

A striking new species of the genus *Blennidus* Motschulsky, 1865 from southern Peruvian Andes (Coleoptera: Carabidae: Pterostichini)

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Abstract. A new species of carabid beetle is described and illustrated on the basis of specimens collected in southern Peruvian Andes: *Blennidus palustris* sp. nov. Morphological affinities of new species are discussed and comparisons are performed with representatives of genus-group names *Blennidus* s. str. and *Pseudocynthidia* Straneo, 1953.

INTRODUCTION

In his systematic arrangement of South American Pterostichini, Straneo (1979, 1986) proposed a narrow sense genus *Blennidus* Motschulsky, 1865 composed by a restricted group of around sixteen species from Ecuador, Peru Bolivia, Brazil and Chile. Later, a wide concept of this genus prevailed, as suggested by morphological comparisons of labial palpomere setation and female genitalia (Moret 1995). In its widest concept, *Blennidus* includes over one hundred species distributed in Colombia, Ecuador, Galapagos Islands, Peru, Bolivia, Brazil, Chile, Uruguay and Argentina, comprising previous genus-group names as *Agraphoderus* Bates, 1891, *Ogmopleura* Tschitschérine, 1899, *Pachyabaris* Straneo, 1951, *Pseudocynthidia* Straneo, 1953 and *Sierrobis* Straneo, 1951 as junior synonyms (Moret 1995, Martínez 2005, Allegro & Giachino 2011). Attempts to subdivide it into species groups (Moret 1995) or convenience subgenera (Moret 2005) have been largely complicated due to inconsistency of diagnostic characters used to separate them (Allegro & Giachino 2015). The recent description of a Chilean species which combines characters traditionally considered of diagnostic value for *Agraphoderus* and *Blennidus* s. str., highlights the need for further studies including the broadest set of species within their geographic range (Allegro & Giachino 2017).

The name *Pseudocynthidia* Straneo, 1953 was first proposed as a subgenus of *Cynthidia* Chaudoir, 1873, a genus previously including five species from southeastern South America (Chaudoir 1873, Straneo 1951). The only species assigned to this subgenus was *Cynthidia* (*Pseudocynthidia*) *poeciloides* Straneo, 1953, based on specimens from Argentina (Buenos Aires, Tucumán) and Bolivia (Cochabamba) with similar general appearance to *Cynthidia* species but with a distinctive non-metallic labrum (Straneo 1953). Later, the same author gave higher diagnostic value to presence or absence of a metallic labrum in his key to genera and subgenera of South American Pterostichini (Straneo, 1979). Therefore, *Pseudocynthidia* was removed from *Cynthidia* and placed as a subgenus of *Blennidus* s. str. (Straneo 1979, 1986).

According to most recent checklists and reviews, fifty three *Blennidus* species has been recorded from Peru, including species previously assigned to genus-group names *Blennidus* s. str. and *Agraphoderus* (Erwin et al. 2015, Allegro & Giachino 2015, 2017).

In the present study, a new species of genus *Blennidus* is described based on specimens recently collected in southern Peruvian Andean environments. Also, its morphological affinities with species of genus-group names *Blennidus* s. str. and *Pseudocynthidia* are discussed.

MATERIAL AND METHODS

Abbreviations: MEKRB Museo de Entomología Klaus Raven Büller, Universidad Nacional Agraria La Molina, Lima, Peru (Clorinda Vergara); MUSM Museo de Historia Natural Javier Prado, Universidad Nacional Mayor de San Marcos, Lima, Peru (Mabel Alvarado); SENASA Laboratorio de Sanidad Vegetal, Servicio Nacional de Sanidad Agraria, Lima, Peru (Graciano Tejada).

Taxonomic placement of specimens was made using recent available keys to tribes and genera of Neotropical Carabidae (Martínez 2005, Roig-Juñent 2021). In addition, dichotomic key to genera and subgenera of South American Pterostichini was employed (Straneo 1979). In description, morphological characters followed terminology by Larochelle & Larivière (2007) and their diagnostic value were based on Allegro & Giachino (2017). Comparisons with *Blennidus* s. str. and *Pseudocynthidia* species were performed with descriptions and images available in Straneo (1953, 1986), as well as specimens housed in Peruvian entomological collections (MEKRB, MUSM, SENASA). Types were indicated by red label (holotype) and yellow labels (paratypes) bearing the status of the specimens, sex, names of species, name of the author, and year of the designation. Type specimens were housed at entomological collection of MEKRB.

Holotype was photographed with a Canon® EOS Rebel T5i DSLR, equipped with macro lens. Photos were edited using Combine ZP (Hadley 2006) and Adobe Photoshop software. Parameres were extracted, treated for 10 minutes in 20% KOH, washed with distilled water and adhered to a small piece of cardboard. Drawings were made by vectorizing photographs with Inkscape software. Distribution map was elaborated using Simple Mappr (Shorthouse 2010).

TAXONOMY

Tribe Pterostichini Bonelli, 1810
Genus *Blennidus* Motschulsky, 1865

***Blennidus palustris* sp. nov.**
(Figs. 1-4)

Type locality. Peru, Puno department, Puno province, Toramipata.

Type material. Holotype (♂): PERU, Puno, Toramipata, Titicaca Lake (reed bed), 15°48'08.99"S, 69°59'36.38"W, 3826 m, pitfall traps, VII-2015, J. Ugarte coll. (MEKRB). Paratypes (5 ♂♂, 5 ♀♀): same data as for holotype, (MEKRB).

Diagnosis. A *Blennidus* species with head and pronotum shiny black, elytra shiny copper bronze and noticeable greenish lustre on frons, clypeus and elytral interval 9 (Fig. 1). It is distinguished from other *Blennidus* species by the following combination of characters: body dorso-ventrally flattened; pronotum with apex wider than base, with posterolateral angles acute and pointed; elytral striae 1-4 distinctly more impressed than others; metathoracic wings present, longer than elytra by about 1/3 of elytral length; aedeagus with triangular apex directed forward in dorsal view and curved downward in lateral view.

Description. Overall length 10.5-12.0 mm, from labrum to elytral apex. Habitus (Fig. 1). Dorsal surface shiny black on head and pronotum, shiny copper bronze on elytra, with greenish lustre noticeable on frons, clypeus and elytral interval 9. Labrum non-metallic. Microsculpture noticeable on pronotum and elytra. Antennae, mouthparts, hypomera, epipleura

and legs dark ferruginous; venter piceous black. Head moderately large, eyes convex separated by a distance equal to four eye diameters. Labrum transverse with anterior margin slightly concave and bearing six setiferous punctures. Clypeus bisetose, excavated on anterior third. Frontoclypeal suture well marked, deep. Frons with two longitudinal furrows slightly curved, parallel and deep, from frontoclypeal suture to half of eye length, with two fine carinae adjacent to each eye. Tempora very short, as long as one third of eye length. Neck bearing transversal rows of punctures. Penultimate labial palpomere bisetose. Mentum with lateral lobes triangular, widened basally and bearing two well impressed fovea; median tooth short and thick. Antennae long, with two apical antennomeres surpassing the base of pronotum; antennomere 3 fusiform, wider apically, longer than antennomeres 2 and 4 separately; antennomeres 4-10 longer than wide.

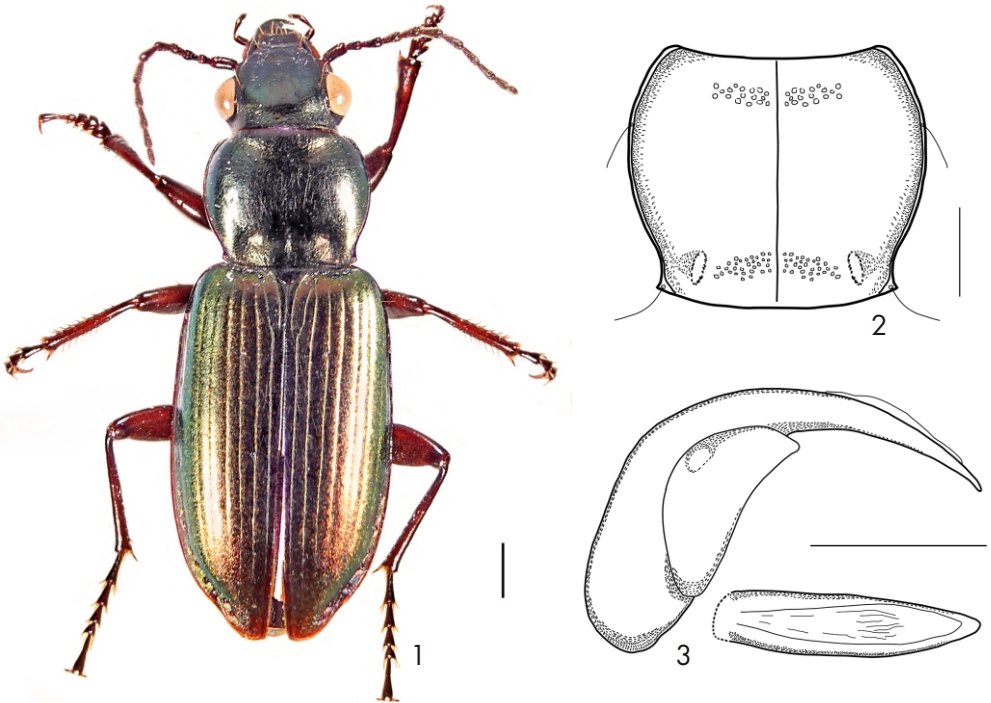
Pronotum transverse, with maximum width in the anterior half (width: length = 1.2) (Fig. 2). Microsculpture transverse. Laterobasal foveae deep and oval, one on each side. Median impression well marked across disc length, crossed by a row of punctures on anterior fifth. Area between each laterobasal fovea and median impression bearing transversal rows of punctures. Lateral margins narrowly beaded and regularly curved anteriorly, almost parallel on posterior fifth. Anterior margin not beaded and concave. Posterior margin not beaded and straight. Anterolateral angles obtuse, slightly protruding; posterolateral angles acute and pointed. Two lateral setae on each side, one at the posterolateral angle and one at about two thirds from base. Prosternum with thickened anterior bead; prosternal lobe glabrous, short and rounded, hardly surpassing procoxae, lacking lateral and apical margins.

Elytra nearly parallel sided (width: length = 0.6), dorso-ventrally flattened. Microsculpture isodiametric. Shoulders obtuse, without apical tooth. Scutellar striola present between striae 1 and 2; long and deep, with a conspicuous basal setiferous puncture. Stria 1 broken at junction with scutellar striola, leaving its basal seventh detached. Three setiferous punctures on interval 3 of each elytron, the first at basal fourth and adjacent to stria 3, the second at middle and adjacent to stria 2, the third at apical fourth and adjacent to stria 2. Umbilicate series of 5+1+8 punctures, with the single puncture separated from puncture groups by a distance equivalent to three and five puncture diameters respectively. Striae 1-4 deeply impressed, stria 5-8 distinct but superficial. Intervals 1-5 convex, intervals 2-8 wider than 1. Meso and mesoternum devoid of punctures. Metepisterna distinctly longer than wide. Abdominal sterna IV-VI glabrous except for the pair of central ambulatory setae; sterna IV-VI with shallow transverse grooves, without discernible punctures. Sternum VII with a pair of apical setae in males and two pairs in females. Metatrochanters as long as half femora. Pro, meso- and metafemora with two setae on external margin. Tibiae with spines on external and internal margin, denser apically in protibiae, evenly distributed in meso- and metatibiae. Male meso- and metatibiae lacking distinct preapical swellings. Tarsi with tarsomeres 1-4 covered with ventral spiny setae; tarsomere 5 with one pair of dorsal setae, lacking ventral setae and bearing apical empodium. Metatarsomeres 1-4 externally not furrowed. Male protarsomeres 1-3 triangular and strongly dilated, ventrally covered with adhesive setae. Aedeagus (Fig. 3) with median lobe arcuate, apex roughly triangular and directed forward in dorsal view, apex curved downward in lateral view.

Morphological affinities. The new species shows a peculiar combination of morphological characters attributed previously to genus-group names *Blennidus* s. str. and *Pseudocynthidia* (Straneo 1953, 1986).

The new species fits fairly well with diagnostic characters proposed by Straneo (1986) for *Blennidus* s. str., namely: non-metallic labrum, pronotum with pairs of lateral setae on

posterolateral angles and at two thirds from base, metepisternum longer than wide, abdominal sterna with transverse grooves visible only on sides, normal-sized setiferous punctures on apical abdominal sternum and claws not serrated or pectinated. However, comparisons made with specimens of *B. ferrugineicornis* Motschulsky, 1865 and *B. peruvianus* (Dejean, 1828) showed that these species have shorter scutellar striola not joined to stria 1 and punctured transverse grooves on sides of abdominal sterna; distinct from longer scutellar striola joined to stria 1 and non-punctured transverse shallow grooves on sides of abdominal sterna seen in *B. palustris* specimens. At the same time, the new species has a body flattened and lively metallic colored as in the single species of *Pseudocynthidia* (Straneo 1953) and different from body convex and dark colored typical of most *Blennidus* s. str. species (Straneo 1986). Despite its superficial similarities, the new species is clearly distinguishable from *Pseudocynthidia poeciloides* because the latter has golden bronze coloration on head and pronotum, trapezoidal shape of pronotum, first setiferous puncture on elytral interval 3 adjacent to stria 2 and apex of aedeagus with one side bent in dorsal view (Straneo 1953, Cicchino pers. com.).



Figs. 1-3. *Blennidus palustris* sp. nov.: 1- habitus; 2- pronotum; 3- median lobe of aedeagus, left lateral view and dorsal view of apex. Scale bars = 1 mm.

Etymology. The specific name refers to its finding on the shores of a high Andean lake, and its possible preference for certain kind of habitats as wetlands or marshlands.

Distribution and habitat. The new species was collected with pitfall traps in a reedbed near to Titicaca Lake at Puno province in southern Peruvian Andes (Fig. 4). Type locality of *B. palustris* is

far apart from those known for Peruvian *Blennidus* s. str. species, which are found in coastal desert, western Andean range and mid-altitude Andean valleys (Straneo 1986, Giraldo-Mendoza 2014, Juarez-Noe & Gonzalez-Coronado 2019). Also *Agraphoderus* species become less frequent in Titicaca Lake altiplane, a genus-group that is otherwise very species-rich in high Andean grasslands from Cajamarca to Cusco (7°-13°S) (Straneo 1993, Allegro & Giachino 2015). It also appears to be completely separated from *Cynthidia* and *Pseudocynthidia* species, all known from mid and low altitudes east of the Andes in Argentina, Bolivia, Brazil, Paraguay and Uruguay (Chaudoir 1873, Straneo 1951, 1953, Cicchino pers. com.).

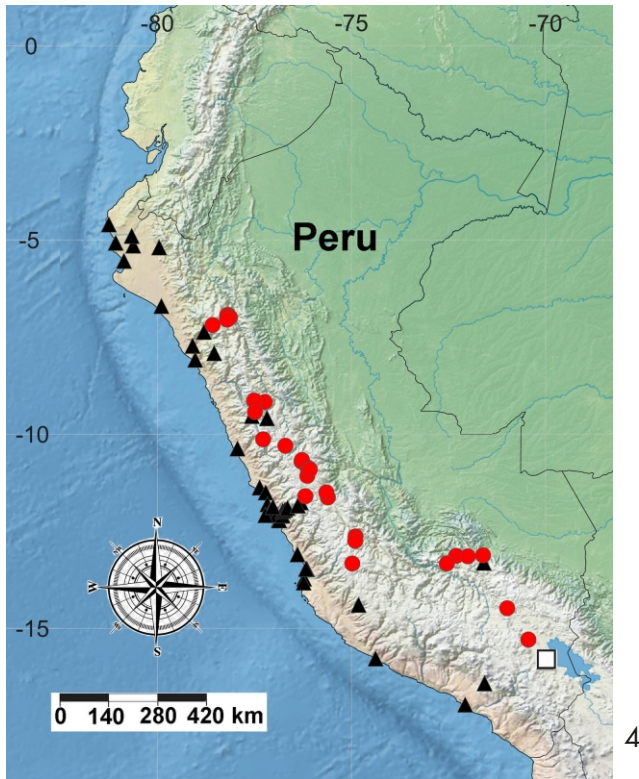


Fig. 4. Distribution map of *Blennidus* species in Peru: a- *Blennidus palustris* sp. nov. (white square), b- *Blennidus* s. str. species (black triangles), c- *Agraphoderus* species (red circles). Distributional data for *Blennidus* s. str. and *Agraphoderus* species based on published records cited in text.

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