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A new species of *Conognatha* Eschscholtz, 1829 (Coleoptera: Buprestidae), with new state records of the genus for Brazil

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Abstract

Conognatha (*Pithiscus*) *mielkei* Pineda, Barros and Koike **n. sp.** (Coleoptera: Buprestidae), from southeast Brazil is described and illustrated. We also report five new state records for Brazil for the following species: *Conognatha* (*C.*) *ovatula*, *Conognatha* (*P.*) *apicalis*, *C. (P.) excellens*, *C. (P.) insignis* and *C. (P.) sellovii*.

Key words: *Pithiscus*, Stigmoderini, taxonomy, jewel beetles

Introduction

Conognatha Eschscholtz, 1829 contains 82 species and five subspecies, all of which are confined to the Neotropical region (Moore and Lander 2010). Currently 50 species and one subspecies are known from Brazil, which are predominantly distributed in south and southeast Brazilian territory, which is where the majority of Atlantic Forest (Mata Atlântica) is located. Although the genus *Conognatha* is especially interesting for researchers and collectors due to their large size and metallic colours, the genus is still not entirely known and new species have been described recently (Moore and Lander 2010; Portela and Mermudes 2014; Pineda and Barros 2017).

Herein we describe a new species of *Conognatha* of the subgenus *Pithiscus* based on a single male specimen collected in southeast Brazil. The description of this new species, and also the new records provided here contribute to knowledge of the species of the genus and its distribution in Brazil.

Material and methods

The Caparaó National Park (PNC) is located on the Serra do Caparaó mountain range, on the border of the states of Minas Gerais and Espírito Santo, southeast Brazil. Between the coordinates 20°19'–20°37'S and 41°43'–41°53'W, the PNC is on high elevation terrains at altitudes between 2000 to 2890m a.s.l. at the summit of Pico da Bandeira, which is the third highest peak in Brazil. The specimen designated as the holotype was collected with a standard sweeping net in November 2017, near Casa Queimada camping area on the trail to the summit of Pico da Bandeira on the Minas Gerais state side of the National Park (Figs 9–10). It should be noted that in the PNC, we collected between 2015 and 2017 the following four species of the genus: *Conognatha* (*P.*) *mielkei* **sp. n.**, *C. (P.) caparaoensis* Pineda and Barros 2017, *C. (P.) macleayi* Donovan 1825 and *C. (P.) principalis* Gory & Laporte, 1838.

Habitus photographs were taken with the specimen fixed on a Nikon PB–6M macro copy stand, using a Micro–NIKKOR 55mm f/3.5 macro lens mounted on a Nikon PB–6 bellows attached to a Nikon D7000 camera. The genitalia photographs were taken in the same way, but with a Nikon M Plan 10× 0.25 210/0 microscope objective. The photographs were stacked using the focus-stacking software Zerene Stacker 1.04 to extend depth of field and edited in Adobe Photoshop CS5 to remove the background.

Puncture density and setae density are based on the following standards: Puncture density was defined as dense if punctures are separated by less than 1 puncture diameters, moderately dense if punctures are separated by 1–3 puncture diameters and sparse if punctures are separated by more than 3 puncture diameters. Setae density was defined as dense if the surface is not visible through the setae, moderately dense if the surface is visible but with many setae, and sparse if there are few setae. Measurements were taken in millimeters using a digital caliper.

Label data are given verbatim between quotation marks “”, different lines of a label are separated by a diagonal slash /, different labels are indicated by a letter a), b), c), etc., additional information not written on the label is given between square brackets []. Collection abbreviations used in the text are: **MZUEL**: Museo de Zoología de la Universidad Estadual de Londrina, Paraná, Brasil. **DZUP**: Departamento de Zoologia, Universidade Federal de Paraná, Paraná, Brasil. **CPRB**: Colección personal de Rafael Barros, Paraná, Brasil. **CPCP**: Colección personal de Cristian Pineda, Valparaíso, Chile.

***Conognatha (Pithiscus) mielkei* sp. n.**

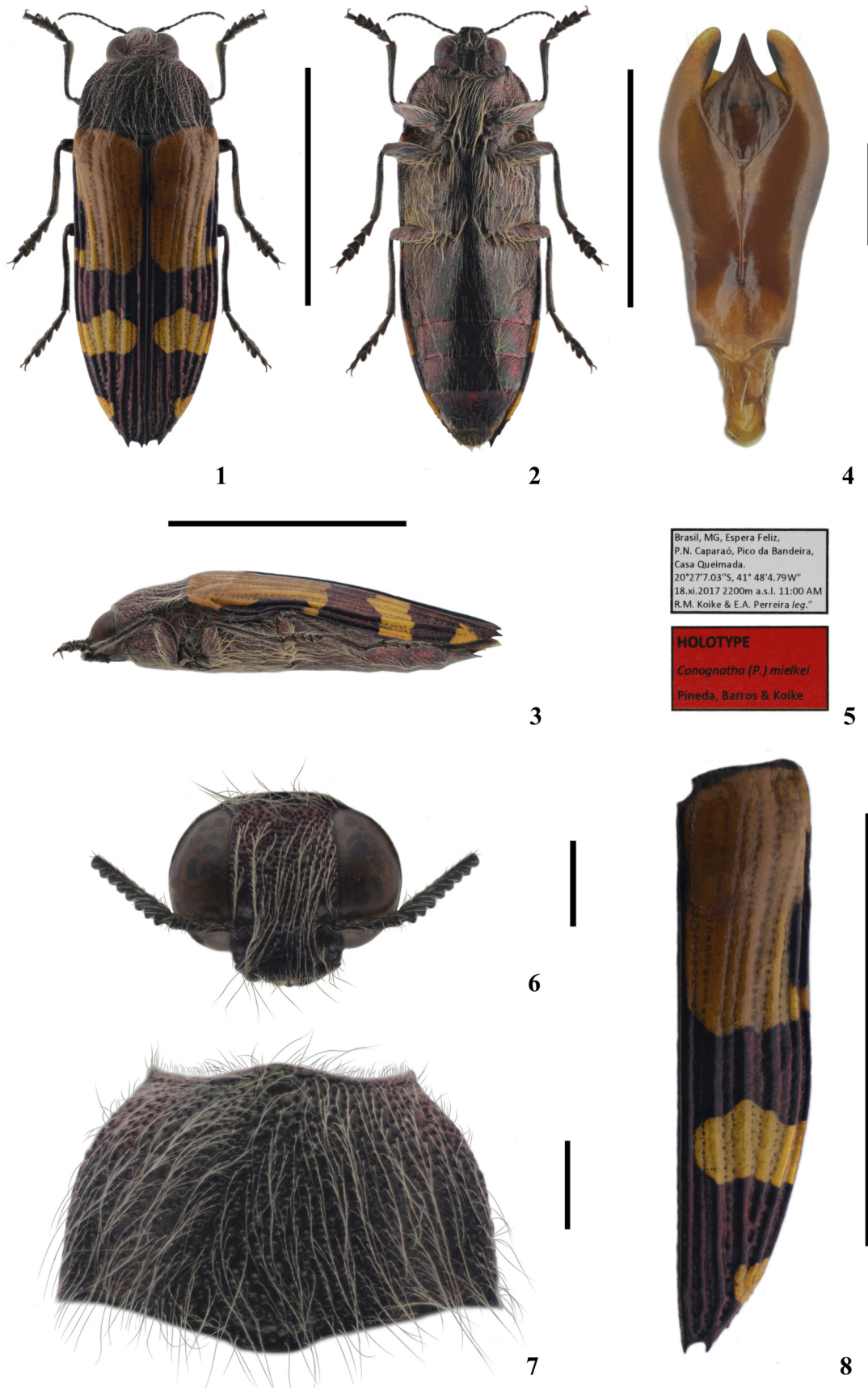
(Figs 1–8)

Type material: Holotype ♂ in MZUEL, labeled: a) “Brasil, MG, Espera Feliz / P.N. Caparaó, Pico da Bandeira / Casa Queimada / 20°27'7.03”S, 41° 48'4.79”W / 18.xi.2017, 2200m a.s.l., 11:00 AM / R.M. Koike & E.A. Perreira leg.”, b) “HOLOTYPE / *Conognatha (P.) mielkei* / Pineda, Barros & Koike” [red label printed].

Description Holotype male: Measurements (in mm). Total length, 17.96; prothorax length, 3.6; prothorax width at its widest point, 5.77; elytral length, 14.18; humeral width, 6.24. **Color.** Integument of head, pronotum, scutellum and venter dark copper, with metallic green sheen. Elytra testaceous, with black ornamentation. Setae light grey. **Head** (Fig. 6). Coarsely and densely punctate, except at middle of clypeus, were a narrow, longitudinal space is free from punctures. Vertex with short median longitudinal groove. Antenna with antennomeres 1–3 subcylindrical, antennomeres 4–10 subtriangular and antennomere 11 weakly pointed at apex. Frons with moderately dense pilosity of long setae. Clypeus sparsely setose, with anterior margin weakly concave. Labrum subrectangular with anterior angles rounded; moderately dense setosity, with decumbent, rigid setae. **Pronotum** (Fig.7). 1.66 wider than long. Moderately dense setosity with long setae. Irregularly and coarsely punctate, the punctures are moderately dense, becoming dense along lateral margins. Lateral margins slightly crenulate due to punctures. Anterior and posterior margin slightly sinuate at middle. Disc flattened, with median longitudinal depression that is deepest and broadest at base. Lateral depressions elongate and deep. **Scutellum.** 1.53 wider than long. U-shaped, with anterior margin straight. **Elytra** (Fig.8). 2.27 times longer than wide. Interstriae wide, interstriae 1,3,5,7,9,11 flat at the anterior third, becoming convex at the posterior two-thirds (costae), interstriae 2, 4, 6, 8, 10 flat (intervals). Striae moderately punctate, with a row of rounded punctures. Ornamentation composed of a basal stripe, a latero-anterior longitudinal macula, two posterior transverse bands and an apical macula common to both elytra, the transverse bands are interconnected by a sutural longitudinal band, extending from base to apex. Apices with two strongly developed spines separated by a distinct notch. **Venter** (Fig.2). Prosternum, metasternum and hind coxa moderately dense punctate, densely setose, with long setae. Ventrites sparsely punctate and setose. **Aedeagus** (Fig.4). Parameres finger-like in apical third, apex rounded with sparse long setae. Median lobe acuminate at apex, ventrally with longitudinal groove wider at the middle.

Differential diagnosis: The new taxon is similar to *C. (P.) principalis* in having the pronotum with lateral depressions elongate and deep; elytra testaceous with black ornamentation; interstriae 1,3,5,7,9,11 flat at the anterior third, becoming convex at the posterior two-thirds, remaining interstriae not elevated. The two species are distinguished as follows (*C. (P.) principalis* characters in brackets): Pronotum pilosity moderately dense, with long setae (sparse). Elytral apical spines strongly developed (not developed). Interstriae wide (narrow).

Etymology: We name this species in honor of the Brazilian entomologist Carlos G.C. Mielke, for his great contribution to the taxonomic knowledge of the Brazilian insects.



FIGURES 1–8. *Conognatha (P.) mielkei* sp. n. holotype male (MZUEL). 1. Dorsal view. 2. Ventral view. 3. Lateral view. 4. Aedeagus, ventral view. 5. Labels. 6. Head. 7. Pronotum. 8. Right elytron. (Scale bars: Figs. 1–3, 8: 10 mm, Figs. 4, 6–7: 1 mm).



FIGURES 9–10. Type locality (PNC).

Key to the species of *Conognatha* adapted from Moore and Lander 2010.

The couplet 43 was modified to include the new species.

- Elytra testaceous; costae separated by intervals less than 2x width of each costa 43
- 43 (42)- Wide costae on anterior 3/4, irregular, sinuous, separated by spaces wider than one costae; pronotum green, satiny on lateral portions, disc usually purplish, sparsely setose, setae short and thin, latero-posterior angles without fovea or depression; elytra testaceous with black ornamentation: narrow basal vitta, longitudinal humeral stripe on the anterior third, becoming wider at the posterior side, reaching lateral margin, post-median fascia and apical macula common to both elytra, apical spines strongly developed (Chile) *C. errata* Fairmaire, 1867
- Costae slender, quite regular, or feebly sinuous, separated by width equal to or less than width of costae; pronotum nitid green, sometime cupreous, sparsely setose, setae short to moderately long and thin, latero-posterior angles with a deep elongate fovea, less strong anteriorly; elytra testaceous without ornamentation or nitid green or mat black, made by small sutural maculae and in the lateral margin at the posterior quarter, post median fascia sinuate, small pre-apical maculae and common apical macula covers entire disc of apical 1/4, apical spines not developed (Brazil, Argentina) *C. principalis* Gory and Laporte, 1838
- Costae wide, flat at the anterior third, becoming convex at the posterior two-thirds, separated by width less than width of costae; pronotum dark copper, with metallic green sheen, moderately densely setose, setae long and thick, latero-posterior angles with a deep elongate fovea, less strong anteriorly; elytra testaceous with ornamentation composed of a basal stripe, a latero-anterior longitudinal macula, two posterior transverse bands and an apical macula common to both elytra, the transverse bands are interconnected by a sutural longitudinal band, extending from base to apex, apical spines strongly developed (Brazil). *C. mielkei* Pineda, Barros and Koike, 2018

New state records

***Conognatha (Conognatha) ovatula* Hoscheck, 1931**

(Figs 11–12).

Distribution: Brazil (São Paulo).

Material examined (1 male): 1 male in CPRB, labeled: a) “São Paulo, Ubatuba / i.2008 / C.G.L. Junior leg.”.

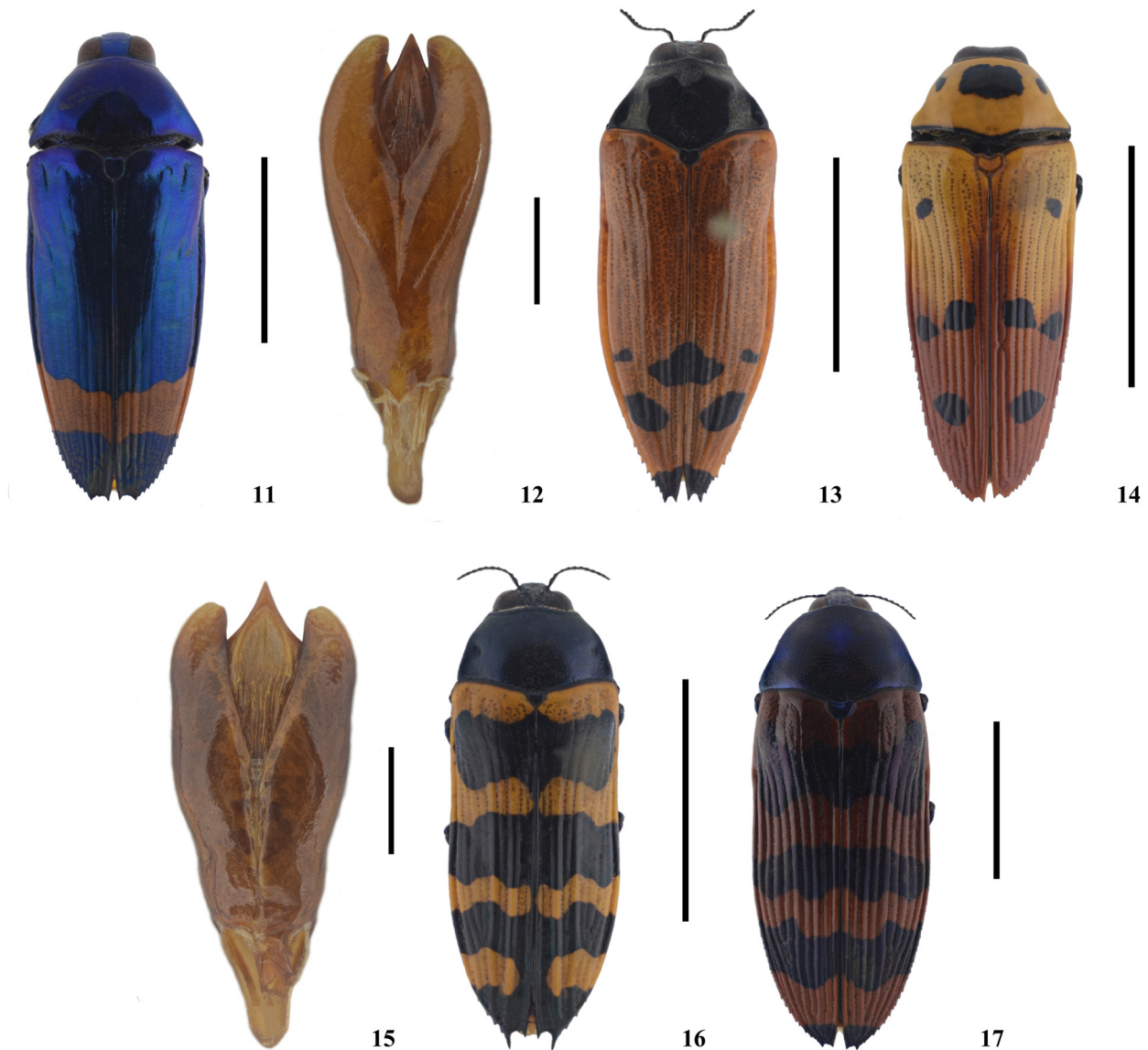
New record for the state of São Paulo.

***Conognatha (Pithiscus) apicalis* Waterhouse, 1912**

(Fig. 13).

Distribution: Brazil (Rio de Janeiro, Santa Catarina).

Material examined (2 females): 1 female in DZUP, labeled: a) “Brasil, SC / Joinville / 10 m / Bu 89 / ♀ / 2.65” b) “DZUP / 464988” (Fig. 13). 1 female in DZUP, labeled: a) “Brasil / SC, 10 m / Joinville / Bu 89 / ♀ / 11.60” b) “DZUP / 464989”. **New record for the state of Santa Catarina.**



FIGURES 11–17. 11–12. *Conognatha (Conognatha) ovatula* Hoscheck, 1931. 11. Dorsal view. 12. Aedeagus, ventral view. 13. *Conognatha (Pithiscus) apicalis* Waterhouse, 1912. 14–15. *Conognatha (P.) excellens* Klug, 1825. 14. Dorsal view. 15. Aedeagus, ventral view. 16. *Conognatha (P.) insignis* Perty, 1830. 17. *Conognatha (P.) sellovii* Klug, 1825. (Scale bars: Figs. 11,13–14,16–17: 10 mm, Figs. 12,15: 1 mm).

***Conognatha (Pithiscus) excellens* Klug, 1825**

(Figs 14–15).

Distribution: Brazil (Espírito Santo, Rio de Janeiro, São Paulo, **Paraná**, Rio Grande do Sul).

Material examined (1 male): 1 male in CPRB, labeled: a) “Brasil, PR, Londrina / ii.1998 / R. C. Barros *leg.*”.

New record for the state of Paraná.

***Conognatha (Pithiscus) insignis* Perty, 1830**

(Fig. 16).

Distribution: Brazil (Distrito Federal, Minas Gerais, São Paulo, Paraná, Rio Grande do Sul).

Material examined (1 male, 1 female): 1 male in DZUP, labeled: a) “*Conognatha / insignis* / Perty / A. Cobos det. 1963” b) S. BERNARDO CAMPO / Est. S. PAULO Brasil / 1. 1962 / W. Bokermann *leg.*” c) “coleção/ M. Alvarenga” d) “DZUP / 464960”. 1 female in DZUP, labeled: a) “Brasília, D.F. / Brasil, 22.11.1966 / D. Mielke *leg.*” b) “DZUP / 464961” (Fig. 16). **New record for the state of Distrito Federal.**

***Conognatha (Pithiscus) sellovii* Klug, 1825**

(Fig. 17).

Distribution: Brazil (Santa Catarina, Paraná, Rio Grande do Sul).

Material examined (1 female): 1 female in DZUP, labeled: a) “*Conognatha / sellovii* Klug.” b) “Guarapuava / H. Schneider / 2. 953” c) “Coleção / F. Justus Jor” d) “4103” e) “DZUP / 464497”. **New record for the state of Paraná.**

Other material (PNC records)

***Conognatha (P.) macleayi* Donovan 1825** (2 males): 1 male in CPCP, labeled: a) “BRASIL, MG, Espera Feliz, / Parque Nacional do Caparaó, / Pico da Bandeira, Macieira, / 20°28'21.20"S 41°49'39.45"W, / 1300 m a.s.l. 26.i.2017. / C.G.C. Mielke & E. Joelke *leg.*”. 1 male in CPRB, same data.

***Conognatha (P.) caparaoensis* Pineda & Barros 2017** (2 males): 1 male in CPCP, labeled: a) “BRASIL, MG, Espera Feliz, / Parque Nacional do Caparaó, / Pico da Bandeira, Casa Queimada, / 20°27'7.03"S 41°48'4.79"W, / 2447 m a.s.l. 21–25.i.2017, / C.G.C. Mielke & E. Joelke *leg.*”. 1 male in CPRB, same data.

***Conognatha (P.) principalis* Gory & Laporte, 1838** (1 female): 1 female in CPRB, labeled: a) “Alto Caparaó-MG-BR / Parque Nacional do Caparaó / Pico da Bandeira 2400 m / 28-XI-2015 / Barros R. & Koike R. COL”.

Acknowledgments

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