

# **NEOCROHORIA GEN. NOV., A NEW ANTHICIDAE (INSECTA: COLEOPTERA) GENUS FROM CHILE**

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*Neocrohoria* gen. nov. (Anthicinae: Microhoriini) from Chile is described, diagnosed, and illustrated. Some new critical morphological characters of Anthicinae and Microhoriini (Anthicidae) are mentioned and briefly discussed for the first time. New combination is made for *Neocrohoria melanura* (Fairmaire et Germain, 1863) comb. nov. (from *Anthicus*) and lectotype is designated for this taxon.

Key words: Anthicinae, Microhoriini, taxonomy, morphology, Chile.

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## **INTRODUCTION**

Anthicidae Latreille, 1819, ant-like flower beetles, is a rather large group of tenebrionoid Coleoptera with a cosmopolitan distribution (Chandler 2010) and over 3500 extant species (Telnov 2008) in eight subfamilies (Chandler 2010). Two groups of uncertain placement until recently placed in the Anthicidae, are the Afreminae Levey, 1985 and Lagrioidinae M. Abdullah et A. Abdullah, 1968 (Lawrence et al. 2010).

The Chilean anthicid fauna has a lower richness relative to tropical South America (Telnov, unpublished data) and is rather poor in diversity of both species and higher rank taxa. A single lemodine genus (*Protoanthicus* Moore et Vidal, 2005) and most of anthicid species recorded from Chile are considered endemic to the country (Werner 1966, 1974, Moore & Vidal 2005, Kejval 2009, Guerrero & Diéguez 2018). Almost 40 species of 15 genera and 4 subfamilies are

hitherto known from Chile (Werner 1966, 1974, Moore & Vidal 2005, Kejval 2009, Honour 2016, Guerrero & Diéguez 2018, Telnov, unpublished data). Most recent account and key to the Chilean anthicids presented by Werner (1974), but Kejval (2009) revised and keyed *Chileanthicus* Werner, 1966 (with one exception), while recently established *Protoanthicus* was keyed by Guerrero & Diéguez (2018). Nevertheless, Chilean anthicid fauna is insufficiently studied and in need of a more comprehensive and critical revision.

When I was working on a material of Chilean Anthicidae for a special volume dedicated to Prof. Cleide Costa's 80<sup>th</sup> anniversary, syntype of *Anthicus melanurus* Fairmaire et Germain, 1863 deposited in the Natural History Museum in London came to my attention. This species appears substantially different from the type species of the genus to which it was hitherto assigned (*Anthicus* Paykull, 1798), as well as from all other Anthicinae Latreille, 1819 genera.

Thus, I have decided to establish a new genus *Neocrohoria* gen. nov. for it and describe it in a dedicated paper.

My goal is to characterize the new anthicid genus from Chile, discuss its relationships, and assign currently known species to it. One new combination is made, lectotype is designated for *Neocrohoria melanura* (Fairmaire et Germain, 1863).

## MATERIALS AND METHODS

The nomenclature generally follows Chandler (2010). Specimens were studied using a Leica® S6D stereomicroscope (maximum magnification 80x) and photographed using a Canon® EOS 77D SLR camera attached to this stereomicroscope. Multiple photographs were taken at different focal planes and reassembled using CombineZP software. Setation and shading for figures 9 & 10 were drawn in Adobe Photoshop CC 2019.

Genitalia and last abdominal ventrites were studied and photographed using a Meji optical microscope.

All label text is reproduced verbatim, with no corrections or additions. Labels are separated by slashes if more than one label is present for the same specimen. The author's comments are enclosed in square brackets.

Acronyms of the material stores:

BMNH – Natural History Museum (British Museum, Natural History), London, United Kingdom;

DTC – Collection Dmitry Telnov, Rīga, Latvia.

## RESULTS

*Neocrohoria* gen. nov. (Figs 1-14)

<http://zoobank.org/62905368-F03A-4F9E-AAB7-3030B1F55C55>

**Type species.** *Anthicus melanurus* Fairmaire et Germain, 1863.

**Description.** With general characters of Coleoptera: Polyphaga: Tenebrionoidea (sensu Lawrence 2010). Small anthicids, total body length 2.8-3.3 mm. Body smooth, covered with sparse suberect setae. Head ovoid with rounded base. Frontoclypeal suture distinct, nearly straight. Clypeus transverse. Labrum transverse trapezoid. Compound eyes moderately large, entire, circular, rather finely faceted (Fig. 3), with inconspicuous interfacetal setae. Antennal insertions exposed and clearly visible in dorsal view, antenna inserted on lateral side of frons between base of a mandible and compound eye. Antenna 11-segmented, filiform. Cranial neck narrow (about 0.25 of head width across eyes), glabrous dorsally, well-differentiated from head. Mandible apex bidentate. Mandible with evenly curved outer margin. Mandible cutting edge even in distal part, subquadrate notched medially. Membranous densely setose prostheca with distinct basal mola is covering cutting edge and median notch. Maxilla apically with dense and long setae. Maxillary palpomeres 3-4 each with moderately strong mesal lobe. Terminal maxillary palpomere scalene-triangular. Pronotum slightly convex dorsally (in lateral view), broad apically, strongly constricted laterally postmedium towards base, widest in anterior half (Figs 1-2). Complete narrow anterior collar present, ventrally slightly narrower than dorsally and provided with dense, medially thickened setae (Fig. 2). Well defined, complete, rather deep (in particular, laterally) antebasal sulcus is present near base of pronotum (Figs 1-2). Antebasal sulcus is directed antero-ventrally on lateral margins, provided with dense short and somewhat thickened setae on its ventral portions. Laterobasal pronotal foveae inconspicuous. With an anterolateral notch on either side of procoxal cavity (in anterior view) (Figs 5 & 14). With long, anteriorly directed setae on pronotal base posterior to antebasal sulcus. Intercostal process of proventrite well-developed between procoxae, about a half their length. Procoxae contiguous, provided each with several extraordinary long setae. Procoxal cavities open externally but closed internally. Postcoxal bridge

of procoxae narrow, with straight margin (lacking any projection). Mesoventrite triangular, gently wrinkled, bluntly pointed apically (Figs 5-6, 9), with straight lateral margins. Procoxal rests simple, subtriangular, shallowly impressed. Mesocoxae completely separated by intercoxal process (Figs 5-7). Mesothoracic gland opens in a small pore-like opening in intersegmental membrane. Mesoscutellum apex broadly rounded. Mesepisterna shallowly impressed, separated at anterior margin, simple (fovea or carina not present) (Fig. 9), with thickened anterior margin and slightly impressed area posterior to this thickening. Mesepimera with long fovea starting from its posterior portion, covered with conspicuous setae of irregular length and shape (Fig. 5). Elytra elongate, vague postbasal transverse impression present (Fig. 1).

Omoplates distinct. Elytral setation long, sparse, suberect. Elytral apices entire, without modifications in male (more or less distinct notches or pores present on male elytral apices of most known Microhoriini species). Sutural striae short, present in apical third of elytra. Metathoracic wings fully developed, with wing venation as in most Anthicinae (wing venation is not studied for many genera of this subfamily). Anterior margin of metanepisternum with very peculiar microscopical setae, which are arranged into several groups of 4-9 items. These setae are long, basally wide and flattened, apically strongly narrowed, flagellate (Figs 11-12). Each of groups arises from its own common area. Metendosternite ventro-laterally with lobes of the metasternal tendon (poorly visible at 80x magnification). Metacoxa with complete

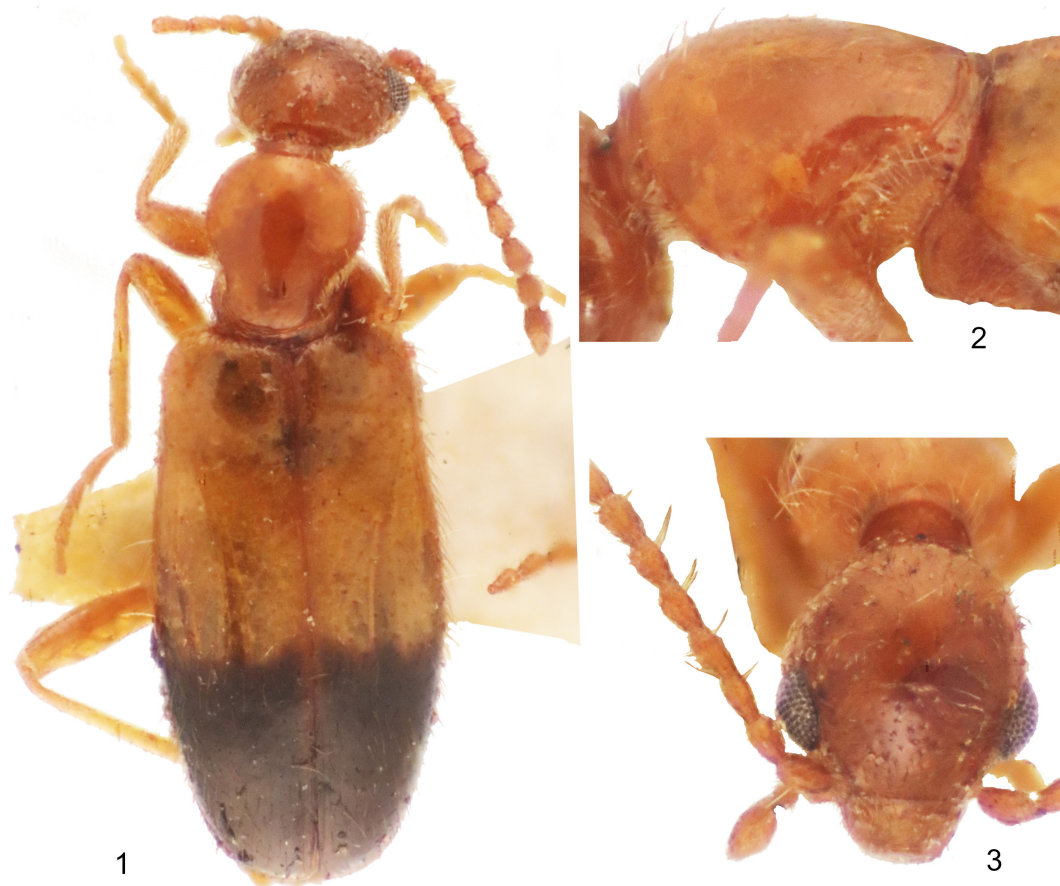


Fig. 1-3. *Neocrohoria melanura* (Fairmaire et Germain, 1863), lectotype (BMNH). 1 – habitus, dorsal view; 2 – pronotum, lateral view; 3 – head, dorsal view. Not reproduced to the same scale.



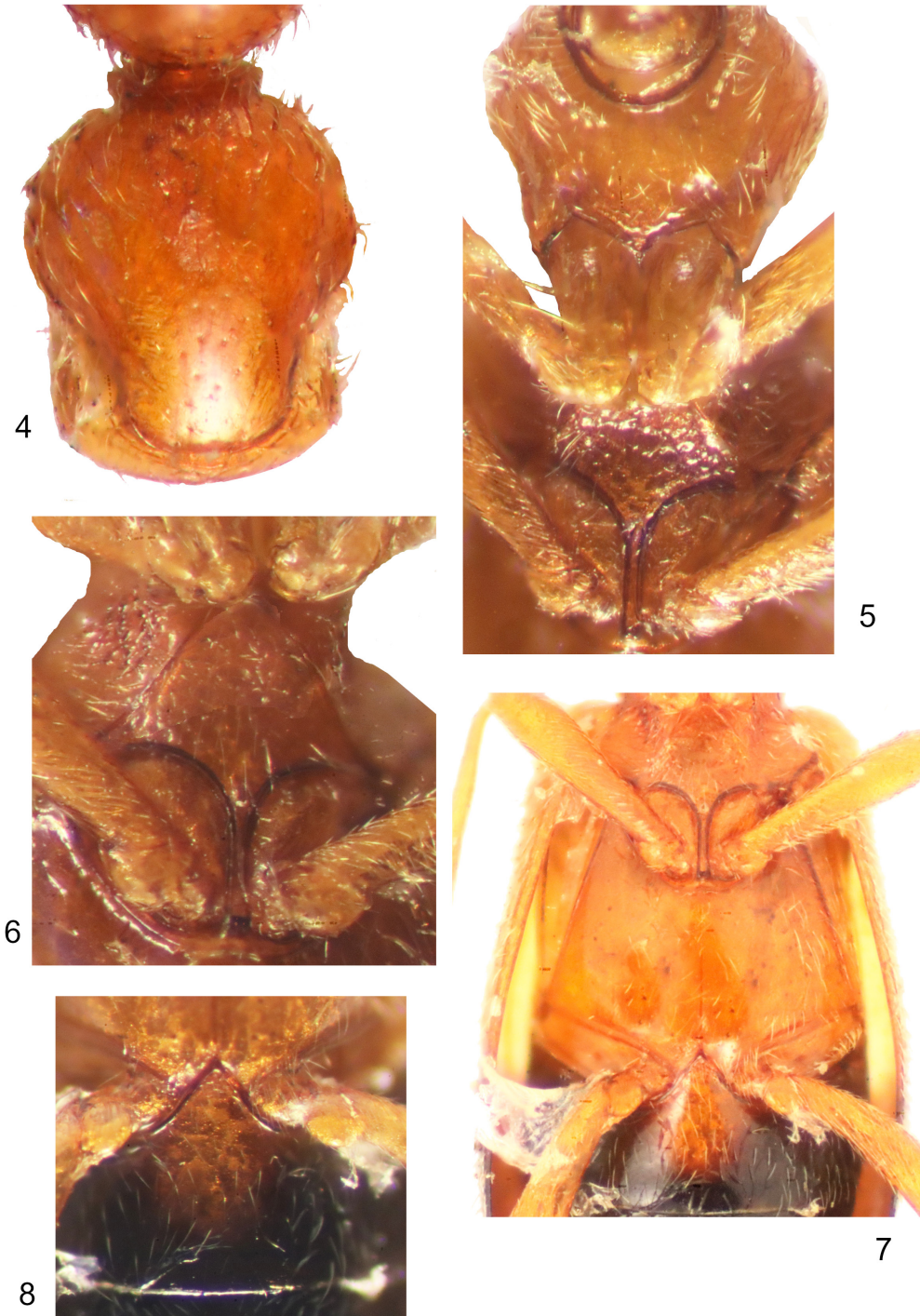
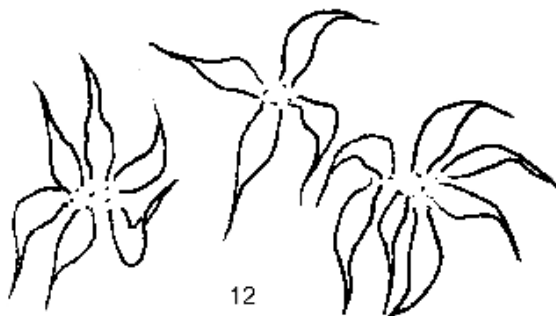
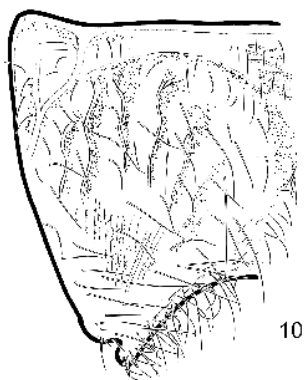
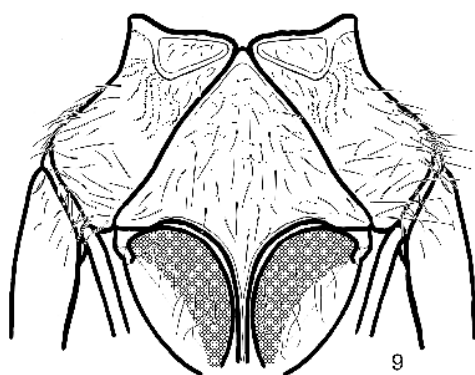


Fig. 4-8. *Neocrohoria melanura* (Fairmaire et Germain, 1863), ♂ from El Canelo (DTC). 4 – pronotum, dorsal view; 5 – pro- and mesothorax, pro- and mesocoxae, ventral view; 6 – mesothorax, ventral view; 7 – meso- and metathorax, ventral view; 8 – intercoxal process of the 1<sup>st</sup> abdominal sternite. Not reproduced to the same scale.



posterior transverse carina. All tibiae with paired simple (e.g., not setose or microspinulose) terminal spurs. Intercoxal process of the 1<sup>st</sup> abdominal sternite pointed apically (broadly triangular), with a complete delicate bead on lateral margins. Metathoracic discimen delicate, almost complete (Fig. 7). Morphological sternum VIII simple, posteriorly emarginate. Spiculum gastrale Y-shaped, each of its arms with broad apical appendage. Male aedeagus membranous (Fig. 13), of *Microhoriini* type. Tegmen open, with well-developed phallobase which is longer than apical portion. Paired sclerotized structures of endophallus distinct.

**Immature stages.** Unknown.

**Biology.** The life history of *Neocrohoria* gen. nov. is essentially unknown. Some specimens were attracted to light.

**Distribution.** Neotropical Region: Chile. The only known species of *Neocrohoria* gen. nov. is hitherto reported from Chilean administrative regions of Ñuble (Diguillín Province) (Fairmaire & Germain 1863; DTC specimens, see

Fig. 9-13. *Neocrohoria melanura* (Fairmaire et Germain, 1863), details of ♂ morphology. 9 – mesothorax, ventral view; 10 – ditto, lateral view; 11 – schematic shape of metepisternal seta; 12 – ditto, metepisternal setae, grouped; 13 – aedeagus. Not reproduced to the same scale.

below), Araucanía (Cautín Province), Bío Bío (Concepción Province), Maule (Curicó, Linares provinces), Región Metropolitana (Santiago Province), and Valparaíso (Aconcagua Province) (Werner 1974).

**Diversity.** Hitherto only one species is assigned to this genus - *Neocrohoria melanura* (Fairmaire et Germain, 1863), consider new combination below.

**Etymology.** Composed from the prefix 'neo' and *Microhoria*, referring to the Neotropical distribution and relationship with *Microhoria* Chevrolat, 1877, the main Microhoriini Bonadona, 1974 genus. Gender feminine.

**Diagnosis and relationships.** *Neocrohoria* gen. nov. belongs to the Microhoriini (see Bonadona, 1974) of the Anthicinae Latreille, 1819, primarily due to the combination of the following characters: frontoclypeal suture present, clypeus transverse, antennal insertion exposed, anterior margin of exposed, eye anterior margin rounded (not emarginate / notched), mandible apex bidentate, cranial neck narrow (about 0.25 of head width), anterior collar of pronotum of nearly equal width dorsally and ventrally, antebasal sulcus of pronotum distinct, procoxal cavities open externally but closed internally, prebasal area of pronotum (at antebasal sulcus) covered with long setae, pronotal horn not present, mesoventrite triangular and with distinct suture marking lines of fusion with mesanepisterna, mesepimera excavate (this character not appears in *Falsophilus* Kejval, 2015), mesepisterna separate medially on anterior margin, elytra with short inconspicuous sutural striae, metacoxae moderately to widely separated by intercoxal projection of the 1<sup>st</sup> abdominal sternite, elytral setation not scale-like, tibial spurs simple (not setose or microspinulose), tarsal claws simple, male genitalia 'membranous' (of various authors), with endophallus enclosed into ventrally open tegmen (Fig. 13), phallobase and parameres indistinctly separated.

This new genus is peculiar within the Microhoriini, primarily distinctive from all 6

known Microhoriini genera in the combination of the following characters: mesepisterna shallowly impressed and not transversely foveate / carinate, intersegmental membrane at margin of mesothorax with pore-like mesothoracic gland opening, metepisterna with peculiar setae (grouped, wide and flat basally and flagellate distally), intercoxal process of the 1<sup>st</sup> abdominal sternite triangular and delicately beaded, metacoxa with complete transverse posterior carina, male elytral apices without modifications, tibial terminal spurs of all legs paired, tegmen with open phallobase, not tubular.

Surprisingly, *Neocrohoria* gen. nov. appears morphologically most close to *Aulacoderus* LaFerté-Sénectère, 1849 and *Falsophilus* Kejval, 2015 in triangular mesoventrite, shallowly impressed (not transversely foveate / carinate) mesepisterna, medially separated anterior margin of mesanepisternum, presence of pore-like opening of mesothoracic gland in intersegmental membrane of mesothorax, and cutting edge of mandible provided with median notch. *Neocrohoria* gen. nov. readily differs from both *Aulacoderus* and *Falsophilus* primarily in presence of paired notches at the anterior margin of procoxal cavity, well-developed intercoxal process of procoxae, simple (e.g., not projected on its margin) postcoxal bridge, simple (not notched) male elytral apices and presence of conspicuous (specifically shaped, Figs 11-12), grouped metepisternal setae (Hille 1984, Kejval 2015, 2017). *Aulacoderus* also possess single terminal spurs on meso- and metatibiae (this character is not validated in all species of the genus) and phallobase of the male tegmen is closed in this genus (Hille 1984, Kejval 2017). *Falsophilus* additionally differs in phallobase being shorter than apical portion of tegmen (Kejval 2015). It is worth mentioning that the systematics and main characters of the Microhoriini are in a need of redefinition. *Falsophilus* is exclusively known from southern Africa (Southern Hemisphere) (Kejval 2015) while species-rich *Aulacoderus* is distributed all through Africa and in SW Palaearctic (both Southern and Northern Hemisphere) (Hille 1984, Chandler et al. 2008).

*Clavicomus* Pic, 1894, *Liparoderus* LaFerté-Sénectère, 1849, *Microhoria* Chevrolat, 1877, and *Tenuicomus* Pic, 1894 share the following characters with *Neocrohoria* sp. gen.: postcoxal bridge without modifications on its margin, intercoxal process of proventrite well-developed between procoxae. Additionally, procoxal cavity in *Liparoderus* is also double notched anterolaterally. Not all known species of aforementioned genera were inspected for these characters, but in studied species the characters seem be stable (present).

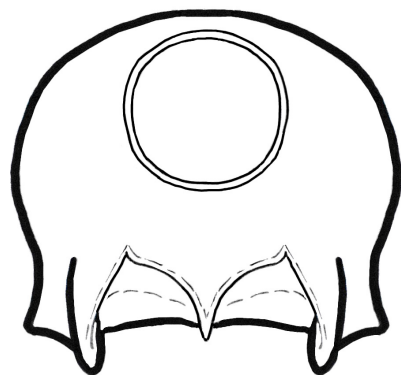
The following characters used above for definition of *Neocrohoria* sp. gen. have not been properly evaluated for delimitation of the Microhoriini (or Anthicini) genera before: procoxal cavity (notched / not notched), postcoxal bridge (posterior margin straight / with median projection), mesothoracic glands (position of the opening), mesepisterna (simple, foveate / carinate), metendosternite (with / without lobes of the tendon), metacoxae (simple, transversely carinate / foveate), number and structure (e.g., simple, microspinulose, setose) of tibial terminal spurs. Systematic value of these characters should be re-confirmed when comprehensive review of the Anthicinae will take place.

This is the first Microhoriini record from Neotropical Region and New World (Chandler 2002, 2010) and its origin and relationships are not yet fully understood.

***Neocrohoria melanura* (Fairmaire et Germain, 1863) comb. nov.** (Figs 1-14)

*Anthicus melanurus* Fairmaire et Germain, 1863: 246.

**Lectotype** BMNH [herewith designated, not dissected]: 28455 [handwritten] / TYPE [printed] / Germain [handwritten] / Chili Chillan [handwritten] / Fry Coll. 1905.100. [printed] / *Anthicus melanurus* Fairm. et Germain Chili [handwritten, black frame] / **LECTOTYPE** [printed on red paper, black framed] / *Neocrohoria melanura* Frm. et. Germ. comb. nov. det. D.Telnov, 2019 [printed].



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Fig. 14. *Neocrohoria melanura* (Fairmaire et Germain, 1863), pronotum and procoxal cavity, anterior view.

**Additional material examined:** 1♂ DTC: El Canelo, Chile.X.1952; 2♂ DTC: CHILE, Región del BíoBío, Los Huemules de Niblinto National reserve, 20-25.iii.2012, at light, leg. local collector.

This species was described from unspecified number of individuals. The specimen in BMNH, therefore considered syntype and lectotype designation is made.

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