



On the taxonomic status of *Tenebriocamaria atra* Pic, 1919 and *Paroeatus nitidus* Gebien, 1928 (Coleoptera: Tenebrionidae: Stenochiinae) with proposal of a new specific synonym

Sobre el estatus taxonómico de *Tenebriocamaria atra* Pic, 1919 y *Paroeatus nitidus* Gebien, 1928 (Coleoptera: Tenebrionidae: Stenochiinae) con propuesta de un nuevo sinónimo específico

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<https://zoobank.org/References/A7C55150-EC58-4EC1-9C3F-FB9169246ABC>

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Abstract.– *Tenebriocamaria atra* Pic, 1919 and *Paroeatus nitidus* Gebien, 1928 are species recorded in Peru, representatives of two currently valid genera in the Cnodalonini tribe of Stenochiinae subfamily. However, the examination of type specimens suggests that these are the same species and therefore the synonymy of *P. nitidus* with *T. atra* is proposed. Redescription, habitus images, morphological character details, new records and a distribution map for the so redefined species *T. atra* are provided. The implications of this finding for future research on the whole South American Cnodalonini genera and particularly for the remaining species placed in *Tenebriocamaria* Pic, 1919 and *Paroeatus* Gebien, 1928 are briefly discussed.

Key words. *Cnodalonini*, new synonymy, Amazonian fauna, redescription, South America.

Resumen.– *Tenebriocamaria atra* Pic, 1919 y *Paroeatus nitidus* Gebien, 1928 son especies registradas en el Perú, representantes de dos géneros actualmente válidos en la tribu Cnodalonini de la subfamilia Stenochiinae. Sin embargo, el examen de los especímenes tipo sugiere que son la misma especie y por lo tanto se propone la sinonimia de *P. nitidus* bajo *T. atra*. Redescripción, imágenes de adultos, detalles de caracteres morfológicos, nuevos registros y un mapa de distribución son proporcionados para la redefinida especie *T. atra*. Se discuten brevemente las implicancias de este hallazgo para futuras investigaciones sobre el conjunto de los géneros sudamericanos de Cnodalonini y particularmente para las especies restantes ubicadas en *Tenebriocamaria* Pic, 1919 y *Paroeatus* Gebien, 1928.

Palabras clave: *Cnodalonini*, nueva sinonimia, fauna Amazónica, redescrípción, Sudamérica.

The genus *Tenebriocamaria* Pic, 1919 was proposed by Pic (1919), including only the type species *Tenebriocamaria atra* Pic, 1919 based on specimens from Peru and supposed to be near to *Camaria* Lepeletier & Audinet-Serville, 1828. Two years later, *Tenebriocamaria nigra* Pic, 1921 was described based on specimens from Brazil (Pic, 1921). This genus was included along with *Camaria* related genera in Gebien (1942), under Cnodaloninae in Blackwelder (1945), and it is currently placed in Cnodalonini tribe of Stenochiinae (Smith *et al.*, 2015; Bouchard *et al.*, 2021).

The genus *Paroeatus* Gebien, 1928 was described by Gebien (1928), including the type

species *Paroeatus opacus* Gebien, 1928 from Brazil and *Paroeatus nitidus* Gebien, 1928 from Bolivia, Brazil and Peru, and also proposed the inclusion of a third species *Paroeatus glabricollis* (Sturm, 1826), originally described under the genus *Upis* Fabricius, 1792. The author stated that his new genus was morphologically similar to *Oeatus* Champion, 1885 and *Pseudoderiles* Gebien, 1928. This genus was included in a key to South American genera of Tenebrioninae (Gebien, 1928), under Tenebrionini in Gebien (1941) and Blackwelder (1945) catalogues, a key to New World genera of Coelometopini (Doyen, 1989) and it is currently placed in Cnodalonini tribe of Stenochiinae (Smith *et al.*,



2015; Bouchard *et al.*, 2021).

The examination of type's habitus images of *T. atra* Pic and *P. nitidus* Gebien, as well as specimens deposited in Peruvian entomological collections, suggests that they are the same species and therefore a synonymy should be established.

The objectives of this work are to propose the synonymy of *P. nitidus* Gebien under *T. atra* Pic and also to provide an updated redescription for the so redefined species.

Material and methods

Type specimens and material examined are deposited in Museo de Entomología Klaus Raven Büller, Universidad Nacional Agraria La Molina, Lima, Perú (MEKRB), Muséum National d'Histoire Naturelle, Paris, France (MNHN), Museo Nacional de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Perú (MUSM) and Naturhistorisches Museum, Basel, Switzerland (NHMB).

Terminology used in redescription follows papers dealing with external morphology of

Cnodalonini (Doyen, 1989; Aalbu *et al.*, 2002). Distribution map was prepared using SimpleMappr (Shorthouse, 2010). The distribution of the species was characterized according to the biogeographic classification of Morrone (2014) and the Peruvian ecosystems map of MINAM (2018).

Results and discussion

Tenebriocamaria atra Pic, 1919

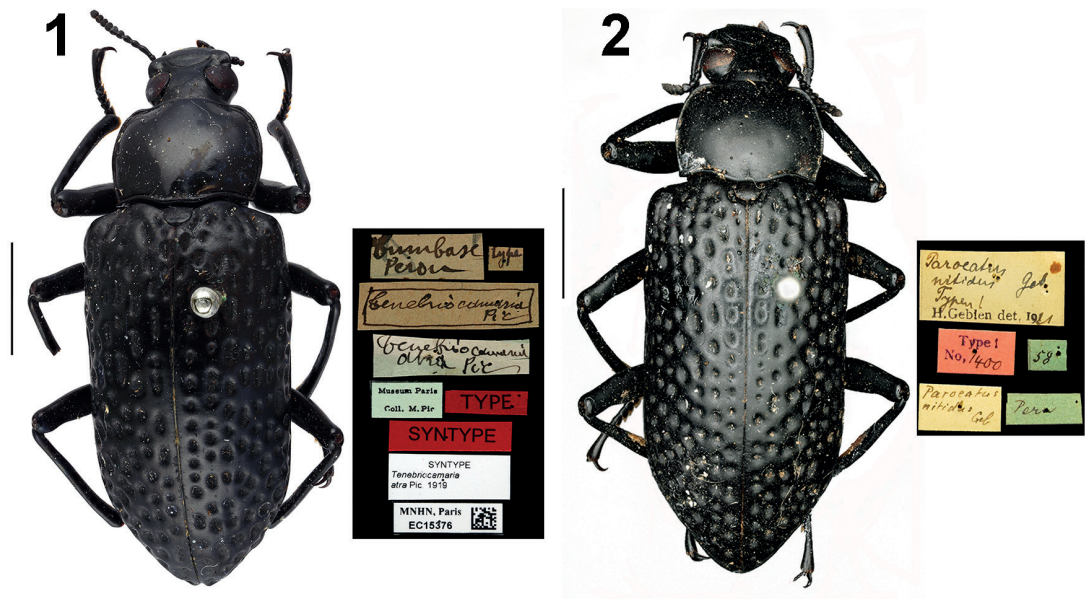
(Figs. 1–9)

Tenebriocamaria atra Pic, 1919: 4; Gebien, 1942: 324; Blackwelder, 1945: 539; Smith *et al.*, 2015: 226; Bouchard *et al.*, 2021: 360.

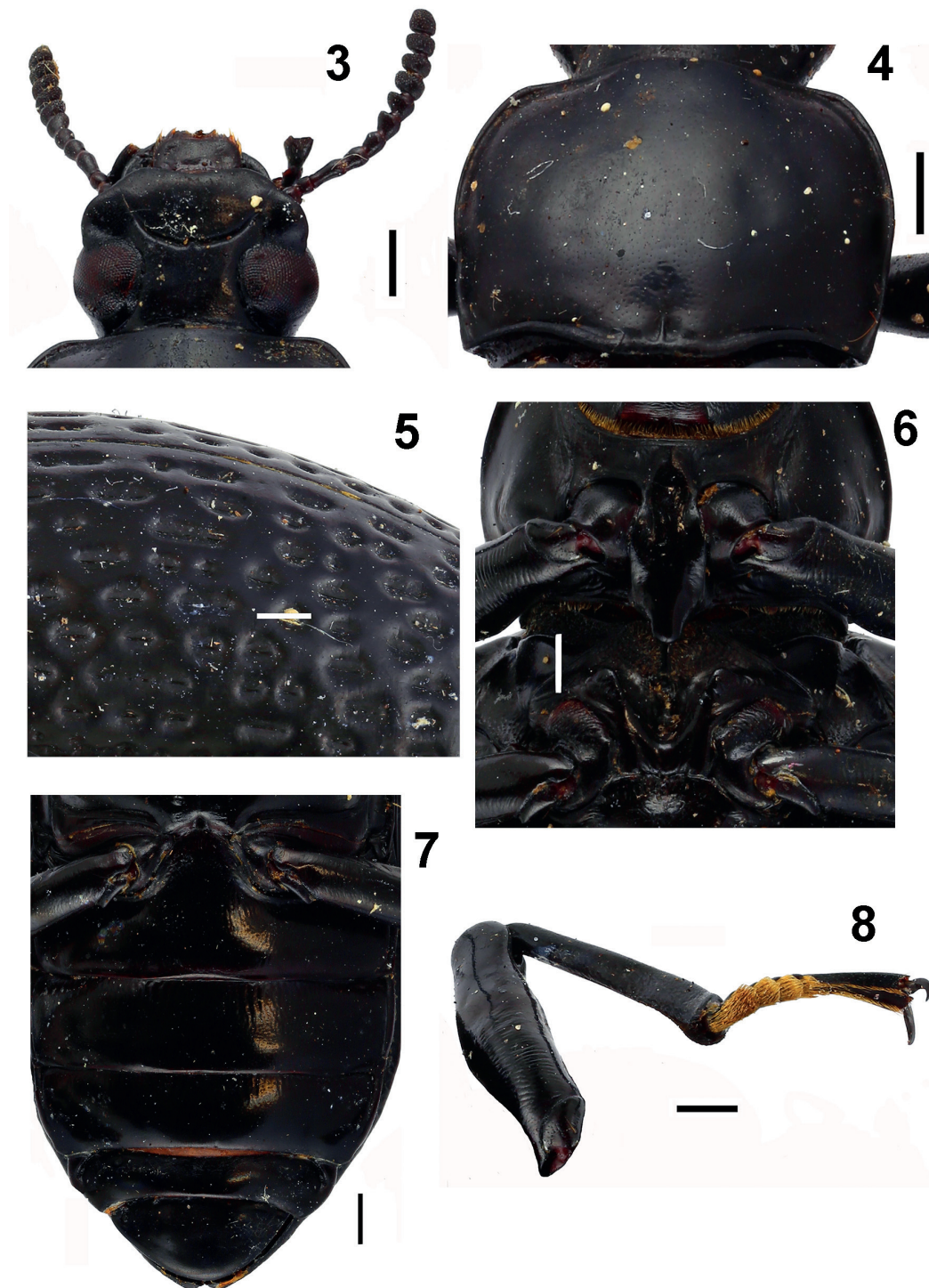
= *Paroeatus nitidus* Gebien, 1928: 180; Gebien, 1941: 349; Blackwelder, 1945: 535; Smith *et al.*, 2015: 226; **syn. nov.**

Redescription. Length. 20.0–24.6 mm. Large, oval elongated, cylindrical, shiny black on dorsal and ventral surfaces (Figs. 1–2).

Head (Fig. 3) broad, postgenae wide and extending behind the eyes, finely punctuated, labrum narrower than posterior head with a width ratio equal to 0.5. Anterior margin of clypeus



Figures 1-2. Habitus, dorsal view: **1)** *Tenebriocamaria atra* Pic, 1919 (Syntype MNHN EC15376) [photographs kindly provided by Antoine Mantilleri and Christophe Rivier]. **2)** *Paroeatus nitidus* Gebien, 1928 (Holotype NHMB) [photographs kindly provided by Christoph Germann]. Scale bars = 5 mm.



Figures 3-8. Morphological character details of *Tenebriocamaria atra* Pic, 1919. **3)** Syntype MNHN EC15378. **4)** Syntype MNHN EC15377. **5-8)** Syntype MNHN EC15376. **3)** Head, dorsal view. **4)** Pronotum, dorsal view. **5)** Elytral pits. **6)** Prothorax and mesosternum. **7)** Abdominal ventrites. **8)** Profemur, protibia and protarsus. Scale bars = 1 mm. [Photographs kindly provided by Antoine Mantilleri and Christophe Rivier].

and epistomal canthi form a wide arc, its punctation is barely perceptible fine. Frontoclypeal suture sharply and deeply incised, arc shaped, with a tooth in the center of its upper edge. Eyes with deep dorsal furrows, sharp and deep, particularly wide behind the eyes, not extending to underside. Eyes with fine ventral furrows, only noticeable adjacent to maxillae. Antennae short, thickened towards the apex, with a well-defined club of last 6 antennomeres; antennomeres 1 and 2 very short, antennomere 3 is 1.5 times longer than antennomere 4, four apical antennomeres twice as wide as long. Mandibles indistinctly bidentate apically. Mentum flat, transverse, trapezoidal, apically separated from the ligula by a wide translucent membrane.

Pronotum (Fig. 4), transversely rectangular, 1.5 times as wide as long, slightly convex dorsally, with minute and sparse hardly perceptible punctures; anterior, lateral and posterior margins well-defined, anterior margin interrupted behind interocular space, posterior margin bisinuate.

Elytra (Fig. 5) elongate, wider than pronotum, with slightly elongate and attenuate apex; impressed with deep circular foveae arranged in irregular rows; epipleuron with dorsal and ventral carinate margins, sinuate and impressed with rows of pits on apical fourth, almost rectangular at apex; elytral foveae connected with each other by an extremely fine line across dorsal surface; each fovea with a fine, short, incised line at the bottom.

Venter (Fig. 6–7), prosternum widely arched anteriorly, posteriorly with a very long, pointed process, separated from procoxae by a sharp, simple furrow. Hypomeron smooth. Mesosternum very deeply and sharply incised, with prominent corners, posterior margin of mesosternum and anterior lobe of metasternum forming a depression. Metasternum very long, with transverse suture interrupted by anterior extension of the first abdominal ventrite. Procoxae globular, separated each other by one procoxa diameter.

Abdominal ventrites with very fine punc-

uation and slightly wrinkled on anterior half, ventrites 1-4 with ridges on lateral margins, ventrite 5 lacking lateral ridges. Legs (Fig. 8), femora not clavate; tibiae unarmed, with a small brush of setae at apex of ventral surface, protibiae with apex slightly curved inwards; tarsi slightly elongated, apical tarsomere as long as the previous four tarsomeres combined.

Type specimens. Two syntypes of *Tenebriocamaria atra* Pic 1919. 1 [Cumbase/Pérou] [type] [*Tenebriocamaria* Pic] [*Tenebriocamaria atra* Pic] [Museum Paris/Coll. M. Pic] [TYPE] [SYNTYPE] [SYNTYPE/*Tenebriocamaria/atra* Pic 1919] [MNHN, Paris/EC15376] (Fig. 1). 1 [CHANCHAMAYO/PÉROU/COLL. LE MOULT] [nov. gen.] [*Tenebriocamaria* n gen.] [?? Pic] [Museum Paris/Coll. M. Pic] [TYPE] [SYNTYPE] [SYNTYPE/*Tenebriocamaria/atra* Pic 1919] [MNHN, Paris/EC15377]. 1 [CHANCHAMAYO/PÉROU/COLL. LE MOULT] [?? Pic] [Museum Paris/Coll. M. Pic] [TYPE] [SYNTYPE] [SYNTYPE/*Tenebriocamaria/atra* Pic 1919] [MNHN, Paris/EC15378]. Studied from habitus images provided by courtesy of Antonie Mantilleri (MNHN).

Holotype of *Paroeatus nitidus* Gebien, 1928. [*Paroeatus/nitidus* geb./Typen/H. Gebien det. 1921] [*Paroeatus/nitidus*/Geb] [Type 1/N° 1400] [58] [Peru] (Fig. 2). Studied from habitus images provided by courtesy of Christoph Germann (NHMB).

Other specimens examined. PERU. Amazonas, Bagua, 03-VIII-1962, Rivadeneira, 1 (MEKRB). Huanuco, Leoncio Prado, Aucayacu, 12-VIII-1966, M. Dourojeanni, 1 (MEKRB), Tingo Maria, 10-I-1966, Millones, 1 (MEKRB), 20-XI-1967, J. Morales, 1 (MEKRB), 27-XI-1999, L. Gil, 1 (MEKRB), 20-IX-2000, M. Rodriguez, 1 (MEKRB). Junin, Chanchamayo, 12-VIII-1963, M. Dourojeanni & Caballero, 2 (MEKRB), La Merced, 1933, 1 (MUSM); Satipo, 750 m, I-1953, 1 (MUSM), 29-V-1999, J. Mariño, 1 (MEKRB). Loreto, Maynas, Alto Nanay, XI-2011, H. Yagui, 2 (MEKRB). Pasco, Oxapampa, Centro Castilla, 21-II-1986, D.

Silva, 1 (MUSM), Pozuzo, 2 (MUSM), Villa Rica, 17 km East of San Juan de Cacazu, 525 m, luz negra, 20-VIII-1987, P. Lozada, 1 (MUSM). Ucayali, Padre Abad, Neshuya, 250 m, 16-XII-1970, R. García, 1 (MUSM).

Distribution. This species was previously included within the Amazonian taxa group of Peruvian Tenebrionidae fauna (Giraldo and Flores, 2016). According to this statement, available records for *T. atra* Pic in Peru range from Alto Nanay (3°S) to Satipo (11°S) below 2000 m east to Andean mountain range (Fig. 9). These localities are placed in yunga and tropical forest regions of the Peruvian ecosystems (MINAM, 2018) and Yungas and Ucayali provinces of the Neotropical biogeographic regions (Morrone, 2014).

The synonymy of *Paroeatus nitidus* under *Tenebriocamaria atra* is proposed here based on the review of type specimens, original descriptions and specimens preserved in Peruvian entomological collections. The nomenclatural status of *T. nigra* Pic, *P. opacus* Gebien and *P. glabricollis* (Sturm) remains to be resolved, as well as the eventual synonymy of *Paroeatus* under *Tenebriocamaria* that is suggested from the results of this work. For this purpose, it will be necessary to examine type specimens of the three species already mentioned and specimens collected in other South American countries.

The Neotropical representatives of the tribe Cnodalonini include 85 currently valid genera (Bouchard *et al.*, 2021), several of them not recently revised and whose phylogenetic relationships are largely unknown. The possible synonymy of the genera *Tenebriocamaria* and *Paroeatus* remained unsuspected since the beginning of the 20th century, largely because the authors placed their new genera in different tribes, in fact *Tenebriocamaria* was formerly placed in Coelometopini and *Paroeatus* in Tenebrionini (Gebien, 1941, 1942). Elucidating the relationships between Neotropical Cnodalonini genera will require establishing external and internal diagnostic characters based on the



Figure 9. Distribution map of *Tenebriocamaria atra* Pic, 1919 in Peru.

examination of a wide sample of such genera. The starting point to achieve this purpose are pioneering works of Tschinkel and Doyen (1980) and Doyen (1989) that provide valuable characters of head, elytra, venter, legs, female genitalia and defensive reservoirs.

Acknowledgements

The author wishes to thank Clorinda Vergara (MEKRB) and Mabel Alvarado (MUSM) for the collaboration provided during the visit to their respective entomological collections. Photos of type specimens were kindly provided by Antoine Mantilleri and Christophe Rivier (MNHN) and Christoph Germann (NHMB). Wolfgang Schawaller provided details on location of type specimens and e-mails of curators.

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