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# On the paratypes and distribution of *Hemipeplus quadricollis* Pollock, 1999 (Coleoptera: Mycteridae: Hemipeplinae): does it occur in Peru?

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**Abstract.** *Hemipeplus quadricollis* Pollock, 1999 (Coleoptera: Mycteridae: Hemipeplinae), was originally described from Rondônia State, Brazil, as its type locality, with 10 paratypes: eight from Brazil (Rondônia State) and two from Peru (Madre de Dios and Loreto departments). However, one of the paratypes from Peru (Madre de Dios) was later identified as a cryptic species, *Hemipeplus pseudoquadricollis* KC and Pollock, 2025. This raises questions about the single remaining paratype from Peru—whether the species truly occurs in Peru—and how many of the paratypes of *H. quadricollis* are actually *H. quadricollis*. In this study, all seven remaining paratypes of *H. quadricollis* that were not studied by KC and Pollock (2025) were examined based on morphological characters to address these two questions. It was determined that the remaining paratype of *H. quadricollis* from Peru, collected in Loreto Department, is *H. quadricollis*, thus confirming its presence in Peru, while three out of the 10 paratypes of *H. quadricollis* are *H. pseudoquadricollis*.

**Key words.** Cryptic species, new records, palm beetles, sympatry.

**ZooBank registration.** urn:lsid:zoobank.org:pub:422C21B6-7701-4DC0-90C9-86DBCAD03B10

## Introduction

*Hemipeplus* Latreille, 1829, is a pantropical and the most speciose genus of Mycteridae with 57 species documented (KC and Pollock 2025). *Hemipeplus* of South America were not studied properly until the end of the 20th century. Grouvelle (1896) described *H. gounellei* Grouvelle, 1896, from Brazil, followed more than a century later by Pollock (1999), who described four new species from South America, one of which was *H. quadricollis* Pollock, 1999 (type locality: Rondônia State, Brazil). Pollock (1999) designated 10 paratypes for *H. quadricollis*: eight from Brazil (six at FSCA and two at DAPC) and two from Peru (one at each FSCA and NMNH), with the holotype housed at the MZSP. At the time of its description, *H. quadricollis* was the only New World species in the genus with a short, subquadriform body, including a subquadriform pronotum, which differentiated it among congeners which have elongated bodies and subcordiform pronota (Pollock 1999; KC and Pollock 2025). However, KC and Pollock (2025) discovered a cryptic species, *H. pseudoquadricollis* KC and Pollock, 2025, from Rondônia and Mato Grosso states of Brazil, and Madre de Dios Department of Peru; this species differs only slightly but consistently from *H. quadricollis* in its external morphology and shows marked differences in male genitalia. Notably, the type localities for both species are identical: Rondônia, 62 km SW Ariquemes, nr. Fzda. Rancho Grande, collected by U. Schmitz using blacklight traps (Pollock 1999; KC and Pollock 2025). Given the consistency of the external morphological differences, the two species can be reliably distinguished by the size of the temples behind the eyes and the emargination on the anterior margin of the pronotum. While both species have similarly short body sizes (approximately 3 mm in length) and subquadriform bodies, *H. quadricollis* has notably large temples, about one-third the length of its eyes, and a smaller emargination on the anterior margin of the pronotum that is narrower than the neck; in contrast, *H. pseudoquadricollis* has much shorter temples behind the eyes and a larger emargination on the anterior margin of the pronotum that is about as wide as the neck (Pollock 1999; KC and Pollock 2025).

KC and Pollock (2025) examined three paratypes of *H. quadricollis* along with the holotype: one paratype from Peru (Madre de Dios Department) in NMNH and two from Brazil (Rondônia State) in DAPC. While the specimens from Rondônia, Brazil were confirmed as *H. quadricollis*, the paratype from Madre de Dios, Peru, was identified as *H. pseudoquadricollis*. This raised the question of whether the single remaining paratype from Peru (Loreto Department) at the FSCA, which was unavailable to KC and Pollock (2025), is also *H. pseudoquadricollis*, and whether *H. quadricollis* truly occurs in Peru. Owing to this uncertainty, KC and Pollock (2025) provisionally excluded Peru from the distribution range of *H. quadricollis*. This paper aims to resolve this issue by examining the remaining seven paratypes of *H. quadricollis* at the FSCA, which were not studied by KC and Pollock (2025), and to clarify the presence of *H. quadricollis* in Peru. Additionally, this study addresses the question of how many paratypes of *H. quadricollis* are actually *H. quadricollis*. Although paratypes have no name-bearing value (ICZN 1999), accurate identifications are crucial to prevent future taxonomic complications.

# Materials and Methods

Abbreviations for collections mentioned in this paper:

**DAPC** Darren A. Pollock collection, Eastern New Mexico University, Portales, NM, USA
**FSCA** Florida State Collection of Arthropods, Gainesville, FL, USA
**MZSP** Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil
**NMNH** National Museum of Natural History, Smithsonian Institution, Washington, DC, USA

Paratypes of *Hemipeplus quadricollis* used in this study belong to the FSCA. Specimens were identified using the identification keys provided by KC and Pollock (2025). Specimen images were captured using an auto-montage system at the FSCA (JVC KY-F75U digital camera with a Leica Z16 APO lens) and stacked using Syncroscopy Auto-Montage Pro®. Genitalia were extracted using a Leica Ivesta 3 stereomicroscope by soaking the abdomens in 10% KOH solution overnight. The extracted genitalia were temporarily slide-mounted in glycerin and imaged using a Canon 90D camera coupled with an Axioscope 5 compound microscope, equipped with a Zeiss Plan-Apochromat 63×/1.4 Oil Ph3 ∞/0.17 objective lens. Imaging was performed with Canon EOS Utility 3 software, and the resulting images were stitched using PTGui (version 12.26) and post-processed with GIMP 2.10 and BIMP. The genitalia were subsequently placed in genitalia vials with glycerin corresponding to the respective specimens. Label data of type specimens are presented verbatim, with line breaks separated by a forward slash + space (/ ) and label breaks separated by a space + forward slash + forward slash + space ( // ); labels are printed in black by default unless otherwise specified inside square brackets ([]), such as "[hw]" for handwritten. Such specifications, when initiated inside square brackets, are closed with a forward slash inside square brackets ([/]), after which the default rules apply. For the paratypes of *H. quadricollis* that were identified as *H. pseudoquadricollis*, additional identification labels were added: '*Hemipeplus*/ *pseudoquadricollis*/ KC & Pollock/ det. Sajan KC 2025'; for specimens with determined sexes, white labels indicating the corresponding sex symbols were added. The localities in the label data were geocoded using Google Maps to obtain their coordinates, which were then transferred to Microsoft Excel 365 and visualized using a combination of GPS Visualizer (https://www.gpsvisualizer.com) and Mac Preview app (version 11.0) to generate a distribution map (Fig. 1).

# Results

Of the seven paratypes of *H. quadricollis* at the FSCA not studied by KC and Pollock (2025), five were identified as *H. quadricollis* and two as *H. pseudoquadricollis*. The previously unstudied paratype from the FSCA, collected in Loreto Department, Peru (male) (Fig. 2), was confirmed to be *H. quadricollis*, thereby confirming its presence in Peru. Additionally, one non-type specimen of *H. pseudoquadricollis* (male) was found collected in the type locality, Rondônia, Brazil, and has been illustrated here for comparison (Fig. 3). Thus, of the 10 paratypes designated by Pollock (1999) for *H. quadricollis*, seven are *H. quadricollis* (six from the type locality in Brazil, four in FSCA and two in DAPC, and one from Loreto, Peru in FSCA), while the remaining three are *H. pseudoquadricollis* (two

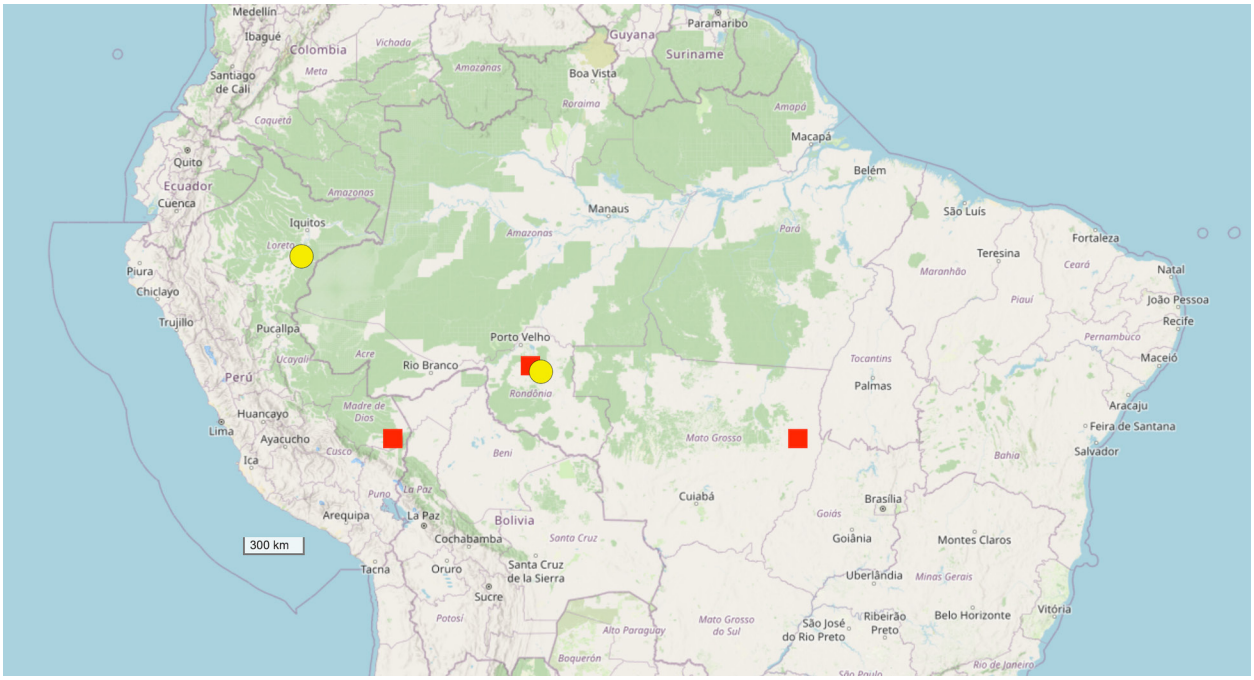


**Figure 1.** Distribution map (South America) of *Hemipeplus quadricollis* Pollock, 1999 and *H. pseudoquadricollis* KC and Pollock, 2025. *Hemipeplus quadricollis* is represented by yellow circles and *H. pseudoquadricollis* is represented by red squares.

from the type locality in Brazil in FSCA and one from Madre de Dios, Peru in NMNH). A comparison of the male genitalia of the two species is presented in Figure 4.

## Family Mycteridae

## Subfamily Hemipeplinae

### Genus *Hemipeplus* Latreille, 1829

### *Hemipeplus quadricollis* Pollock, 1999

*Hemipeplus quadricollis* Pollock 1999: 71, fig. 3F, 6F, 10 – KC and Pollock 2025: 30, fig. 10, 62.

**Type material examined.** *5 specimens* – **1**♂, labeled: 'PERU: Loreto Pr. ; nr./ jct. Rio Maranon &/ Ucayali, 73.5°W 4.8°S/ 6–20–VIII–1994/ P. Skelley, at light // [white label; hw in red] FSCA // [blue label] PARATYPE/ *Hemipeplus*/ *quadricollis*/ D.A. Pollock // ♂ // [genitalia in a genitalia vial]', in FSCA; **3 specimens**, sex unknown, labeled: 'BRAZIL: Rondonia, 62/ km. SW Ariquemes, nr./ Fzda. Rancho Grande/ 12–IX–1992 U. Schmitz/ blacklight trap // [pink label; hw in black] FSCA // [blue label] PARATYPE/ *Hemipeplus*/ *quadricollis*/ D.A. Pollock', in FSCA; **1 specimen**, sex unknown, labeled: 'BRAZIL: Rondonia, 62/ km. SW Ariquemes, nr./ Fzda. Rancho Grande/ 18–IX–1992/ U. Schmitz/ blacklight trap // [pink label; hw in black] FSCA // [blue label] PARATYPE/ *Hemipeplus*/ *quadricollis*/ D.A. Pollock', in FSCA.

**Geographic distribution.** Brazil (Rondônia), Peru (Loreto).

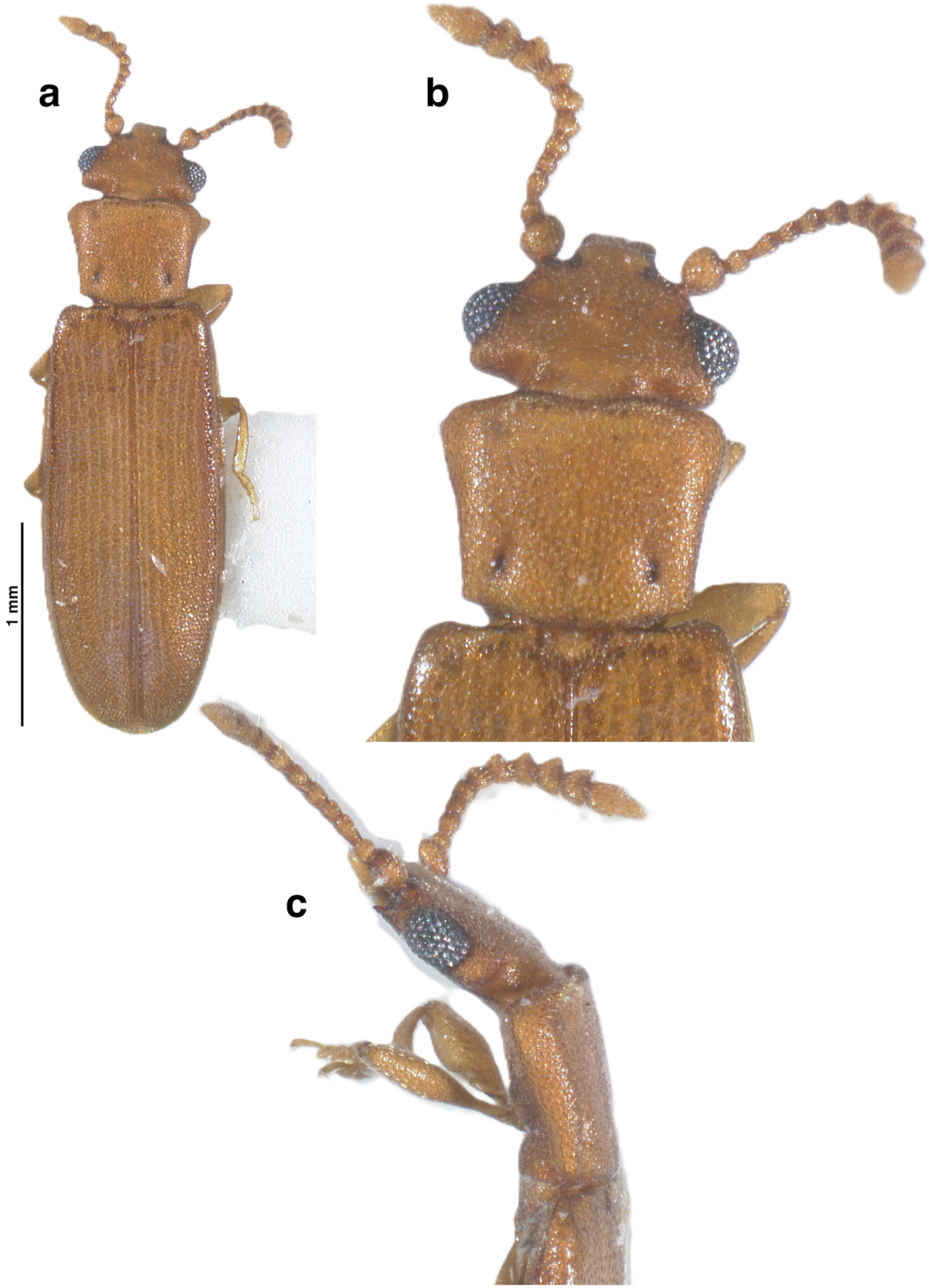


**Figure 2.** *Hemipeplus quadricollis* Pollock, 1999 habitus from Loreto Department, Peru. **a)** Dorsal aspect. **b)** Dorsal aspect of head and pronotum. **c)** Lateral aspect of head and pronotum.

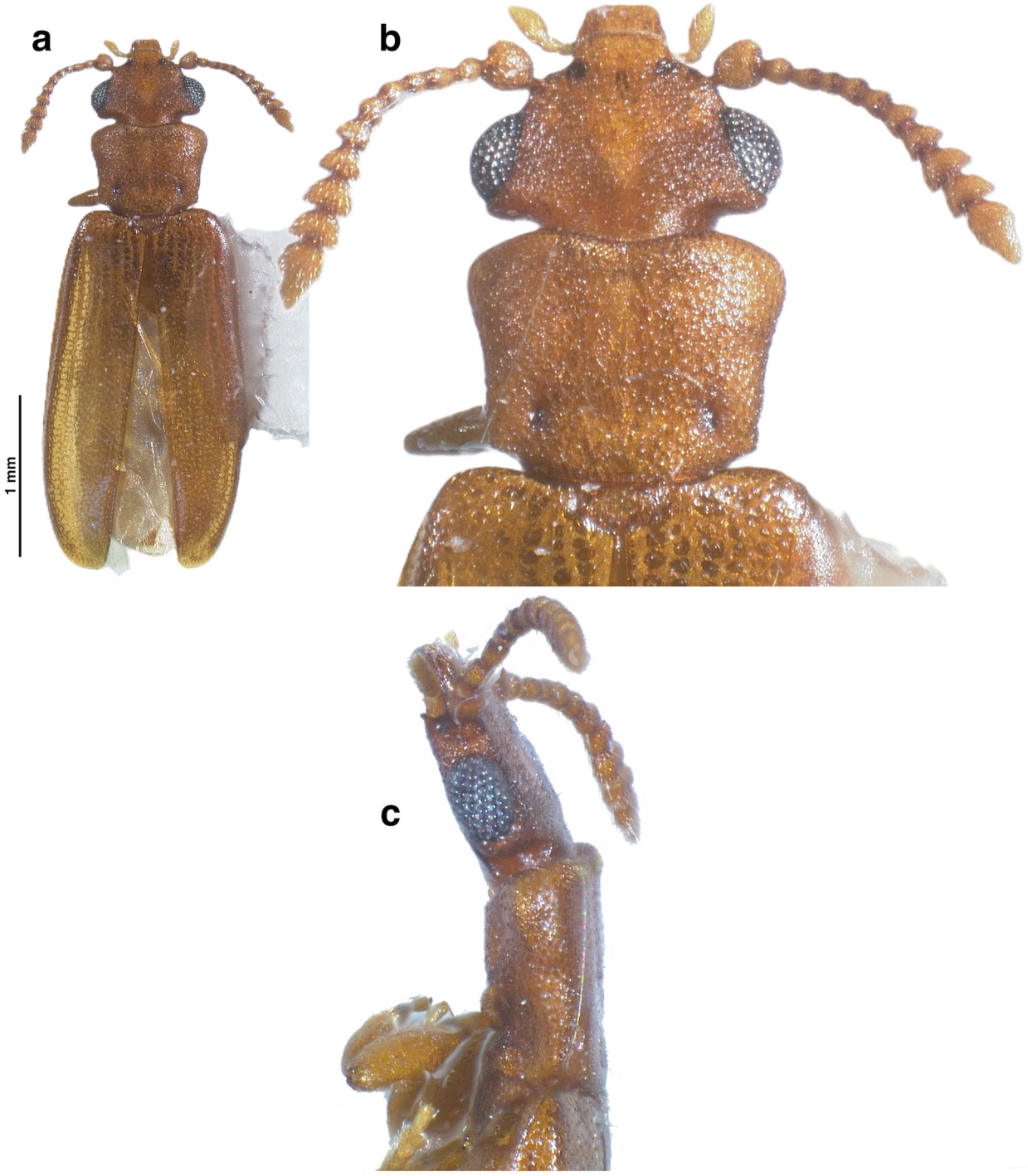


**Figure 3.** *Hemipeplus pseudoquadricollis* KC and Pollock, 2025 habitus from Rondônia State, Brazil. **a)** Dorsal aspect. **b)** Dorsal aspect of head and pronotum. **c)** Lateral aspect of head and pronotum.

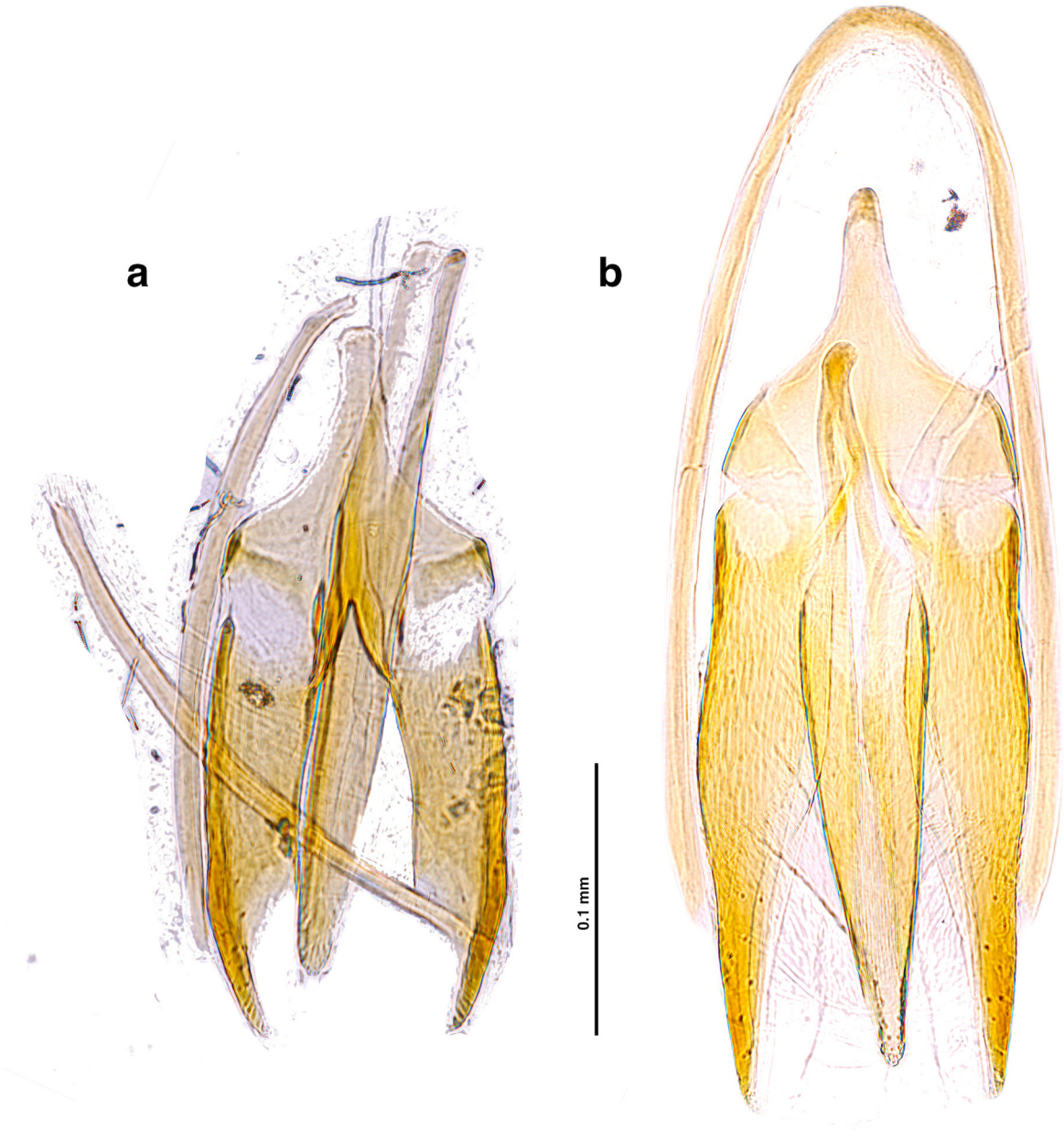


**Figure 4.** Comparison of *Hemipeplus* male genitalia. **a)** *Hemipeplus quadricollis* Pollock, 1999 specimen from Loreto Department, Peru. **b)** *Hemipeplus pseudoquadricollis* KC and Pollock, 2025 specimen from Rondônia State, Brazil.

## *Hemipeplus pseudoquadricollis* KC and Pollock, 2025

*H. pseudoquadricollis* KC and Pollock 2025: 35, fig. 14, 62.

**Material examined (Paratypes of *H. quadricollis*).** *2 specimens*– **1 specimen**, sex unknown, labeled: 'BRAZIL: Rondonia. 62km/ SW Ariquemes. nr. Fzda/ Rancho Grande. 1–X–/ 1994.U. Schmitz/ blacklight trap // [white folded label with black border] [hw in black] Hemipeplus/ n. sp. [/hw in black]/ Det. M.C. Thomas 1995 // [blue label] PARATYPE/ *Hemipeplus*/ *quadricollis*/ D.A. Pollock // *Hemipeplus*/ *pseudoquadricollis*/ KC & Pollock/ det. Sajan KC 2025', in FSCA; **1 specimen**, sex unknown, labeled: 'BRAZIL: Rondonia, 62/ km. SW Ariquemes, nr/ Fzda. Rancho Grande/ 18–IX–1992/ U. Schmitz/ blacklight trap // [white folded label with black border] [hw in

black] Hemipeplus/ n. sp. [/hw in black] [hw in blue] #7 [/hw in blue]/ Det. M.C. Thomas 19[hw in black]92[/ hw in black] // [blue label] PARATYPE/ *Hemipeplus*/ *quadricollis*/ D.A. Pollock // *Hemipeplus*/ *pseudoquadricollis*/ KC & Pollock/ det. Sajan KC 2025', in FSCA.

**Other material examined. BRAZIL.** Rondônia. 62 km SW Ariquemes, nr. Fzda. Rancho Grande, 23–24.viii.1996, U. Schmitz leg., blacklight trap (FSCA, 1♂).

**Geographic distribution.** Brazil (Mato Grosso, Rondônia), Peru (Madre de Dios) (KC and Pollock 2025).

# Discussion

The case of *H. quadricollis* and *H. pseudoquadricollis* is particularly intriguing, as they have been collected from the same locality in Rondônia, Brazil, using the same method—blacklight trapping—and closely resemble each other in both morphology and size. This similarity likely explains why this species complex went unnoticed for so long. While it was previously known that the two species occur sympatrically in their shared type locality, Rondônia (KC and Pollock 2025), it is now confirmed that they also occur in Peru, possibly sympatrically, and may even be found on the same host plant. However, little is known about their biology or host plant associations. Given that Hemipeplinae are typically associated with monocots (or the fungi on them), particularly palm trees (Arecaceae), it can be hypothesized that these two species are also found on palm trees. Whether their host plants are the same or different remains unclear and warrants further investigation.

# Acknowledgments

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