

Four new species and new records of *Canthysellus* from Brazil (Coleoptera: Noteridae)

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Abstract. Four new species of *Canthysellus* Baca & Toledo, 2015, *C. kukrutkato* sp. nov., *C. putkarot* sp. nov., *C. omawe* sp. nov. and *C. yawari* sp. nov., from the Brazilian states of Amazonas and Pará are described and illustrated. The new species can be recognized from all other members of the genus by their distinct aedeagal features; *Canthysellus omawe* sp. nov. and *C. yawari* sp. nov. differ furthermore from all other members of the genus by their distinct dorsal surface punctuation and glabrous prosternal process. A geographic distribution map and a key to all known species of *Canthysellus* are provided. In addition, new records from Brazil are provided for *C. buqueti* (Laporte, 1835) from the states of Minas Gerais and Pará.

Key words. Coleoptera, Noteridae, Noterinae, *Canthysellus*, new species, key to species, new records, Brazil, Neotropical Region

Introduction

The burrowing water beetles or Noteridae is a poorly known adephagan family with many unresolved groups. Currently 18 genera are considered valid but only a few have been revised and an inadequately large number of species are known only from their original descriptions. The most recently revised genus is the Neotropical *Liocanthydrus* Guignot, 1957, whose taxonomic history is described on BACA et al. (2014), further detailed in GÓMEZ & MILLER (2013) and BACA & TOLEDO (2015) and briefly summarized in this manuscript.

Alongside the description of *Canthydrus* (*Liocanthydrus*) *angustus* Guignot, 1957, GUIGNOT (1957) described the subgenus *Liocanthydrus*, transferred to this subgenus the species *Noterus buqueti* Laporte, 1835, *Canthydrus uniformis* Zimmermann, 1921 and

C. octoguttatus Zimmermann, 1921 and designated *C. angustus* as the type species of the subgenus. Years later, through the phylogenetic analysis of the family Noteridae, MILLER (2009) elevated *Liocanthhydrus* to genus status. However, GÓMEZ & MILLER (2013) recognized that *Liocanthhydrus* sensu MILLER (2009) was a misidentification, and in fact was a putative new genus of burrowing water beetles, although no taxonomic action was taken by them. BACA et al. (2014) confirmed the generic status of *Liocanthhydrus* in their revision and redefinition of the genus, with *Siolius* J. Balfour-Browne, 1969 found to be its junior subjective synonym. Furthermore, BACA et al. (2014) indicated that *N. buqueti* belongs to a putative new genus and not to *Liocanthhydrus*, or any other noterid genus described, so *N. buqueti* was treated, in respect to burrowing water beetle genera, as incertae sedis.

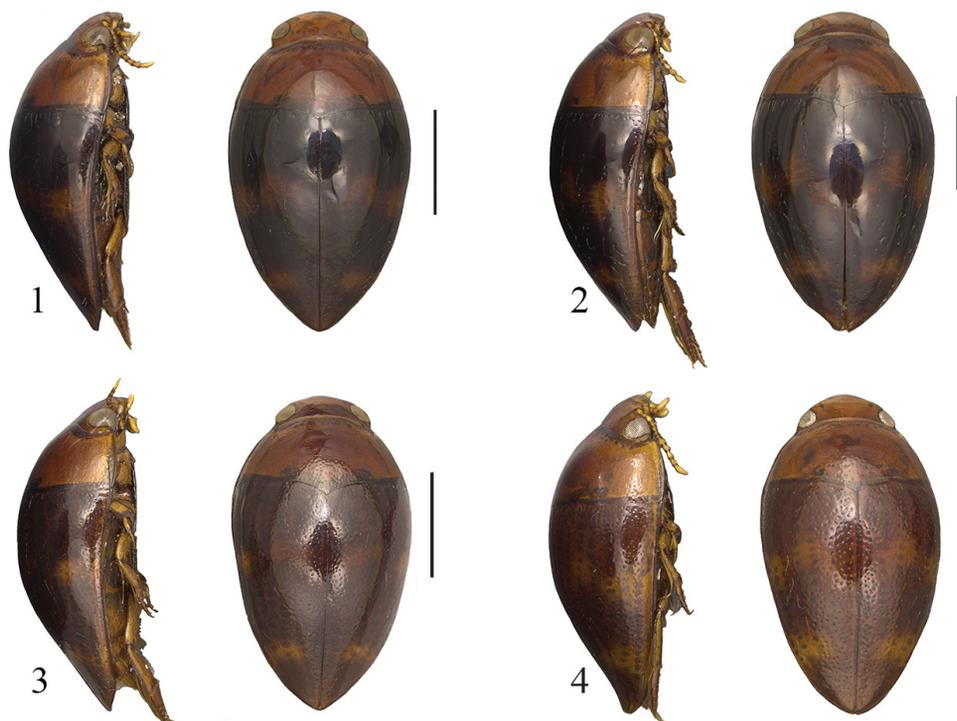
Afterwards, BACA & TOLEDO (2015) described the new genus *Canthysellus* Baca & Toledo, 2015 to accommodate *N. buqueti* and two new species. One of these new species, *Canthysellus peruanus* Baca & Toledo, 2015, corresponded to material used by MILLER (2009) as representative of *Liocanthhydrus*. The generic status of *Canthysellus* had already been supported by the phylogenetic analysis of MILLER (2009) and was later confirmed by the molecular phylogeny of BACA et al. (2017).

Currently, *Canthysellus* is composed of three species: *C. buqueti* (Laporte, 1835), *C. sipaliwini* Baca & Toledo, 2015 and *C. peruanus*. Of these species, only *C. buqueti* is recorded from Brazil, in the state of Amazonas. Species of the genus are characterized by the following combination of characters (BACA & TOLEDO 2015): prosternal process broad; prosternal disc with a short, closely-spaced, linear series of stout setae anterior to the procoxal cavities; lateral bead of pronotum distinct, broad; posterior metatibial spur serrate.

In this paper four new species of *Canthysellus* from the Brazilian states of Amazonas and Pará are described and illustrated, increasing the known diversity of the genus. Additionally, new records from Brazil are provided for *C. buqueti* from the states of Minas Gerais and Pará. The previous geographic distribution map and key to *Canthysellus* species (BACA & TOLEDO 2015) are modified to include the new species.

Material and methods

The descriptions of the new species are based on holotypes only; intraspecific variation is described separately. Specimens were examined using a Leica S8AP0 (80×) and M205C (100×) stereomicroscopes and a light microscope Leica DM4000 (100×). The measurements were obtained with Leica DMC2900 and DFC450 cameras connected to the stereomicroscope or the light microscope. The following measurements were taken: total length (TL) and maximum width (MW), greatest width of head (HW), shortest distance between the eyes (EW), greatest width of lateral pronotal bead (PntB) and width of antennomere VII (AntVII). Multilayer photographs were generated with Leica DMC2900 and DFC450 cameras connected to the stereomicroscope or the light microscope and then combined using the auto montage software Combine ZP (<http://www.hadleyweb.pwp.blueyonder.co.uk>). Drawings were made by tracing over photographs in the image editing software Adobe Illustrator. Map was created from the locality of collection of the examined material and geographic distribution known in the literature. For specimens without geographic coordinates on their collecting labels,



Figs 1–4. Habitus of *Canthysellus* species in lateral and dorsal view: 1 – *C. kukrukato* sp. nov.; 2 – *C. putkarot* sp. nov.; 3 – *C. omawe* sp. nov.; 4 – *C. yawari* sp. nov. Scale bar = 1 mm.

coordinates were estimated using the software Google Earth. Geographic coordinates were obtained via WGS 84. The map was made using the software Google Earth and Quantum GIS and edited using the image editing software Adobe Photoshop.

The material was fixed and preserved in glass vials with 93% ethyl alcohol. Specimens were accompanied with their data label, colorless paper labels containing their identification and identifier and colored plastic labels: black labels containing their collection number; red labels marked 'HOLOTIPO' for holotypes and blue labels marked 'PARATIPO' for paratypes. Male genitalia were dissected, cleared with heated 10% KOH, mounted on a temporary slide for observation, stored in micro vials with glycerin gel and then stored together with the specimens in the vial. The terms applied for morphological features of the genitalia mainly follow MILLER & NILSSON (2003).

The information about examined material is given as follows: 1) collecting label data accompanying the specimens in quotes; 2) number of specimens for each sex, acronym of the collection in which they are deposited and their collection number in parentheses. The Brazilian term FLONA is used to designate National Forest.

The material was deposited at the aquatic Coleoptera section of Coleção Entomológica Prof. José Alfredo Pinheiro Dutra, Departamento de Zoologia, Universidade Federal do Rio de Janeiro, Brasil (DZRJ); at the entomological collection of Instituto Nacional de Pesquisas da Amazônia (INPA); and at the entomological collection of Universidade Federal de Minas Gerais (UFMG).

Taxonomy

Canthysellus kukrutkato sp. nov.

(Figs 1, 5a–e)

Type locality. Brazil, Pará State, FLONA Carajás, Parauapebas Municipality, Buritizal 1, 06°04'51.89"S 50°08'02.27"W.

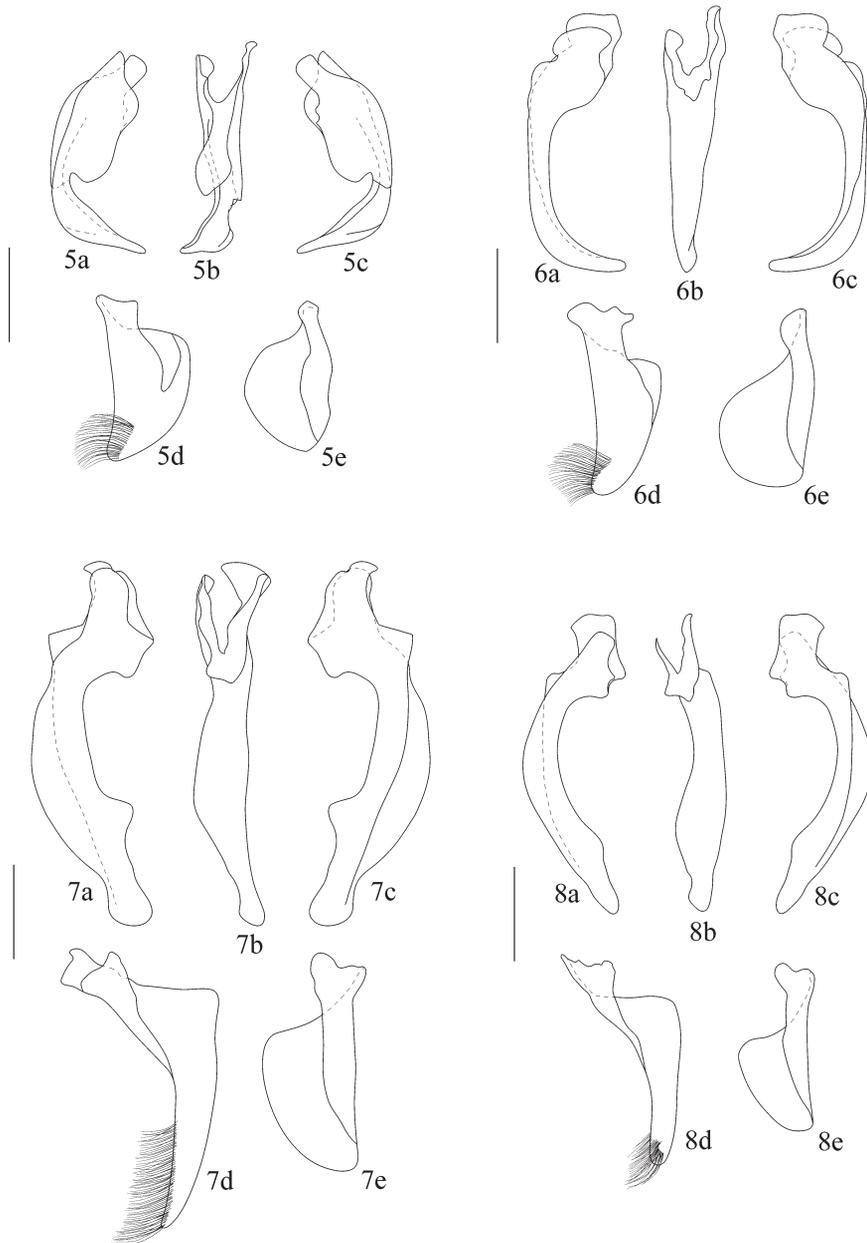
Type material. HOLOTYPE: ♂, 'Brazil: Pará State, FLONA Carajás, Parauapebas Municipality, Buritizal 1, puddles with foliage, 06°04'51.89"S 50°08'02.27"W, 23.III.2006, Ferreira-Jr. N. leg.' (DZRJ 6055). PARATYPES: **BRAZIL:** PARÁ: 'Brazil: Pará State, FLONA Carajás, Parauapebas Municipality, Buritizal 1, puddles with foliage, 06°04'51.89"S 50°08'02.27"W, 23.III.2006, Ferreira-Jr. N. leg.' (4 ♂♂ 5 ♀♀ / DZRJ 6056); 'Brazil: Pará State, FLONA Carajás, Parauapebas Municipality, North Sierra, Buritizal 2, puddle with foliage, 06°04'56.90"S 50°08'04.93"W, 23.III.2006, Ferreira-Jr. N. leg.' (1 ♂ 1 ♀ / DZRJ 6057); 'Brazil: Pará State, FLONA Carajás, Parauapebas Municipality, Buritizal 1, deep puddle with foliage, 06°04'51.89"S 50°08'02.27"W, 03.IX.2007, Ferreira-Jr. N. & Alecrim V.P. leg.' (3 ♂♂ 1 ♀ / DZRJ 6058); 'Brazil: Pará State, FLONA Carajás, Parauapebas Municipality, Buritizal 1, low part, 06°04'51.89"S 50°08'02.27"W, 26.III.2008, Ferreira-Jr. N. & Santos A.P.M. leg.' (4 ♂♂ 3 ♀♀ / DZRJ 6059); 'Brazil: Pará State, FLONA Carajás, Parauapebas Municipality, Buritizal 1, 06°04'51.89"S 50°08'02.27"W, 11.IX.2006, Ferreira-Jr. N. & Dumas L.L. leg.' (1 ♂ / DZRJ 6060); 'Brazil: Pará State, FLONA Carajás, Parauapebas Municipality, Buritizal 1, puddles with foliage and roots, 06°04'51.89"S 50°08'02.27"W, 28.IX.2005, Ferreira-Jr. N. leg.' (2 ♂♂ 6 ♀♀ / DZRJ 6559).

Diagnosis. *Canthysellus kukrutkato* sp. nov. can be distinguished from other species in the genus by the following characteristics: medium size, 2.90–3.15 mm; pronotum and elytra smooth (Fig. 1); prosternal process completely covered by short setae; median lobe of aedeagus, in lateral aspect, short and stout with dorsobasal margin oblique and distinctly projected, sharply narrowing to midlength (Figs 5a,c).

Description of holotype. Body outline, in dorsal view (Fig. 1) oval, broader anteriorly and attenuated posteriorly; rather convex in lateral view.

Color (Fig. 1). Head and pronotum light reddish-brown. Elytra blackish, each elytron with four light reddish-brown maculae: one laterally, a second on disc, both just anterior to midlength of elytron, and a third near suture, these three markings appearing as an arched and interrupted transverse band; finally, a fourth short transverse macula on distal third. Ventral surface light reddish-brown.

Head. Surface smooth and shiny. Antennae glabrous; antennomeres III–XI subserrate; VII–X slightly expanded, with two short setae on outer margin of VII and IX and two on inner margin of VII–X; antennomere XI distally attenuate; antennomere XI with six short setae surrounding base, two short setae near apex and a single seta at apex. Maxillary palps glabrous; apical palpomere elongate, length greater than half of total length of palp, distally attenuate, apex round, emarginated with two small sensory fields. Labial palps glabrous; apical palpomere subtriangular, expanded, length greater than twice the combined length of basal palpomeres, bifid, with sensory field on medioventral margin, with a second sensory field smaller, round, produced on a small protuberance anteromedial to the medial margin.



Figs 5–8. Aedeagi of *Canthysellus*: a – median lobe, left lateral aspect, b – same, dorsal aspect, c – same, right lateral aspect, d – left lateral lobe (paramere), e – right lateral lobe. 5 – *C. kukrutkato* sp. nov.; 6 – *C. putkarot* sp. nov.; 7 – *C. omawe* sp. nov.; 8 – *C. yawari* sp. nov. Scale bar = 0.2 mm.

Thorax. Pronotum smooth and shiny, with transversal row of punctures bearing long and slender setae in anterior margin. Prosternum with dense, transverse tuft of four stiff setae at middle of discal surface (Fig. 9); line of setae continuous medially, not extending beyond lateral margins of prosternal process. Prosternal process and noterid platform completely covered by short and stout setae, distinctly spaced and evenly distributed. Elytron smooth and shiny, with three longitudinal rows of punctures bearing long and slender setae. Metatibia with series of ten evenly spaced spiniform setae at posteroventral margin. Metatarsomere I with similar row of four setae on posteroventral margin.

Abdomen. Ventral surface glabrous; ventrites IV–VI with sparse, slender setae on lateral margins; ventrites V and VI with transversal line of sparse setae extending medially from lateral margins, not reaching median.

Aedeagus. Median lobe in lateral aspect short and stout, with ventral margin curved; left ventral margin ceasing subapically, meeting right ventral margin; dorsobasal margin oblique and distinctly projected, sharply narrowing to midlength of median lobe and apex curved dorsally and attenuate (Figs 5a,c); two carinae can be seen: one short, dorsal on left side arising basally and ceasing at apex and one short ventral on left side arising apically and ceasing at apex (Figs 5a–c); in dorsal aspect, sinuous with apex sharply curved; dorsobasal margin projection sinuous, arising basally and ceasing at midlength (Fig. 5b). Left lateral lobe, in lateral aspect, broad with a dense tuft of setae at apex; setae distinctly extending beyond dorsal margin (Fig. 5d). Right lateral lobe, in lateral aspect, broad and rounded ventrally (Fig. 5e).

Variation. Almost no variation was observed in the prominence of the maculae and the color of specimens. The number of stiff setae on the prosternal disc ranges from four to six in total. The number of setae on metatibia and metatarsomere I ranges from eight to twelve and three to four, respectively.

Measurements. Holotype: TL = 3.10 mm; MW = 1.70 mm; HW = 0.90 mm; EW = 0.60 mm; PntB = 0.05 mm; AntVII = 0.05 mm. Paratypes: TL = 2.90–3.15 mm (♂♂ = 3.00–3.10 mm; ♀♀ = 2.90–3.15 mm); MW = 1.70–1.80 mm; HW = 0.85–0.95 mm; EW = 0.50–0.60 mm; PntB = 0.05 mm; AntVII = 0.05 mm

Etymology. The specific name is an homage to ‘Kukryt-kato’, one of the mythological heroes who created the Xikrin, the indigenous people present in the area of the National Forest of Carajás. It is a noun in the nominative singular standing in apposition.

Geographic distribution. So far *Canthysellus kukrutkato* sp. nov. is known only from the Floresta Nacional de Carajás, Parauapebas Municipality in the Brazilian state of Pará.

Canthysellus putkarot sp. nov.

(Figs 2, 6a–e)

Type locality. Brazil, Pará State, FLONA Carajás, Parauapebas Municipality, Serra Norte, Buritizal 1, 06°04'51.89"S 50°08'02.27"W.

Type material. HOLOTYPE: ♂, ‘Brazil: Pará State, FLONA Carajás, Parauapebas Municipality, North Sierra, Buritizal 1, low part, (stream) above puddles, 06°04'51.89"S 50°08'02.27"W, 29.IX.2007, Ferreira-Jr. N. & Alecrim V.P. leg.’ (DZJRJ 6061). PARATYPE: BRAZIL: PARÁ: ‘Brazil: Pará State, FLONA Carajás, Parauapebas Municipality, Buritizal 2, puddle with foliage, 06°04'56.90"S 50°08'04.93"W, 08.IX.2006, Ferreira-Jr. N. & Dumas L.L. leg.’ (1 ♂/DZJRJ 6062).

Diagnosis. *Canthysellus putkarot* sp. nov. can be distinguished from other species in the genus by the following characteristics: large size, 3.35–3.40 mm; pronotum and elytra smooth (Fig. 2); prosternal process completely covered by short setae; median lobe of aedeagus, in lateral aspect, elongate and thin with dorsobasal margin sharply narrowing before midlength (Figs 6a, c).

Description of holotype. Body outline, in dorsal view oval (Fig. 2), as in *C. kukrutkato* sp. nov.

Color (Fig. 2). Head and pronotum light reddish-brown. Elytra blackish, each elytron with four light reddish-brown maculae: one laterally, a second on disc, both just anterior to midlength of elytron, and a third near suture, these three markings appearing as an arched and interrupted transverse band; finally, a fourth short transverse macula on distal third. Ventral surface light reddish-brown.

Head. Surface smooth and shiny. Antennae and palpi similar to those in *C. kukrutkato* sp. nov.

Thorax. Pronotum smooth and shiny, with transversal row of punctures bearing long and slender setae in anterior margin. Prosternum with dense, transverse tuft of four stiff setae at middle of discal surface (Fig. 9); line of setae continuous medially, not extending beyond lateral margins of prosternal process. Prosternal process and noterid platform completely covered by short and stout setae, distinctly spaced and evenly distributed. Elytron smooth and shiny, with three longitudinal rows of punctures bearing long and slender setae. Metatibia with series of 12 evenly spaced spiniform setae at posteroventral margin. Metatarsomere I with similar row of four setae on posteroventral margin.

Abdomen. Ventral surface as in *C. kukrutkato* sp. nov.

Aedeagus. Median lobe in lateral aspect elongate and thin, with ventral margin curved; dorsobasal margin sharply narrowing before midlength of median lobe and apex curved dorsally and rounded (Figs 6a, c); a long carina occurs on left side arising basally and ceasing apically, constituting the major part of left side (Figs 6a–c); in dorsal aspect, straight with apex slightly curved (Fig. 6b). Left lateral lobe, in lateral aspect, slender with a dense tuft of setae at apex; setae distinctly extending beyond dorsal margin (Fig. 6d). Right lateral lobe, in lateral aspect, broad and rounded ventrally (Fig. 6e).

Variation. Due to the scarceness of specimens available, it is not possible to assess intraspecific variation.

Measurements. Holotype: TL = 3.35 mm; MW = 1.85 mm; HW = 0.95 mm; EW = 0.60 mm; PntB = 0.05 mm; AntVII = 0.05 mm. Paratype: TL = 3.40 mm; MW = 1.80 mm; HW = 1.00 mm; EW = 0.60 mm; PntB = 0.05 mm; AntVII = 0.05 mm.

Etymology. The specific name refers to ‘Putkarôt’, the name by which the Xikrin call themselves, in honor of the indigenous people present in the area of origin of the holotype. It is a noun in the nominative singular standing in apposition.

Geographic distribution. So far *Canthysellus putkarot* sp. nov. is known only from the Floresta Nacional de Carajás, Parauapebas Municipality in the Brazilian state of Pará.

Canthysellus omawe sp. nov.

(Figs 3, 7a–e, 10)

Type locality. Brazil, Amazonas State, Barcelos Municipality, Mr. Miranda's Site, Ukuki Community, Jauari River, 00°48'02.05"N 63°29'24.32"W.

Type material. HOLOTYPE: ♂, 'Brazil, Amazonas State, Barcelos Municipality, Mr. Miranda's Site, Ukuki Community, Jauari River, puddle in the wood, trail to piaçaval, 00°48'02,05"N 63°29'24,32"W, 25.VII.2009, Pês A. leg.' (INPA). PARATYPES: **BRAZIL: AMAZONAS:** 'Brazil, Amazonas State, Barcelos Municipality, Mr. Miranda's Site, Ukuki Community, Jauari River, puddle in the wood, trail to piaçaval, 00°48'02,05"N 63°29'24,32"W, 25.VII.2009, Pês A. leg.' (13 ♂♂ 10 ♀♀ / DZRJ 6542); 'Brazil, Amazonas State, Barcelos Municipality, Mr. Miranda's Site, Ukuki Community, Jauari River, puddle on the trail, 00°48'02,05"N 63°29'24,32"W, 24.VII.2009, Santos A.P.M. & Nessimian J.L. leg.' (2 ♂♂ 2 ♀♀ / INPA); 'Brazil, Amazonas State, Barcelos Municipality, Mr. Miranda's Site, Ukuki Community, Jauari River, Igarapé 2, on the trail, 00°48'02,05"N 63°29'24,32"W, 25.VII.2009' (2 ♀♀ / INPA); 'Brazil, Amazonas State, Barcelos Municipality, Aracá Sierra, Point B02, puddles with foliage, 00°51'57,82"N 63°28'01,99"W, 23.VII.2009, Ferreira-Jr. N. leg.' (1 ♂ / DZRJ 6545). Brazil, Amazonas State, Presidente Figueiredo Municipality, Mr. Clemilton's Site Igarapé, entry through AM 240, Km 20, 22.X.2008, Ferreira-Jr. N. leg.' (1 ♂ / DZRJ 6546); 'Brazil, Amazonas State, Presidente Figueiredo Municipality, Mr. Clóvis's Site Bathhouse, AM 240, extension of Km 18, puddle, 18.X.2008, Ferreira-Jr. N. leg.' (2 ♂♂ / INPA).

Diagnosis. *Canthysellus omawe* sp. nov. can be distinguished from other species in the genus by the following characteristics: medium to large size, 2.95–3.40 mm; pronotum and elytra evenly covered with scattered shallow punctures (Fig. 3); prosternal process glabrous on disc (Fig. 10); median lobe of aedeagus, in lateral aspect, long and robust with a large dorsal projection just before the apex and apex rounded and globose (Figs 7a,c).

Description of holotype. Body outline, in dorsal view, oval (Fig. 3), as in *C. kukrutkato* sp. nov.

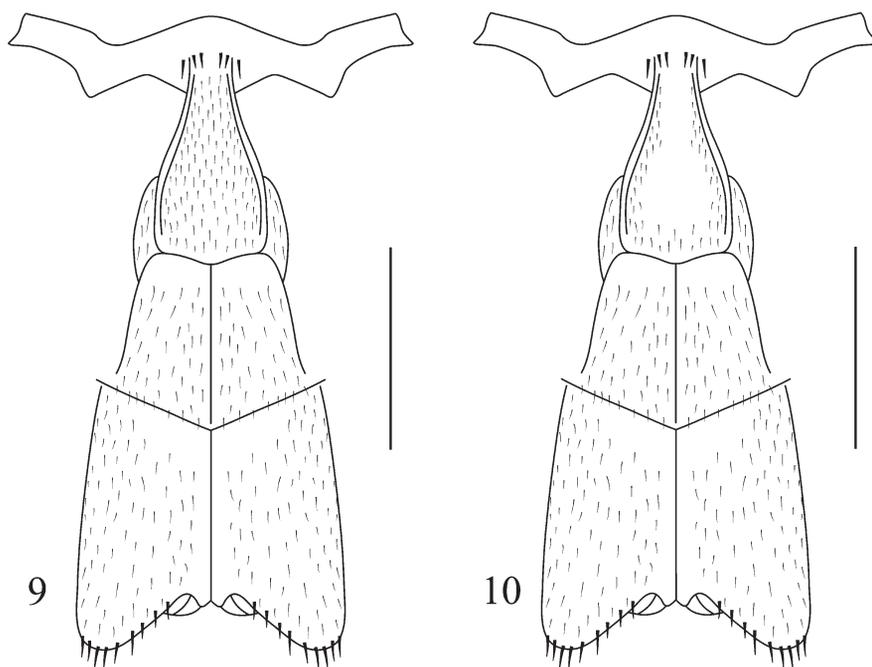
Color (Fig. 3). Head and pronotum light reddish-brown. Elytra dark brown, each elytron with four pale reddish-brown maculae: one laterally, a second on disc, both just anterior to midlength of elytron, and a third near suture, these three markings appearing as an arched and interrupted transverse band; finally a fourth short transverse macula on distal third. Ventral surface light reddish-brown.

Head. Surface smooth and shiny. Antennae and palpi similar to those in *C. kukrutkato* sp. nov.

Thorax. Pronotum shiny, evenly covered with scattered shallow punctures and with transversal row of punctures bearing long and slender setae in anterior margin. Prosternum with dense, evenly distributed, transverse tuft of six stiff setae at middle of discal surface; line of setae discontinuous medially, extending beyond lateral margins of prosternal process. Prosternal process glabrous on disc, with lateral submargins and apex sparsely covered by short and stout setae, distinctly spaced and evenly distributed (Fig. 10). Noterid platform completely covered by short and stout setae distinctly spaced and evenly distributed. Elytron shiny, evenly covered with scattered shallow punctures and with three longitudinal rows of punctures bearing long and slender setae (Fig. 3). Metatibia with series of twelve evenly spaced spiniform setae at posteroventral margin. Metatarsomere I with similar row of five setae on posteroventral margin.

Abdomen. Ventral surface as in *C. kukrutkato* sp. nov.

Aedeagus. Median lobe in lateral aspect long and robust, with ventral margin curved; large dorsal projection just before apex and apex rounded and globose (Figs 7a,c); left side with a long carina arising basally and ceasing apically, constituting the major part of left side (Figs



Figs 9–10. Prosternum, meso- and metaventrum and noterid platform (metacoxae) of *Canthysellus*, depicting distribution of setae. 9 – *C. buqueti* (Laporte, 1835); 10 – *C. omawe* sp. nov. Scale bar = 0.5 mm.

7a–c); in dorsal aspect, straight with apex slightly curved (Fig. 7b). Left lateral lobe, in lateral aspect, elongate and slender with a dense series of setae along apical half of dorsal margin; setae distinctly extending beyond dorsal margin (Fig. 7d). Right lateral lobe, in lateral aspect, slender and rounded ventrally (Fig. 7e).

Variation. Almost no variation was observed in the prominence of the maculae. Some specimens had a lighter coloration than that of the type specimens. The number of stiff setae on the prosternal disc ranges from four to six in total. The setation on the lateral submargins of prosternal process is greatly reduced on many specimens. The number of setae on metatibia and metatarsomere I ranges from twelve to fourteen and five to seven, respectively.

Measurements. Holotype: TL = 3.20 mm; MW = 1.80 mm; HW = 0.95 mm; EW = 0.55 mm; PntB = 0.05 mm; AntVII = 0.05 mm. Paratypes: TL = 2.95–3.40 mm (♂♂ = 3.05–3.15 mm; ♀♀ = 2.95–3.40 mm); MW = 1.65–1.85 mm; HW = 0.85–1.00 mm; EW = 0.50–0.55 mm; PntB = 0.05–0.10 mm; AntVII = 0.05 mm.

Taxonomic notes. *Canthysellus omawe* sp. nov. and *C. yawari* sp. nov. are very similar species and together they may represent a distinct lineage inside *Canthysellus*. They strongly diverge from the other known species of *Canthysellus* by their pronotum and elytra being evenly covered with scattered punctures, the glabrous prosternal process (Fig. 10) and their aedeagal features (Figs 7a–e and 8a–e).

Etymology. The specific name refers to Yanomâmi's ancestral hero 'Omawe', in honor of the indigenous people present in the area of origin of the holotype. It is a noun in the nominative singular standing in apposition.

Geographic distribution. So far *Canthysellus omawe* sp. nov. is known only from the Barcelos and the Presidente Figueiredo Municipalities in the Brazilian state of Amazonas.

Canthysellus yawari sp. nov.

(Figs 4, 8a–e)

Type locality. Brazil, Amazonas State, Barcelos Municipality, Aracá Sierra, 00°51'57.82"N 63°28'01.99"W.

Type material. HOLOTYPE: ♂, 'Brazil, Amazonas State, Barcelos Municipality, Aracá Sierra, Point Bo2, puddles with foliage, 00°51'57,82"N 63°28'01,99"W, 23.VII.2009, Ferreira-Jr. N. leg.' (INPA). PARATYPES: **BRAZIL:** AMAZONAS: 'Brazil, Amazonas State, Barcelos Municipality, Mr. Miranda's Site, Ukuki Community, puddle in the wood, trail to piaçaval, 00°35'17,84"N 63°36'51,88"W, 25.VIII.2009, Santos A.P.M. leg.' (2 ♀♀ / INPA); 'Brazil, Amazonas State, Barcelos Municipality, Mr. Miranda's Site, Ukuki Community, puddle on the trail, 00°35'17,84"N 63°36'51,88"W, 24.VIII.2009, Santos A.P.M. & Nessimian J.L. leg.' (1 ♂ / INPA); 'Brazil, Amazonas State, Barcelos Municipality, Aracá Sierra, Point B02, 00°51'57,82"N 63°28'01,99"W, puddles with foliage, 23.VIII.2009, Ferreira-Jr. N. leg.' (2 ♂♂ 5 ♀♀ / DZRJ 6064).

Diagnosis. *Canthysellus yawari* sp. nov. can be distinguished from other species in the genus by the following characteristics: small size, 2.45–2.65 mm; pronotum and elytra evenly covered with scattered punctures (Fig. 4); prosternal process glabrous; median lobe of aedeagus, in lateral aspect, long and slender with a small dorsal projection just before the apex (Figs 8a,c).

Description of holotype. Body outline, in dorsal view oval (Fig. 4), as in *C. kukrutkato* sp. nov.

Color (Fig. 4). Head and pronotum light-yellowish brown. Elytra dark brown, each elytron with four pale yellowish-brown maculae: one laterally, a second on disc, both just anterior to midlength of elytron, and a third near suture, these three markings appearing as an arched and interrupted transverse band; finally, a fourth short transverse macula on distal third. Ventral surface light yellowish-brown.

Head. Surface smooth and shiny. Antennae and palpi similar to those in *C. kukrutkato* sp. nov.

Thorax. Pronotum shiny, evenly covered with scattered punctures and with transversal row of punctures bearing long and slender setae in anterior margin. Prosternum with dense, transverse tuft of five stiff setae at middle of discal surface; line of setae continuous medially, not extending beyond the lateral margins of prosternal process. Prosternal process glabrous on disc, with lateral submargins and apex sparsely covered by short and stout setae, setae distinctly spaced and evenly distributed (Fig. 10). Noterid platform completely covered by short and stout setae, distinctly spaced and evenly distributed. Elytron shiny, evenly covered with scattered punctures and with three longitudinal rows of punctures bearing long and slender setae (Fig. 4). Metatibia with series of ten evenly spaced spiniform setae at posteroventral margin. Metatarsomere I with similar row of five setae on posteroventral margin.

Abdomen. Ventral surface as in *C. kukrutkato* sp. nov.

Aedeagus. Median lobe in lateral aspect long and slender, with ventral margin curved; small dorsal projection just before the apex and apex attenuate (Figs 8a,c); left side with long carina arising basally and ceasing apically, constituting the major part of left side (Figs 8a–c);

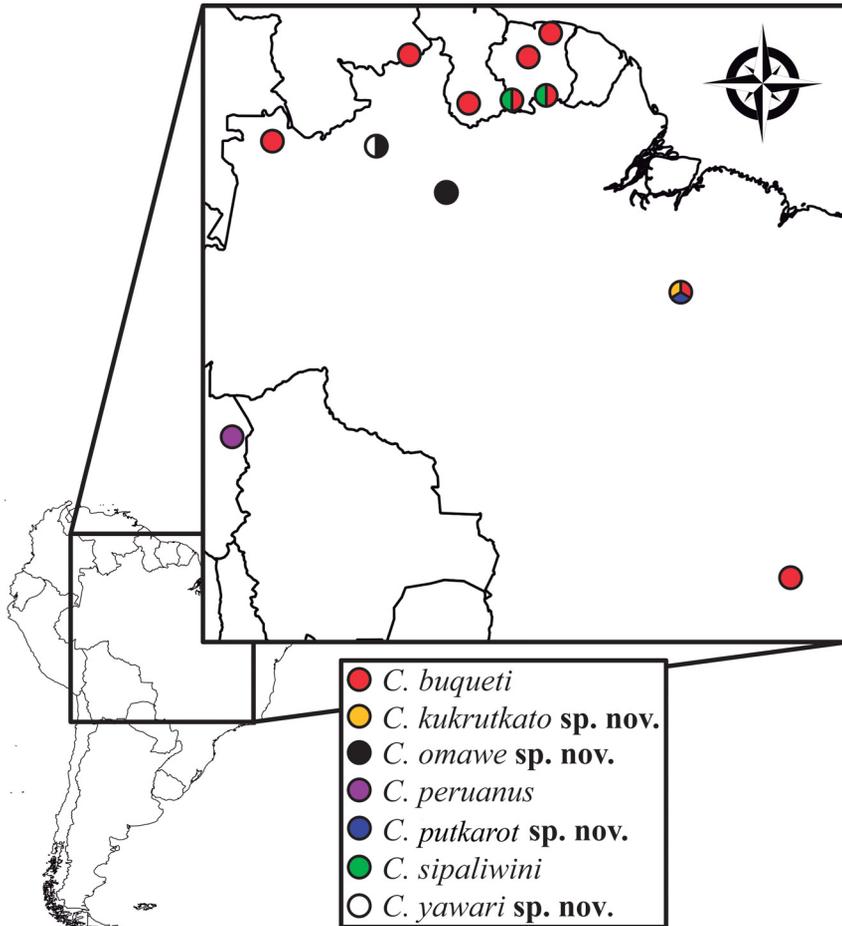


Fig. 11. Geographic distribution map of *Canthysellus* species.

in dorsal aspect, straight with apex slightly curved (Fig. 8b). Left lateral lobe, in lateral aspect, elongate and very slender with a dense tuft of setae at apex; setae distinctly extending beyond the dorsal margin (Fig. 8d). Right lateral lobe, in lateral aspect, slender and rounded ventrally (Fig. 8e).

Variation. Almost no variation was observed in the prominence of the maculae. Some specimens had a darker coloration than that of the type specimens. The number of stiff setae on the prosternal disc ranges from three to five in total. The setation on the lateral submargins of prosternal process is greatly reduced on many specimens. The number of setae on metatibia and metatarsomere I ranges from eight to twelve and three to four, respectively.

Measurements. Holotype: TL = 2.45 mm; MW = 1.30 mm; HW = 0.70 mm; EW = 0.45 mm; PntB = 0.05 mm; AntVII = 0.05 mm. Paratypes: TL = 2.45–2.65 mm (♂♂ = 2.45–2.60 mm; ♀♀ = 2.60–2.65 mm); MW = 1.30–1.50 mm; HW = 0.70–0.75 mm; EW = 0.45–0.50 mm; PntB = 0.05 mm; AntVII = 0.05 mm.

Etymology. The specific name refers to the Yanomâmi's forest spirit 'Yawari', in honor of the indigenous people present in the area of origin of the holotype. It is a noun in the nominative singular standing in apposition.

Geographic distribution. So far *Canthysellus yawari* sp. nov. is known only from the Barcelos Municipality in the Brazilian state of Amazonas.

Key to species of *Canthysellus* (modified from BACA & TOLEDO 2015)

- 1 Pronotum and elytra smooth (Figs 1, 2); prosternal process completely covered by short and stout setae (Fig. 9). 2
- Pronotum and elytra evenly covered with scattered punctures (Figs 3, 4); prosternal process glabrous on disc, with lateral sides and apex sparsely covered by short and stout setae, distinctly spaced and evenly distributed (Fig. 10). 6
- 2 Metatibia and metatarsomere I with inner margin densely setose (Fig. 7 of BACA & TOLEDO 2015); setae slender, hair-like; aedeagus as in Figs 10a–e of BACA & TOLEDO (2015). *C. peruanus* Baca & Toledo, 2015
- Metatibia and metatarsomere I with inner margin with single line of approximately 4–12 evenly spaced stiff setae (Fig. 6 of BACA & TOLEDO 2015). 3
- 3 Prosternum with dense, transverse tuft of stiff setae at middle of discal surface, discontinuous medially, extending beyond the lateral margins of prosternal process (Figs 4a,b of BACA & TOLEDO 2015). 4
- Prosternum with dense, transverse tuft of stiff setae at middle of discal surface, continuous medially, not extending beyond the lateral margins of prosternal process (Fig. 5 of BACA & TOLEDO 2015). 5
- 4 Larger size, 3.35–3.50 mm; base of head usually strongly infusate, nearly black (Fig. 2 of BACA & TOLEDO 2015); aedeagus as in Figs 9a–e of BACA & TOLEDO 2015, left lateral lobe very broad with setae extending just to or only slightly beyond the lobe margin (Fig. 9d of BACA & TOLEDO 2015); median lobe with apex elongate in lateral aspect (Figs 9a,c of BACA & TOLEDO 2015). *C. sipaliwini* Baca & Toledo, 2015
- Smaller size, 2.65–3.25 mm; base of head usually only weakly infusate (Fig. 1 of BACA & TOLEDO 2015); aedeagus as in Figs 8a–e of BACA & TOLEDO 2015, left lobe with setae extending far beyond lobe margin (Fig. 8d of BACA & TOLEDO 2015); median lobe with apex pointed, but not elongate in lateral aspect (Figs 8a,c of BACA & TOLEDO 2015). *C. buqueti* (Laporte, 1835)
- 5 Large size, 3.35–3.40 mm; median lobe, in lateral aspect, elongate and thin with dorsobasal margin sharply narrowing before midlength of median lobe (Figs 6a,c). *C. putkarot* sp. nov.

- Medium to large size, 2.90–3.15 mm; median lobe, in lateral aspect, short and stout with dorsobasal margin oblique and distinctly projected, sharply narrowing at midlength of median lobe (Figs 5a,c). *C. kukrutkato* sp. nov.
- 6 Larger, 2.95–3.40 mm; prosternum with dense, transverse tuft of stiff setae at middle of discal surface, discontinuous medially, extending beyond the lateral margins of prosternal process (Figs 4a–b of BACA & TOLEDO 2015); median lobe, in lateral aspect, long and robust with a large dorsal projection just before apex; apex rounded and globose (Figs 7a,c). *C. omawe* sp. nov.
- Smaller, 2.45–2.60 mm; prosternum with dense, transverse tuft of stiff setae at middle of discal surface, continuous medially, not extending beyond the lateral margins of prosternal process (Fig. 5 of BACA & TOLEDO 2015); median lobe, in lateral aspect, long and slender with a small dorsal projection just before apex (Figs 8a,c). *C. yawari* sp. nov.

New records from Brazil

Canthysellus buqueti (Laporte, 1835)

Material examined. BRAZIL: ‘MINAS GERAIS STATE, Santana do Riacho Municipality, Cardeal Mota, Serra do Cipó, Km 116, 14.V.2002, Carvalho A.G. leg.’ (1 ♀ / UFMG). ‘PARÁ STATE, Parauapebas Municipality, FLONA Carajás, Buritizal 2, puddle with foliage, 06°04’56,90”S 50°08’4,93”W, 08.IX.2006, Ferreira-Jr. N. & Dumas L.L. leg.’ (1 ♂ / DZRJ 6067); ‘PARÁ STATE, Parauapebas Municipality, FLONA Carajás, Buritizal 2, 06°04’56,90”S 50°08’4,93”W, 05.IV.2008, Santos A.P.M. & Ferreira-Jr. N. leg.’ (1 ♀ / DZRJ 6548).

Geographic distribution. *Canthysellus buqueti* is known from Venezuela, Guyana, Suriname, French Guiana and Brazil (Amazonas) (BACA & TOLEDO 2015). New records for Minas Gerais and Pará states in Brazil.

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