



Revista de la Sociedad Entomológica Argentina
ISSN: 0373-5680
ISSN: 1851-7471
santiago@cepave.edu.ar
Sociedad Entomológica Argentina
Argentina

Two new species of the Neotropical genus *Anaides* (Coleoptera: Hybosoridae: Anaidinae) from Peru

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Revista de la Sociedad Entomológica Argentina, vol. 80, núm. 2, 2021

Sociedad Entomológica Argentina, Argentina

Disponible en: <https://www.redalyc.org/articulo.oa?id=322066981003>

Two new species of the Neotropical genus *Anaides* (Coleoptera: Hybosoridae: Anaidinae) from Peru

Dos especies nuevas del género Neotropical *Anaides* (Coleoptera: Hybosoridae: Anaidinae) de Perú

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Abstract: *Anaides felicitae* Ocampo n. sp., and *Anaides joaquinii* Ocampo n. sp. are described from Peru. The new *taxa* are illustrated and compared with their closely related species in the genus *Anaides* Westwood.

Keywords: Neotropics, New taxa, Taxonomy.

Resumen: Se describen dos especies de Perú, *Anaides felicitae* Ocampo n. sp. y *Anaides joaquinii* Ocampo n. sp. Los nuevos *taxa* son ilustrados y comparados con las especies cercanas del género *Anaides* Westwood.

Palabras clave: Neotrópico, Nuevos taxa , Taxonomía.

Revista de la Sociedad Entomológica Argentina, vol. 80, núm. 2, 2021

Sociedad Entomológica Argentina, Argentina

Recepción: 12 Agosto 2020

Aprobación: 13 Abril 2021

Publicación: 30 Junio 2021

Redalyc: <https://www.redalyc.org/articulo.oa?id=322066981003>

INTRODUCTION

Anaidinae Nikolajev (1996) is a subfamily of Hybosoridae (Scarabaeoidea) that includes six extant and one fossil genera, *Anaides* Westwood, *Callosides* Howden, *Chaetodus* Westwood, *Cretanaides* Nikolajev (fossil), *Cryptogenius* Westwood, *Hybochaetodus* Arrow, and *Totoia* Ocampo, and 61 species (two fossil) including the new taxa described herein (Allsopp, 1984; Ocampo, 2005, 2006; Ocampo & Ballerio, 2006; Král & Hájek, 2014). The genus *Anaides* was described by Westwood (1845) based on one species, *A. fuscilatus* Westwood. With the two new species described herein this genus currently includes 15 species (one fossil). *Anaides* is distributed in Central and South America as well as the West Indies (Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Barbados, Trinidad and Tobago, Guyana, Suriname, Venezuela, Colombia, Brazil, Ecuador, Peru, Bolivia, and Dominican Republic (fossil) (Ocampo & Ballerio, 2006). In the most recent revision of *Anaides* (Ocampo, 2006), eight species were described, illustrated and diagnosed and a key to species was provided for all known taxa at that time. In the same contribution, a phylogenetic analysis was conducted showing that *Anaides* is closely related to a clade that includes *Cryptogenius* and *Callosides*.

Species of *Anaides* are attracted to carrion and dung, suggesting these are their primary food sources, and are also known to be attracted to light (Ocampo, 2006).

As part of a continuous work on the American hybosorid fauna, two new species in the genus *Anaides* were found in Peru. The purpose of this contribution is to describe these new species, provide diagnostic characters, and compare them with closely related species in the genus.

MATERIAL AND METHODS

Specimens were studied using a stereomicroscope Leica MS5. Body measurements, puncture density and size, and density of setae are based on the following standards: Body length was measured from the apex of the pronotum (at the middle) to the apex of the elytra in mm. Body width was measured across the elytra at the widest point. Punctures were considered "dense" if punctures were nearly confluent to less than two puncture diameters apart, "moderately dense" if punctures were two to six diameters apart, and "sparse" if punctures were more than six diameters apart. Puncture size was defined as "small" if punctures were 0.02 mm or smaller, "moderate" if 0.02-0.07 mm, and "large" if 0.07 mm or larger. Setae were defined as "sparse" if there were few setae, "moderately dense" if the surface was visible but with many setae, and "dense" if the surface was not visible through the setae. Elytral carinae were counted from the elytral suture, with the elytral suture included. Holotype specimen label data was cited verbatim using "/" between the lines of the labels and ";" between labels.

This study was based on specimens from Instituto Argentino de Investigaciones de Zonas Áridas (IADIZA), Mendoza, Argentina, and Museo de Historia Natural (MHNL), Universidad Nacional Mayor de San Marcos, Lima, Perú.

This article has been registered in the Official Register of Zoological Nomenclature (ZooBank) as LSID urn:lsid:zoobank.org:pub:A24D9E5F-AFD6-46E1-9D17-6C0E06FC9ACC



Fig. 1. *Anaides felicitae* n. sp., holotype, male.
Scale = 1 mm

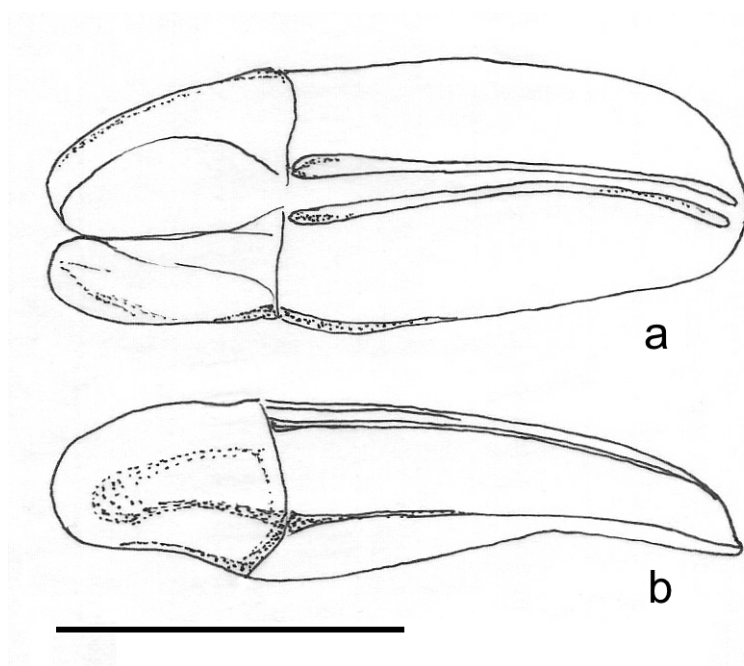


Fig. 2. *Anaides felicitae* n. sp., male parameres and phallobase. a. dorsal view. b. lateral view.
Scale = 1 mm.

RESULTS

Anaides felicitae Ocampo, n. sp.

Description. Holotype male. (Figs. 1, 2). Length 7.1 mm; width 4.2 mm. Color: Head, pronotum, scutellum, venter, and legs reddish-brown.

Head: Frons in dorsal view with base slightly convex at middle. Clypeus and frons setose; setae sparse, long. Clypeus with medial tubercle, shape subtrapezoidal; disc slightly concave on sides; apex weakly rounded; surface punctate; punctures dense, large. Clypeal margins reflexed, denticulate, acute apically; vertical surface of apex blunt with fringe of setae. Labrum subrectangular, dorsal surface with fringe of setae, lateral margins subparallel. Mandibles protruding beyond labrum; external surface sparsely setose; apex acute, slightly reflexed. Labium with mentum slightly indented at apex, surface concentrically strigulate. Antennal club with basal segment cupuliform, partially capable of receiving penultimate and ultimate segments. Pronotum: Surface convex, convexity accentuated medially, 0.75 times as long as wide, surface densely areolate-ocellate, sparsely setose, with two central, longitudinal carinae; carinae straight not reaching pronotal apex (Fig. 1). Anterior margin with weak bead; lateral margins denticulate, denticles larger at epical half, each bearing 1-2 setae; posterior margin with well-developed, subtriangular projection at middle. Lateral margin with notch before anterior angle. Anterior angles acute, posterior angles right-angled. Scutellum: Shape subtriangular, surface glabrous, apex acute. Elytron: Surface with chain-like sculpturing alternating longitudinally with irregularly sculptured lines, sparsely setose. Lateral margin with one carina extending from humerus to apical declivity. Base with one well developed, elongated tubercle between suture and humerus. Humerus with one tubercle. Apical declivity with one elongated tubercle. Epipleuron surface shagreen at base smooth at apex, wider at apex. Venter: Prosternal surface strigulate; prosternal shield with posteromedial process developed. Mesosternal surface strigulate. Metasternal surface strigulate, with cross-like sculpture near suture. Proepisternal surface strigulate. Legs: Procoxal surface strigulate, anterior surface flat. Metatrochanter with small, posteromedial tooth. Femoral surface vermiculate to strigulate. Protibia with three teeth and well-developed denticles between base and basal tooth and between basal and middle teeth; basal and middle teeth subtriangular; dorsal surface with two setose, longitudinal carinae; outer carina denticulate; protibial spur as long as apical tooth, curved at apex, apex acuminate. First tarsomere longer than second; tarsomeres 2-4 subequal in length; tarsomere 5 longer than 4. Pro-, meso-, and metatarsal claws shorter than tarsomere 5, simple, curved. Meso- and metatibiae slender; outer surface with two longitudinal rows of teeth, one seta at base of each tooth. Mesotibial apex truncate; external mesotibial spur absent; medial spur present, apex acuminate. Metatibia subequal in width from near base to near apex; apex truncate, with poorly developed outer process. Parameres: see Figure 2.

Allotype female. Length 7.8 mm; width 4.0 mm. The female allotype differs from the holotype in the following respects: protibial spur evenly curved; mesotibia with two spurs, medial spur longer than external.

Type Material

Holotype male (MHNL): "PERU: SM Yuracyacu / Rioja 77°8'55.7" / 5°56'39.4" 816 m. 17 / -18.i.2009 C. Albújar"; "*Anaides felicitae* / HOLOTYPE / F. C. Ocampo" (red holotype label, handwritten).

Allotype female: "PERU: SM Yuracyacu / Rioja 77°8'55.7" / 5°56'39.4" 816 m. 17 / -18.i.2009 C. Albújar"; "*Anaides felicitae*/ ALLOTYPE / F. C. Ocampo" (Red allotype label, handwritten).

Paratypes: Twelve paratypes, six females, six males, labeled as Holotype; one male paratype labeled: "PERU: SM Fundo / Pabloyacu. 76°56'36.6" / 6°4'0.5" 8-9.xii.2008 / 1,061 m. C. Albújar"; one male paratype labeled: "PERU: SM Yuracyacu / 77°13'37" 5°56'23.4" / 817 m 13-14.i.2009 C. / Albújar"; All paratypes label: "*Anaides felicitae* / PARATYPE / F. C. Ocampo" (yellow paratype label, handwritten).

Type locality: Peru, San Martín, Yuracyacu, Rioja, 77°8'55.7" W; 5°56'39.4" S.

Etymology. This species is named after Felicitas Ocampo, the author's niece.

Distribution (Fig. 5). Peru, San Martín: Yuracyacu (15), Pabloyacu (1).

Biology. Little is known about the biology of *A. felicitae* n. sp. Presumably, adults of this species feed on dung as most species in the genus. All specimens from the type series were collected between 800-1,100 m altitude. The habitat where specimens were collected corresponds to the Ucayali Moist Forest.

Diagnosis. *Anaides felicitae* is distinguished from other species of *Anaides* by the presence of a median tubercle on the clypeus; two pronotal carinae; two basal tubercles on the elytra (the one closer to the suture elongated); and elytral epipleuron wider at apex, with surface shagreen at base and becoming smooth toward apex. The shape of the parameres, symmetrical and rounded apically is also diagnostic (Fig. 2).

In the key to species of the genus *Anaides* (Ocampo, 2006), *A. felicitae* n. sp. keys out close to *A. fussulatus* Westwood but it can be distinguished from it by the epipleuron distinctively wider at apex and with surface shagreen at base, becoming smooth toward apex.



Fig. 3. *Anaides joaquinii* n. sp., holotype male.
Scale = 1 mm

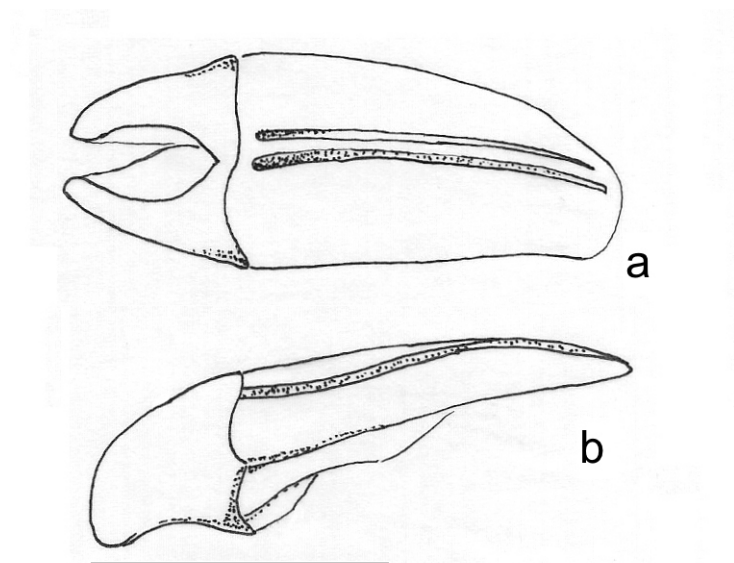


Fig. 4. *Anaides joaquinii* n. sp., male parameres and phallobase. a. dorsal view. b. lateral view.
Scale = 1 mm.

Anaides joaquinii Ocampo, n. sp.

Description. Holotype male. (Figs. 3, 4) Length 6.30 mm; width 3.30 mm. Color: Head, pronotum, scutellum, venter, and legs reddish-brown. Head: Frons in dorsal view with base slightly convex at middle. Clypeus and frons setose; setae sparse, long. Clypeus with poorly developed medial tubercle, shape subtrapezoidal; disc slightly concave on sides;

apex weakly rounded; surface punctate; punctures dense, large. Clypeal margins reflexed, denticulate, acute apically; vertical surface of apex blunt with fringe of setae. Labrum subrectangular, dorsal surface with fringe of setae. Mandibles protruding beyond labrum; external surface sparsely setose; apex acute, slightly reflexed. Labium with mentum slightly indented at apex, surface concentrically strigulate. Antennal club with basal segment cupuliform, partially capable of receiving penultimate and ultimate segments. Pronotum: Surface convex, convexity accentuated medially, 0.8 times as long as wide, surface densely areolate-ocellate, sparsely setose, with two central, longitudinal carinae; carinae straight. Anterior margin with weak bead; lateral margins strongly denticulate, denticles each bearing 1-2 setae; posterior margin sinuouse. Lateral margin with notch before anterior angle. Anterior angles acute, posterior angles right-angled. Scutellum: Shape subtriangular, surface glabrous, apex acute. Elytron: Surface with chain-like sculpturing alternating longitudinally with irregularly sculptured lines, sparsely setose. Lateral margin with one carina extending from humerus to apical declivity. Base lacking tubercles between suture and humerus. Apical declivity with one elongated tubercle. Epipleuron with surface smooth, wider at apex. Venter: Prosternal surface strigulate; prosternal shield with posteromedial process poorly developed. Mesosternal surface strigulate. Metasternal surface strigulate, with cross-like sculpture near suture. Proepisternal surface strigulate. Legs: Procoxal surface strigulate, anterior surface flat. Metatrochanter with small, posteromedial tooth. Femoral surface vermiculate to strigulate. Protibia with three teeth and well-developed denticles between base and basal tooth and between basal and middle teeth; basal and middle teeth subtriangular; dorsal surface with two setose, longitudinal carinae; outer carina denticulate; protibial spur as long as apical tooth, curved at apex, apex acuminate. First tarsomere longer than second; tarsomeres 2-4 subequal in length; tarsomere 5 longer than 4. Pro-, meso-, and metatarsal claws shorter than tarsomere 5, simple, curved. Meso- and metatibiae slender; outer surface with two longitudinal rows of teeth, one seta at base of each tooth. Mesotibial apex truncate; external mesotibial spur absent; medial spur present, apex acuminate. Metatibia subequal in width from near base to near apex; apex truncate, with poorly developed outer process. Parameres: See Figure 4.

Allotype female. Length 6.3 mm; width 3.4 mm. The female allotype differs from the holotype in the following respects: protibial spur evenly curved; mesotibia with two spurs, medial spur longer than external.

Type Material

Holotype male (MHNL): "PERU. CU. La Convención / Echarate. CC. Santa Rosa. / 73°05'50.23" / 12°34'13.18" / 1,422 m 14.x.2009 / C. Carranza y C. Rossi." "*Anaides joaquinii* / HOLOTYPE / F. C. Ocampo" (red holotype label, handwritten).

Allotype female: "PERU. CU. La Convención / Echarate. CC. Otsananpiato / 73°09'30.69" / 12°39'48.96". / 1,677 m 20.x.2009 / C. Carranza y C. Rossi." "*Anaides joaquinii* / ALLOTYPE / F. C. Ocampo" (Red allotype label, handwritten).

Paratypes: one paratype male labeled: "PERU. CU: La Convención / Echarate. C. Segakiato. / 11° 45'38.6" S/73°14'57.7" W. / 908 m 01-04.v. 2011 S. / Caveró y C. Espinosa." one paratype male labeled: "PERU. CU. La Convención / Echarate. CC. Otsananpiato / 73°09'30.69" /12° 39'48.96". / 1,677 m 20.x.2009 / C. Carranza y C. Rossi." three paratypes male labeled: "PERU. CU: La Convención / Echarate. C. Segakiato. / 11°45'38.6" S/73°14'57.7" / W. 908 m 02.iii.2011 M. / Alvarado y E. Razuri". All paratypes labeled: "*Anaides joaquinii* / PARATYPE / F. C. Ocampo" (yellow paratype label, handwritten).

Type locality: Peru, Cuzco, La Convención Province, Echarate, 73°05'50.23" W; 12°34'13.18" S.

Etymology. This species is named after Joaquín Ordoñez, the author's nephew.

Distribution (Fig. 5). Peru, Cuzco: La Convención, Echarate (7).

Biology. Little is known about the biology of *A. joaquinii* n. sp. Presumably, adults of this species feed on dung as most species in the genus. All specimens from the type series were collected between 900-1,700 m altitude. The habitat where specimens were collected corresponds to the Peruvian Yungas.

Diagnosis. *Anaides joaquinii* n. sp. is distinguished from other *Anaides* species by the presence of a tubercle on the clypeus; two longitudinal, pronotal carinae; pronotal lateral margins with large teeth, lacking notch before anterior angle; elytra lacking basal tubercles; elytral disc convex; and epipleuron wider at apex. The shape of the parameres, symmetrical with apex curved downward, is also diagnostic (Fig. 4).

In the key to species of the genus *Anaides* (Ocampo, 2006), *A. joaquinii* n. sp. keys out close to *A. carioca* Ocampo but it can be distinguished from it by the pronotal lateral margins with large teeth, lacking notch before anterior angle (Fig. 3).



Fig. 5. Distribution of *Anaides felicitae* n. sp. (circles) and *A. joaquinii* n. sp. (squares).

ACKNOWLEDGMENTS

I thank Luis Figueroa (MHNL), and Sergio Roig (IADIZA) for letting me access the collections and specimens loans. I also thank José Mondaca, from Servicio Agrícola y Ganadero (SAG), Chile, for his valuable comments on an earlier version of the manuscript.

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