

Identity of *Phidippus zebrinus* Mello-Leitão, 1945 reveals a new synonymy in *Pachomius* (Araneae: Salticidae)

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Abstract. Examination of the female holotype of *Phidippus zebrinus* Mello-Leitão, 1945 demonstrates that this species does not belong to *Phidippus* C. L. Koch, 1846. Morphological evidence supports its transfer to *Pachomius* Peckham & Peckham, 1896, resulting in the new combination: *Pachomius zebrinus* (Mello-Leitão, 1945), **comb. nov.** Direct comparison between types and additional material further demonstrates that *Pachomius areteguazu* Rubio, Stolar & Baigorria, 2021 is conspecific with *Pachomius zebrinus* and is here recognized as its junior synonym. This note resolves the identity of a historically misplaced South American species, highlights the importance of direct examination of type material in Neotropical Salticidae, and serves as a foundational step for re-evaluating the status of *Phidippus* in Argentina.

Keywords. jumping spider, Neotropical region, new combination, taxonomy, type material

Introduction

The genus *Phidippus* C. L. Koch, 1846 includes some of the most conspicuous and frequently encountered jumping spiders in the Nearctic region, where it reaches its greatest diversity. In South America, however, records of *Phidippus* have historically been sparse and several nominal species assigned to the genus have remained poorly evaluated. As with other broadly applied salticid genera (e.g. *Dendryphantes* C. L. Koch, 1837), some Neotropical species were placed in *Phidippus* on the basis of general appearance or limited material rather than detailed comparative evidence.

Phidippus zebrinus Mello-Leitão, 1945 was described from Misiones, Argentina, based on a female holotype deposited in the Museo de La Plata. Edwards (2004) previously questioned its placement in *Phidippus*, noting that it was not a dendryphantine and that it appeared instead to be related to genera near *Freya* C. L. Koch, 1850 (Rubio 2014). Nevertheless, no formal taxonomic action was taken, and *P. zebrinus* remained in *Phidippus* pending direct examination of the type material.

Here we examine the female holotype of *Phidippus zebrinus* and transfer it to the genus *Pachomius* Peckham & Peckham, 1896. We also recognize *Pachomius areteguazu* Rubio, Stolar & Baigorria, 2021 as a junior synonym of *Pachomius zebrinus*.

Material and methods

The material examined for this study includes the female holotype of *Phidippus zebrinus*, housed at the Museo de La Plata (MLP; curator V. H. Merlo Álvarez), Argentina, and comparative material (type series) of *Pachomius areteguazu* deposited in the Instituto de Biología Subtropical (IBSI). Additional comparative material from the collection of the Grupo de Investigación de Salticidas de Argentina (GISA; curator G. D. Rubio) was also examined. The format and measurements (in mm) follow the standards established by Galiano (1963); terminology and the interpretation of structures follow Edwards (2004, 2015). The figure was edited using a Wacom digitizer tablet and composed using standard graphic software, including CorelDraw.

Taxonomy

Family Salticidae Blackwall, 1841

Subfamily Salticinae Blackwell, 1841

Genus *Pachomius* Peckham & Peckham, 1896

Type species *Attus dybowski* Taczanowski, 1871

Pachomius zebrinus* (Mello-Leitão, 1945), *comb. nov.

Phidippus zebrinus Mello-Leitão, 1945: 293, f. 83-84. Original description; female holotype from Pindapoy: Museo de La Plata (MLP), La Plata, Argentina (16840), examined.

Phidippus zebrinus Galiano, 1981: 13 (catalogue citation)

Phidippus zebrinus Prószyński, 1990: 276 (transferred from *Dendryphantes*)

Phidippus zebrinus Edwards, 2004: 5 (misplaced in this genus)

Pachomius areteguazu Rubio, Stolar & Baigorria, 2021: 2, f. 1-22. Original description; female allotype and the rest of the type series from Misiones: Instituto de Biología Subtropical (IBSI), Misiones, Argentina (Ara 1453, 1248, 1479, 1535), examined, ***syn. nov.***

Condition of type material. The female holotype of *Phidippus zebrinus* (MLP 16840) is in an overall acceptable condition. Although the specimen is slightly discolored and its tissues have become hardened over time—factors that somewhat hinder its manipulation—the critical diagnostic features remain sufficiently intact for study. Notably, the epigyne was in a state that easily allowed for a detailed comparative examination against the type series of *Pachomius areteguazu* and other fresh material, providing the morphological evidence necessary to confirm the new synonymy and generic transfer.

Diagnosis and description. See Rubio et al. (2021: 2-7).

Taxonomic Remarks. Examination of the female holotype of *Phidippus zebrinus* demonstrates that this species is misplaced within the genus *Phidippus* C. L. Koch, 1846. Its general body shape, coloration patterns, and epigynal morphology are entirely consistent with the diagnostic features of the genus *Pachomius* Peckham & Peckham, 1896 (see Edwards, 2015). The inclusion of the species *Pachomius zebrinus* ***comb. nov.*** within the genus is justified by several conspicuous similarities (see Figure 1 and compare with figs. 1, 8-10, 12, 13, 20, 21 in Rubio et al. 2021): 1) Carapace and body pattern: The species exhibits the characteristic lateral light bands and an abbreviated median thoracic stripe on the carapace that define the genus *Pachomius* (Edwards, 2015). The abdominal pattern, featuring four narrow black transverse curved bands as described in the original description of *Phidippus zebrinus* (Mello-Leitão 1945), is consistent with the colorful transverse bands found in several *Pachomius* species groups (Edwards 2015). 2) Female genitalia: The epigyne possesses paramedial copulatory openings and laterally concave copulatory ducts, a configuration considered a synapomorphy for *Pachomius* (Edwards 2015). These ducts are strongly sclerotized, particularly around the openings. 3) Species group

placement: The species is assigned to the *nigrus* group based on the presence of a sclerotized, spine-shaped lateral subterminal apophysis (LSA) in the male (Edwards 2015). In the female, this is reflected in an epigynal plate with two conspicuous, non-circular atria (Rubio et al. 2021), which likely accommodate the spine-shaped LSA to contribute to fixation during copulation (Galiano 1995; Rubio et al. 2021).

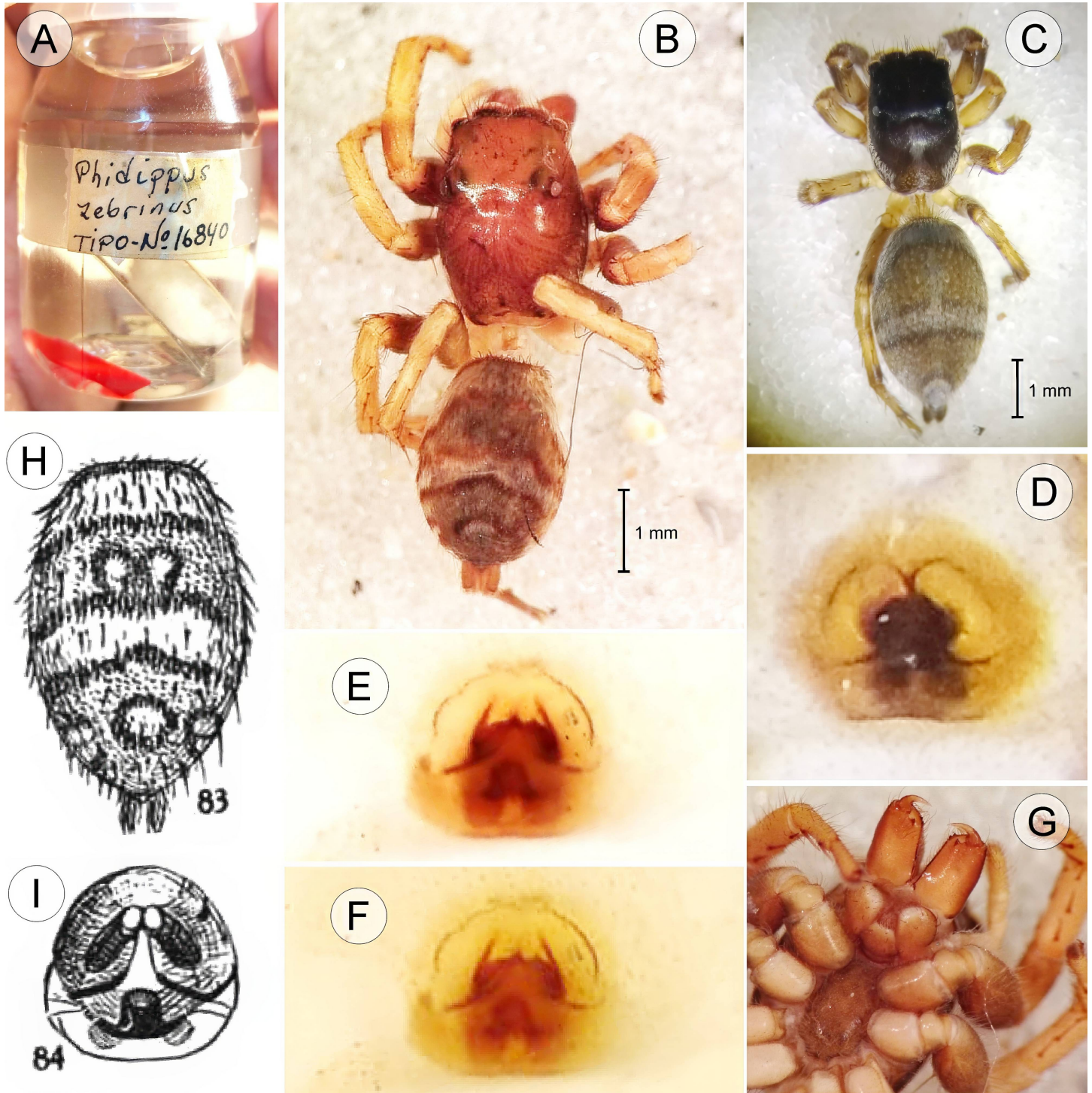


Figure 1. *Pachomius zebrinus* (Mello-Leitão, 1945) **comb. nov.** **A**, Holotype vial and label. **B**, Female holotype (MLP 16840) under *Phidippus*, habitus in dorsal view. **C**, Habitus of a comparative specimen (allotype IBSI-Ara 1248 of *Pachomius areteguazu* **syn. nov.**), dorsal view. **D**, Epigyne, ventral view (IBSI-Ara 1248). **E**, Holotype dissected epigyne, ventral view. **F**, Same, another photo. **G**, Holotype, ventral view showing sternum and chelicerae. **H**, Original illustration of the abdomen dorsal pattern by Mello-Leitão (1945, fig. 83). **I**, Original illustration of the epigyne by Mello-Leitão (1945, fig. 84).

Regarding the new synonymy, the epigyne of the *Phidippus zebrinus* holotype matches the morphology described for *Pachomius areteguazu* in all significant respects, including the overall structure, the specific shape of the copulatory openings, and the arrangement of the internal ducts. As no morphological distinctions were found between the holotype of *Phidippus zebrinus* and the type series plus specimens identified as *Pachomius areteguazu* (Figure 1), the two nominal species are considered conspecific, and *Pachomius areteguazu* **syn. nov.**, is here placed as a junior synonym of *Pachomius zebrinus* (Mello-Leitão, 1945).

Material examined for comparison. This study included the female holotype of *Phidippus zebrinus* (MLP 16840), the type series of *Pachomius areteguazu* (IBSI-Ara 1453, 1248, 1479, 1535), all specimens previously reported and examined by Rubio et al. (2021: 7), as well as material recently collected for GISA.

Discussion

The transfer proposed here resolves the systematic position of one of the historically problematic South American species originally assigned to *Phidippus*. Edwards (2004) had already questioned the placement of *Phidippus zebrinus*, but the absence of direct examination of the type material prevented a formal nomenclatural change. Examination of the holotype confirms that the species can be placed in *Pachomius*, and comparison with the type series of *Pachomius areteguazu* supports our view that these are the same species.

This synonymy also illustrates a recurrent problem in Neotropical Salticidae: historical names based on limited descriptions may remain disconnected from modern species concepts until the type material is re-examined. In this case, reliance on the original description alone obscured the identity of *Phidippus zebrinus* and resulted in the later description of the same species under a new name. Direct comparison of type material remains essential for resolving species boundaries, stabilizing nomenclature, and avoiding redundant names in revisionary taxonomy.

Although this note focuses only on *Phidippus zebrinus* (now *Pachomius zebrinus* **comb. nov.**), it reinforces the need for continued reassessment of South American species historically assigned to broadly used salticid genera. A broader revision of the species cited as *Phidippus* from Argentina should be treated separately, but the present contribution provides the necessary nomenclatural correction for one of these species.

The synonymy established here highlights the importance of direct examination of type material. Reliance on original descriptions alone is often insufficient, particularly in groups where diagnostic characters are subtle. Careful comparison of type specimens, side-by-side under the same field of view, remains essential for resolving species boundaries and avoiding redundancy in taxonomy or improper synonyms.

Overall, these findings reinforce the need for continued revisionary work in Neotropical Salticidae, integrating detailed morphological analysis with broader comparative frameworks.

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