Artículos

A new species of Praocidia (Coleoptera: Tenebrionidae: Praociini) from the Peruvian Andes

Una nueva especie de *Praocidia* (Coleoptera: Tenebrionidae: Praociini) de los Andes peruanos

Gustavo E. FLORES
CONICET, Argentina
gflores@mendoza-conicet.gob.ar
Víctor M. DIÉGUEZ
GrECCo-Sur, Chile
vmanueldieguezm@gmail.com

Revista de la Sociedad Entomológica Argentina vol. 84 núm. 4 e0404 2025

Sociedad Entomológica Argentina
Argentina

Recepción: 27 Mayo 2025
Aprobación: 10 Septiembre 2025

Abstract: The genus *Praocidia* Fairmaire (Pimeliinae: Praociini), endemic to Peruvian Andes, currently comprises two species, *Praocidianervosa* (Fairmaire) and *P. acuticollis* Kulzer. Based on the examination of recently collected specimens, a new species is described, *Praocidia inca* sp. nov., reporting for the first time sexually dimorphic characters of the protibiae within this genus. Habitus photographs, biological data, and comparisons to other known species of the genus are provided.
Keywords: Andean taxa, Darkling beetles, New species, Peru, Praociini.
Resumen: El género *Praocidia* Fairmaire (Pimeliinae: Praociini), endémico de los Andes peruanos, está conformado por dos especies, *Praocidia nervosa* (Fairmaire) y *Praocidia acuticollis* Kulzer. Sobre la examinación de especímenes recientemente colectados, se describe una nueva especie, *Praocidia inca* sp. nov., reportando por primera vez caracteres sexuales dimórficos en las protibias para el género. Se presentan fotografías de los adultos, datos sobre biología de la especie y la comparación de caracteres con las otras especies conocidas del género.
Palabras clave: Escarabajos del desierto, Nueva especie, Perú, Praociini, Taxón andino.

INTRODUCTION

The genus *Praocidia* Fairmaire, 1903 (Pimeliinae: Praociini) is composed of two poorly known species, *Praocidianervosa* (Fairmaire, 1902) and *P. acuticollis* Kulzer, 1958. The former was described based on two unsexed specimens, while the later by a single male specimen. Initially, Fairmaire (1903) placed the genus in the tribe Praociini but Kulzer (1958) transferred it to the Nycteliini (Tenebrionidae: Pimeliinae). Later, Flores (2001) reassigned *Praocidia* to Praociini based on new, consistent tribal level characters.

Praociini is a Neotropical tribe within Pimeliinae comprising 151 species arranged in 15 genera widespread in arid and semiarid environments of Peru, Bolivia, Chile and Argentina (Flores & Pizarro-Araya, 2014; Flores & Giraldo, 2020). *Praocidia* is endemic to Peru (Giraldo & Flores, 2016) and its species inhabit the western Andes range above 2000 meters (Flores, 2001).

In recent years, one of us (VMD) discovered additional specimens of *Praocidia* in Cajamarca Department, Peru, which represent a new species for the genus. This finding, along with other specimens housed in Peruvian entomological collections, form the basis for this study. The objectives of this paper are to describe and illustrate this new species of *Praocidia*.

MATERIALS AND METHODS

Type specimens and material examined are deposited in the following collections:

FMNH Field Museum of Natural History, Chicago, USA;

IADIZA Instituto Argentino de Investigaciones de las Zonas Áridas, Mendoza, Argentina;

JEBC Juan Enrique Barriga private collection, Curicó, Chile;

MACN Museo Argentino de Ciencias Naturales Bernardino Rivadavia, Buenos Aires, Argentina;

MEKRB Museo de Entomología Klaus Raven Büller, Universidad Nacional Agraria La Molina, Lima, Perú;

MGGC Marcelo Guerrero G. private collection, Santiago, Chile;

MNNC Museo Nacional de Historia Natural, Santiago, Chile;

MUSM Museo Nacional de Historia Natural – Universidad Nacional Mayor de San Marcos, Lima, Perú;

NHMB Natural History Museum, Basel, Switzerland;

VMDC Víctor Manuel Diéguez M. private collection, Santiago, Chile.

Body length was measured dorsally, along the midline, from the anterior margin of the labrum to the apex of elytra. Terminology used in the descriptions follows Flores (2001) except that “frontal process” is replaced with epicanthus, “proepisternum” with hypomeron,

"mesosternum" with mesoventrite, and "metasternum" with metaventrite (Matthews et al., 2010); the "external process" of protibiae is replaced with apical process (Doyen, 1984: Fig. 1).

Digital images were taken with a Canon S50 camera adapted to a Leica MZ6 stereomicroscope. Final images (Fig. 1a-b) were compiled using the image stacking freeware CombineZP (Hadley, 2024).

RESULTS

Praocidia inca sp. nov.

urn:lsid:zoobank.org:pub:45313AE4-10A1-4478-B4F2-E73C334FE685

Diagnosis. This new species may be distinguished within *Praocidia* by the following combination of characters: frons with small tubercles, lateral margin of pronotum arcuate, lacking lobe, prosternum forming a straight angle, lacking process, lateral margin of elytra with short setae between superior and inferior margins, trochanters with short, scarce pubescence, and tarsi with scarce setae on ventral surface, leaving the surface visible.

Description. Length 7-11 mm. Body, antennae, legs black to dark brown. Pronotum and elytra with three kinds of pubescence: (1) scarce, fine, brown setae; (2) patches of thick, brown setae; and (3) patches of thick, yellow setae.

Head. Labrum subrectangular, widest at middle, anterior margin U-shaped, with punctures from which arise long setae, separated by one puncture diameter at anterior half and by two puncture diameters or glabrous at posterior half; clypeus with anterior margin concave, with sparse, large punctures from which arise long setae, separated by three puncture diameters or more, lacking small punctures; frons lacking punctures, with small tubercles from which arise long setae, separated by one to three tubercle diameters; eyes oval, protruding outward, not emarginate by epicanthus, upper margin with a narrow groove; mentum subrectangular, with setae; antennae filiform, slightly capitate, reaching the posterior margin of pronotum, all antennomeres longer than wide and with sparse, long setae; antennomere 3 shorter than 4+5 combined, antennomere 9 longer than 10 and same length as 11, antennomere 10 wider than 9 and 11 same width as 9, apical tomentose sensory patches on antennomere 9 in two areas subequal in size, on antennomere 10 in a semicircle dorsally continuous, and on antennomere 11 on distal third.

Thorax. Pronotum dull, smooth, lacking wrinkles, disc with small punctures from which arise setae (Fig. 1a), lateral quarters with small tubercles from which arise short setae, lateral margin arcuate, with setae, not elevated, widest at posterior third (Fig. 1a), posterior angles acute to right, remote from elytra, width of posterior margin

exceeding width of anterior margin (Fig. 1a); disc convex, higher than lateral margins; prosternum convex, prosternum subrectangular forming a straight angle, not produced backwards, with tubercles from which arise short setae; hypomeron with scarce tubercles from which arise short setae, lacking grooves; mesoventrite, metaventrite, and mesepisternum with tubercles; metepisternum with setae arising from very small tubercles separated by three to four tubercle diameters; scutellum visible, glabrous or setose.

Elytron dull, convex, surface lacking punctures, with small tubercles from which arise setae; elytron with a single sinuate, thick equidistant carina between suture and lateral margin, a few elevated, marked at the first two thirds, glabrous or setose (Fig. 1a), suture not raised, higher than carina; lateral margin double, thick, conspicuous throughout elytron, superior margin sinuate, inferior margin straight, with wrinkles connecting both margins; pseudopleuron smooth, lacking punctures, with scarce, small tubercles from which arise short setae; epipleuron marked at posterior 5/6, finely ridged, with small tubercles from which arise short setae, texture similar to that of pseudopleuron, anterior margin reaching elytral humeri and posterior angle of pronotum, anterior quarter four times as wide as posterior half.

Legs. Ventral surface of trochanters with scarce setae; all femoral surfaces with scarce setae arising from tubercles; all tibial surfaces with scarce, fine, yellow setae arising from tubercles, more dense on dorsal surface of metatibiae (Fig. 1a), protibiae with distal margin equal to 1/5 protibial length (Fig. 1a), with very short apical process, outer margin indented, with conical pegs, posterior face with abundant conical pegs; tarsi with scarce setae on ventral surface, protarsomeres 2-4 as long as wide.

Abdomen. Entire surface of ventrites 1-4, anterior half and lateral thirds of ventrite 5 lacking punctures, with short setae arising from small tubercles separated by three to four tubercle diameters; central posterior half of ventrite 5 with short setae arising from punctures.

Intraespecific variation. Pronotum can exhibit scarce small punctures from which arise short or long dark brown isolated setae (Fig. 1a), or very abundant punctures from which arise long brown and yellow setae arranged in dense patches covering the entire surface (Fig. 1b), or with scarce patches of long brown setae. Elytron can exhibit scarce dark brown isolated setae over all surface (Fig. 1a), or scarce brown and yellow setae arranged in patches, or abundant brown and yellow setae either isolated or arranged in patches covering the entire surface (Fig. 1b), or totally glabrous.

Holotype 8.2 mm length, 5.0 mm width. Pronotum with scarce small punctures of which arise short dark brown setae. Elytron with abundant dark brown and yellow isolated and arranged in patches not covering totally the surface.

Allotype 10.5 mm length, 6.5 mm width (Fig. 1b). Pronotum with very abundant punctures from which arise long brown and yellow setae arranged in dense patches covering the entire surface. Elytron with abundant brown and yellow setae either isolated or arranged in patches covering the entire surface.

Figure 1

Habitus and labels of *Praocidiainca* sp. nov.

a. Paratype female with short and long dark brown isolated setae (IADIZA). b. Allotype (MUSM) with abundant long brown and yellow setae arranged in dense patches covering the entire surface. Scale bars= 5 mm. c. Labels of *Praocidiainca* sp. nov. holotype. d. Labels of *Praocidiainca* sp. nov. allotype

Sexual dimorphism. Male protibiae with distal part slightly curved inward, apex with one spur, apical process equal in length to protarsomere 1. Female protibiae straight, apex with two spurs, apical process longer than protarsomere 1, but shorter than protarsomeres 1+2 combined.

Etymology. The name refers to the Inca civilization, which flourished in the western region of South America during pre-Hispanic times; the specific epithet is a noun in apposition.

Type material. Holotype male (label Fig. 1c): PERU: Cajamarca, Cajamarca, km 10 camino a Cumbemayo, 3000 m, 02-V-2004, V. M. Diéguez (MUSM). Allotype female (label Fig. 1d) (MUSM) and 13 paratypes same data as holotype (2 MUSM male and female, 6 IADIZA 3 males, 3 females, 4 VMDC 2 males, 2 females, 1 JEBC male), km 17 camino a Cumbemayo, 3300 m, 02-V-2004, V. M. Diéguez, (1 female MGGC), km 17 camino a Cumbemayo, 3400 m, under stones, 6-8-VI-2003, V. M. Diéguez, (2 females MNNC), km 26 camino a Chetilla, 3400 m, 02-V-2004, V. M. Diéguez (1 female VMDC), Cajamarca, Baños del Inca, 07°00'20.41"S 78°28'03.97"W,

3737 m, 03-IV-2023, L. Inga, (2 males MUSM), La Encañana, 5,3 km NE to Garita Pongo, 06°56′20.06”S 78°26′0535”W, 4050 m, III-2010, A. Giraldo, (1 female MEKRB), VI-2010, A. Giraldo, (1 female IADIZA), Michiquillay, 3,2 km S to Quiquimayoc, 07°00 ′58.68”S 78°23′56.13”W, 3640 m, III-2012, A. Giraldo, 3 IADIZA (1 male, 2 female), 3800 m, V-2012, A. Giraldo, (1 female MEKRB), 24 patarypes: La Encañana, 3798 m, 06°59′06”S 78°27′39”W, VI-2015, O. Queirolo, 6 IADIZA (5 males, 1 female), 2 MACN (males), 2 FMNH (1 male, 1 female), 2 NHMB (1 male, 1 female), 6 MEKRB (4 males, 2 females, 6 MUSM (3 males, 3 females, Quebrada Honda, Maqui Maqui, 06°56′50.00”S 78°29′05.00”W, 4066 m, 19-20-XI-2010, F. Chavez (1 female MUSM). La Libertad, Sánchez Carrión, Huamachuco, C.C. Santo Domingo, 07°55′39.43”S 78°08 ′55.31”W, 3647 m, 30-IV-2015, E. Gamboa, 1 male (MUSM).

Other material examined (in poor condition)**:** PERU: Cajamarca, Cajamarca, km 17 camino a Cumbemayo, 3400 m, dead under stones, 6-8-VI-2003, V. M. Diéguez, 3 (VMDC), Cumbemayo, 3300 m, 30-VI-2002, V. M. Diéguez, 2 males (CMDC).

Biology. Specimens of this new species were found under rocks on gentle, stony slopes with grassland vegetation dominated by Poaceae and Asteraceae. Some specimens were kept in rearing boxes for 14 days and were fed lettuce leaves, which they consumed. This species exhibits crepuscular to nocturnal activity, with movement starting around 19h, with greater activity between 21 h and 02 h. While copulation was observed during this period, no egg-laying was recorded. When disturbed, the beetles react quickly and move away from the site. *Praocidia inca* sp. nov. shares its habitat with *Pilobalia ruficollis* Kulzer, 1954 (Nycteliini).

Distribution.*Praocidia inca* sp. nov. inhabits inter-Andean valleys and high plateaus in northern Peru, in Departments Cajamarca and La Libertad, at altitudes ranging from 3000 to 4000 m in the biogeographic province of Puna (Morrone et al., 2022).

DISCUSSION

Species of *Praocidia* are among the Andean Peruvian taxa, distributed between 2000 and 4050 meters above sea level (Flores, 2001; this study). *Praocidia* is one of the two Praociini genera endemic to northern Peruvian Andes, along with *Pilobaloderes*, inhabiting grasslands and scrubs in inter-Andean valleys and high plateaus (Giraldo & Flores, 2016; Flores & Giraldo, 2023).

In this study, we examined several male and female specimens of *Praocidia* (*P. inca* sp. nov., N= 50) for the first time and discovered sexual dimorphism in the protibiae. In males the distal part of protibia is slightly curved inward, the apex has one spur, and the apical process has the same length as protarsomere 1. In females the protibia is straight, the apex has two spurs, and the apical process is

longer than protarsomere 1, but shorter than protarsomeres 1+2 combined.

The two previous described species, *Praocidianervosa* and *P. acuticollis* are known from only three specimens. They can be distinguished by the pronotum and elytra, which are either covered with tomentose patches or glabrous (Flores, 2001). Through the examination of several male and female specimens of *Praocidia inca* sp. nov. (N= 50), we observed intraspecific variation in the tegument: the pronotum and elytra may exhibit short or long dark brown isolated setae (Fig. 1a), abundant long brown and yellow setae arranged in dense patches covering the entire surface (Fig. 1b), or may be totally glabrous.

Praocidia inca sp. nov. differs from *P. acuticollis* and *P. nervosa* by having the frons with small tubercles, prosternum forming a straight angle, lacking process, trochanters with short, scarce pubescence, and tarsi with scarce setae on ventral surface, while *P. acuticollis* and *P. nervosa* have the frons with punctures, prosternum projected backwards in a rounded process, trochanters with brush-like pubescence, and tarsi with abundant setae on ventral surface. In addition, *Praocidia inca* sp. nov. differs from *P. acuticollis* by having lateral margin of pronotum arcuate, lacking lobe, lateral margin of elytra with short setae between superior and inferior margin; *Praocidiaacuticollis* exhibits lateral margin of pronotum projecting in a lobe, lateral margin of elytra glabrous between superior and inferior margins. *Praocidia inca* sp. nov. differs from *P. nervosa* by having upper margin of eyes with a narrow groove, lateral margin of elytra with short setae between superior and inferior margins; *Praocidia nervosa* has upper margin of eyes with a wide, deep groove, lateral margin of elytra with long setae between superior and inferior margins

Key to species of *Praocidia*

- Frons with small tubercles, prosternum forming a straight angle, lacking process, trochanters with short, scarce pubescence, tarsi with scarce setae on ventral surface ..... *Praocidia inca* Flores & Diéguez sp. nov.

1'- Frons with punctures, prosternum projected backwards in a rounded process, trochanters with brush-like pubescence, tarsi with abundant setae on ventral surface 2

2- Lateral margin of pronotum projecting in a lobe, lateral margin of elytra glabrous between *superior* and inferior margins, each elytron with one carina more approximate to lateral margin (Flores, 2001: Fig. 1)..... *Praocidia acuticollis* Kulzer, 1958

2'- Lateral margin of pronotum arcuate, lacking lobe, lateral margin of elytra with long setae *between* superior and inferior margins, each elytron with one carina equidistant between suture and lateral margin..... *Praocidianervosa (*Fairmaire, 1902)

Acknowledgments

We gratefully acknowledge Clorinda Vergara (MEKRB) and Diana Silva (MUSM) for loaning specimens; to Matheus Bento and Wolfgang Schawaller (reviewers) for suggestions improving this paper; to Marcelo Guerrero for help in preparation of artwork. Research by GEF was supported by CONICET, Argentina. We are indebted to Alfredo Giraldo for the specimens loan of *P. inca* from his collecting trips in order to be deposited in MEKRB and MUSM (Lima)

REFERENCES

Doyen, J.T. (1984). Systematics of *Eusattus* and *Conisattus* (Coleoptera; Tenebrionidae; Coniontini; Eusatti). *Occasional papers of the California Academy of Sciences*, *141*, 1-104.

Fairmaire, L. (1903). Coléoptères hétéromères recueillis par M. Baer dans le Haut-Pérou et le Tucuman. *Annales de la Société Entomologique de France*, *72*, 461-468.

Flores, G.E. (2001). Taxonomic placement of the Andean genera *Praocidia* Fairmaire and *Pilobaloderes* Kulzer (Coleoptera: Tenebrionidae: Praocini). *Journal of the New York Entomological Society*, *109*(1), 171-178. https://doi.org/10.1664/0028-7199(2001)109[0171:TPOTAG]2.0.CO;2

Flores, G.E., & Giraldo, A.E. (2020). Taxonomic status of *Parapraocis*, a new genus of Praociini from Peru (Coleoptera: Tenebrionidae: Pimeliinae). *Revista de la Sociedad Entomológica Argentina*, *79*(3), 34-40. http://doi.org/10.25085/rsea.790305

Flores, G.E., & Giraldo, A.E. (2023). Taxonomic revision of the Peruvian genus *Pilobaloderes* Kulzer (Coleoptera: Tenebrionidae: Pimeliinae: Praociini). *Anais da Academia Brasileira de Ciências*, *95*(2), e20201262. http://doi.org/10.1590/0001-3765202320201262

Flores, G.E., & Pizarro-Araya, J. (2014). Towards a revision of the South American genus *Praocis* Eschscholtz (Coleoptera, Tenebrionidae), with estimation of the diversity of each subgenus. In P. Bouchard & A. D. Smith (Eds), *Proceedings of the Third International Tenebrionoidea Symposium, Arizona, USA, 2013. ZooKeys*, *415*, 53-80. https://doi.org/10.3897/zookeys.415.6656

Giraldo, A.E., & Flores, G.E. (2016). Peruvian Tenebrionidae: A review of present knowledge and biodiversity. *Annales Zoologici*, *66*(4), 499-513.

Hadley, A. (2024). CombineZP public domain image processing software. http://micropics.org.uk/Czimps_web/CombineZP.msi

Kulzer, H. (1958). Neue Tenebrioniden aus Südamerika (17. Beitrag zur Kenntnis der Tenebrioniden). *Entomologische Arbeiten aus dem Museum Georg Frey*, *9*, 184-219.

Matthews, E. G., Lawrence, J.F., Bouchard, P., Steiner, W. E., & Ślipinski, S. A. (2010). Tenebrionidae Latreille, 1802. In R. G. Beutel, R. A. B. Leschen & J. F. Lawrence (Eds), *Handbook of Zoology. A Natural History of the Phyla of the Animal Kingdom. Vol. IV – Arthropoda: Insecta. Part 38. Coleoptera, Beetles. Vol. 2: Systematics (Part 2). Morphology and systematics (Elateroidea, Bostrichiformia partim)* (pp. 574-659). De Gruyter GmbH & Co.

Morrone, J. J., Escalante, T., Rodríguez-Tapia, G., Carmona, A., Arana, M., & Mercado-Gómez, J. D. (2022). Biogeographic regionalization of the Neotropical region: New map and shapefile. *Anais da Academia Brasileira de Ciências*, *94*(1), e20211167. http://doi.org/10.1590/0001-3765202220211167

Notes

COMPETING INTERESTS

The authors have declared that no competing interests exist.

AUTHORS CONTRIBUTIONS

GEF: Writing – original draft, review & editing, Specimens curation, Investigation, Conceptualization. VMD: Writing – review & editing, Investigation, Field work, Specimens curation

Notas de autor

gflores@mendoza-conicet.gob.ar

Información adicional

redalyc-journal-id: 3220

Gustavo E. FLORES, Víctor M. DIÉGUEZ

A new species of Praocidia (Coleoptera: Tenebrionidae: Praociini) from the Peruvian Andes
Una nueva especie de *Praocidia* (Coleoptera: Tenebrionidae: Praociini) de los Andes peruanos

Revista de la Sociedad Entomológica Argentina
vol. 84, núm. 4, e0404, 2025
Sociedad Entomológica Argentina, Argentina
gsanblas@mendoza-conicet.gob.ar

ISSN-E: 1851-7471

DOI: https://doi.org/10.25085/rsea.840404