



# Article

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## First description of the male spider *Pacifiphantes magnificus* (Chamberlin & Ivie) (Araneae: Linyphiidae)

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### Abstract

The spider *Pacifiphantes magnificus* (Chamberlin & Ivie 1943)(Linyphiidae), originally described as a member of the genus *Bathyphantes*, is redescribed and the first description of the male is presented. DNA barcoding was used to test the conspecificity of specimens from different collection events and to help match specimens from different sexes.

**Key words:** *Pacifiphantes*, *Bathyphantes*, *Porrhomma*, *Kaestneria*, DNA barcoding, COI, species description, taxonomy

### Introduction

Originally described only from females, the spider *Pacifiphantes magnificus* (Chamberlin & Ivie 1943) was included as a close relative of *Bathyphantes approximatus* (O. Pickard-Cambridge 1871) by Ivie (1969) in his *Bathyphantes* revision. Eskov & Marusik (1994) moved the species to the genus *Pacifiphantes* Eskov and Marusik 1994 upon the designation of the genus and generic type *P. zakharovi* Eskov & Marusik 1994, however, no comments were made as to what warranted the transfer from *Bathyphantes*, and at that time no male *P. magnificus* had been identified for comparison to *P. zakharovi*.

Linyphiid generic and species identifications can be difficult. The most commonly used method relies on morphological characters which may be homoplasious (Arnedo et al. 2009). However, recent works have shown the utility of DNA barcoding to highlight phylogenetic patterns, which may help to place uncertain species in appropriate genera (Barrett & Hebert 2005, Robinson et al. 2009). These studies have shown that generic placement and genetic divergence appear to be correlated in many spiders. DNA barcoding also has the ability to pair conspecifics from different collection events. With species in which the conspecific morphology is not obvious (e.g. due to sexual dimorphism) the barcoding technique is very powerful in exposing conspecific relations (Barrett & Hebert 2005, Robinson et al. 2009).

Here we describe for the first time the male and internal female genitalia of the linyphiid spider *Pacifiphantes magnificus*. We also produced sequences of the mitochondrial gene COI for *P. magnificus* specimens and used DNA barcoding methods to confirm conspecifics and examine the generic placement of *P. magnificus*.

### Methods

Comparison specimens were obtained from the University of Alaska Museum, Fairbanks (Alaska), the Burke Museum of Natural History, Seattle (Washington), and from the American Museum of Natural History (New York). Measurements were made with an optical micrometer and are expressed in mm. Abbreviations: Tm—metatarsus trichobothrium, followed by the leg number. Chaetotaxy patterned as dorsal-prolateral-retrolateral-ventral. A—atrium, BP—bursal plate, CD—copulatory duct, CO—copulatory opening, E—embolus, FD— fertilization duct, L—Lamella, PC—paracymbium, P—parmula, R—radix, S—spermatheae, SPT—suprategulum, T—tegulum.