nov., male genitalia (scale bar = 1 mm).

rows of fine small shiny tubercles, each ending with very small short bristle; striae 3 to 9 punctuated. Tergite 1 and 2 slightly convex, fused, with the fusion clearly visible, slightly grooved medially, finely and regularly punctuated; tergite 3 short, flat, punctuated; tergite 4 same length as 3, punctuated; tergite 5 convex, slightly longer than the 2 preceding ones together, more densely punctuated than tergite 1 to 4, depressed distally and with sparse short hairs directed backwards.

Fore legs: coxa conical, enlarging distally; trochanter very transverse, long and flat; femur short and strong, basally flattened, ending internally with long very flat lamina axe shaped (Fig. 5); inner surface shiny and with fine and superficial punctuation, external surface inflated, wrinkled, the wrinkles are transverse basally and longitudinal distally, one distal wrinkle is stronger and carinate; tibia much shorter than femur, robust, thin basally, expanding distally, dorsally carinated and anteriorly with strong curved spine protruding outwards, laterally with weak longitudinal carina; ventrally and anteriorly with semi-circular shallow cleaning organ; dorsal and external sides coarsely granulated, inner side shiny, with fine scattered punctuation; tarsi with first tarsomere compressed dorsally, longer than second, 2 and 3 subequal in size, enlarged towards apex, onychium slender, long. Middle legs: femur slightly shorter and much less strong than profemur, compressed ba-

sally, enlarged distally, externally depressed along compressed part, ending with small triangular lamina directed downwards; tibia much shorter than femur, upper surface straight, lower surface convex, depressed exteriorly; tarsi similar to protarsi. Hind legs: femur much longer than pro and meso femur, flattened and curved basally and thickened distally, with longitudinal depression along flattened part externally and triangular flat lamina at apex directed downwards; tibia much shorter than femur, similar to middle tibia; tarsi as in middle leg. Genitalia: Fig. 6.

Female. The female differs from the male by the following characters: head and rostrum shiny, punctuation more superficial and sparse; head with median shallow longitudinal depression; concavity on anterior margin of pronotum much smaller; mandibles smaller, shiny; pronotal disc shiny also on medial groove, more finely punctuated; tergite 1 and 2 more convex; tergite 5 without distal depression.

Geographical distribution. This new species is at present known from Tanzania and Zambia.

Etymology. The new species is dedicated to the first author's elder daughter Naama, a gifted designer and a blogger.

Key to the species of *Opisthozemius*

1. Antennomeres 3-8 long and oval
..... *Opisthozemius villiersi* (De Muizon, 1955)
- Antennomeres 3-8 periform or wider than long 2
2. Uniformly dark brown, nearly black, shiny areas on pronotal disc
..... *Opisthozemius naamae* Orbach & Bartolozzi sp. nov.
- Coloration not uniformly almost black, pronotal disc without shiny areas 3
3. Body dull, punctuation on head and prothorax dense and strong, medial groove evident
..... *Opisthozemius appendiculatus* Kolbe, 1916
- Body less dull, punctuation on head and prothorax not dense and strong, medial groove shallow or absent
..... *Opisthozemius vittatus* Kolbe, 1916

Euparagogus Orbach & Bartolozzi, gen. nov. (Fig. 7)

Type species. *Opisthozemius sulcithorax* Damoiseau, 1967.

Diagnosis. *Euparagogus* can be distinguished from the closely related genus *Opisthozemius* by the following characters: head more strongly separated from the neck, eyes more protruding outwards, occupying nearly all lateral side of head, temples extremely short, less than 1/8 of eye diameter, antennomere 1 very strong, antennomeres 9 and 10 with flat sharp cut distally, presence of dense scales around eyes and under head, prothorax and elytra shiny, prothorax constricted not only anteriorly but also posteriorly, strong scales on sutural band and on interstria 3 and 5, femora without distal lamina, profemora not rugose and metafemora without external lateral depression.



Fig. 7 – Holotypus of *Opisthozemius sulcithorax*, type species of *Euparagogus* gen. nov. (scale bar = 1 mm).

Remarks. Damoiseau (1967b: 5) based his new species *Opisthozemius sulcithorax* on a specimen from Senna's collection held in MZUF (Fig. 7). The specimen was labeled by Senna himself as "*Euparagogus latifrons* Senna in litt." [handwritten label] but Senna never published this taxon. Damoiseau (1967b) described it and wrote that he tentatively included the new species in the genus *Opisthozemius*, even if he was aware of the differences, awaiting more material. Studying thoroughly this specimen, we reached the conclusion that the many morphological differences are so strong to make it necessary to place the species in a new genus, as Senna had already noticed. We thus designate here the new genus and keep the name suggested *in litteris* by Senna, as a tribute to his memory. The geographical distribution is also rather peculiar: all *Opisthozemius* species inhabit Africa, whilst *Euparagogus* gen. nov. occurs in Indonesia (Java).

The key for the tribe Cyphagoginae proposed by Damoiseau (1989) should be modified as follows at couplet 60 to include the new genus:

60. Prothorax weakly constricted anteriorly, interocular width at least equal to 3/4 of the rostral width 60a
 - Prothorax strongly constricted anteriorly, interocular width not more than 1/2 of the rostral width
 *Azemius* Damoiseau, 1961
 60a. Prothorax constricted anteriorly and posteriorly, temples very short, less than 1/5 of the eye diameter
 *Euparagogus* Orbach & Bartolozzi gen. nov.
 - Prothorax constricted only anteriorly, temples more than 1/3 of eye diameter *Opisthozemius* Kolbe, 1916

Acknowledgements – We are grateful to Stéphane Hanot (MRAC, Tervuren), Alain Drumont and Pol Limbourg (IRSNB, Bruxelles), Johannes Frisch and Bernd Jäger (MNHUB, Berlin), and Antoine Mantilleri (MNHN, Paris) for the loan of types and specimens. We also thank our friend Saulo Bambi (MZUF, Florence) for the photos.

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