

Taxonomy and systematics

On the identity of *Metaconomma femorale* (Opiliones: Laniatores) and its correct family placement

Sobre la identidad de Metaconomma femorale (Opiliones: Laniatores) y su asignación familiar correcta

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Abstract

In this work, the holotype of *Metaconomma femorale* Pickard-Cambridge, 1905 was revised. As a result, the genus *Metaconomma* Pickard-Cambridge, 1905, a member of the infraorder Grassatores with uncertain family placement, is proposed as a junior synonym of *Hoplobunus* Banks, 1900 in Stygnopsidae, with the new combination *Hoplobunus femoralis* comb. nov.

Keywords: Taxonomy; Stygnopsidae; New synonymy; New combination

Resumen

En el presente trabajo, el holotipo de la especie *Metaconomma femorale* Pickard-Cambridge, 1905 fue revisado. Como resultado, se propone al género grassatorido *Metaconomma* Pickard-Cambridge, 1905, de posición familiar incierta, como un sinónimo posterior de *Hoplobunus* Banks, 1900 en Stygnopsidae, con la nueva combinación *Hoplobunus femoralis* comb. nov.

Palabras clave: Taxonomía; Stygnopsidae; Sinonimia nueva; Combinación nueva

Introduction

The harvestman *Metaconomma femorale* Pickard-Cambridge, 1905 was described as a new genus and species, from Teapa, Tabasco, Mexico. In the *Biología Centrali-Americana*, the author placed the new taxon in the

family Assamiidae (misspelling Assamioidae), along with the genera *Conomma* Loman, 1902, *Mitraceras* Loman, 1902 and *Paramitraceras* Pickard-Cambridge 1905, the last currently placed in the family Stygnopsidae Sørensen, 1932. Subsequently, Roewer (1912, 1923, 1927) cited the taxon and placed it in Phalangodidae: Phalangodinae.

Some years later, Sørensen (1932) described the family Stygnopsidae, and considered this family to contain *Isaeus* Sørensen, 1932, *Stygnopsis* Sørensen, 1902 and *Tachus* Sørensen, 1932 (currently *Tibangara* Mello-Leitão, 1940). In the description of *Isaeus mexicanus* Sørensen, 1932 stated: "Remarks: I have not been able to reexamine this species in natura. It seems to be allied to *Metaconomma* Cambr. (Roewer, Weberkn. p. 115)". Caporiacco (1938) listed a specimen of *Metaconomma femorale* from Ocotlán, Jalisco State, Mexico, without further details or illustrations. Finally, Kury and Cokendolpher (2000) and Kury (2003) considered *M. femorale* as family uncertain, and cited the record of Caporiacco from Ocotlán, presumably the one in Jalisco.

The type specimen, an adult male of *M. femorale* is deposited in the Natural History Museum (NHM), previously known as the British Museum of Natural History (BMNH), London. Examination of photographs of this specimen, which is in very bad condition, results in the following taxonomic nomenclatural acts: *a*) *Metaconomma* is a junior synonym of *Hoplobunus* Banks, 1900 and its correct family placement is in Stygnopsidae; *b*) the proposal of the new combination *Hoplobunus femoralis* (Pickard-Cambridge, 1905) comb. nov., and *c*) the record of *H. femoralis* from Ocotlán, Jalisco of Caporiacco (1938) is dubious, as we have not seen any *Hoplobunus*, or even other stygnopsids from that region of Mexico. With these results, *Hoplobunus* currently contains 2 species.

Material and methods

The type of *M. femorale* is deposited in the Natural History Museum (NHM), London, UK, where the photographs were taken and sent to us for examination. Nomenclature of scutum shape is based upon Kury and Medrano (2016), pedipalpal armature according to Acosta et al. (2007) and ratio of the scutum length divided by the cheliceral hand length follows Cruz-López and Francke (2013).

Description

Order Opiliones

Suborder Laniatores

Family Stygnopsidae Sørensen, 1932

Subfamily Stygnopsinae Sørensen, 1932

Genus *Hoplobunus* Banks, 1900

Hoplobunus Banks, 1900: 200; Pickard-Cambridge, 1905: 585; Roewer, 1912: 149, 1923: 112, 1927: 272; Goodnight & Goodnight, 1942: 1, 1945: 3, 1953: 19, 1967: 1, 1971: 38, 1973: 86; Šilhavý, 1974: 176, 1977: 220; Edgar, 1990: 548; Rambla & Juberthie, 1994: 218; Kury

& Cokendolpher, 2000: 143; Kury, 2003: 237; Cruz-López & Francke, 2017: 338, 2018: 1045.

Metaconomma Pickard-Cambridge, 1905 new synonymy
Type species: *Hoplobunus barretti* Banks, 1900

Diagnosis. See Cruz-López and Francke, 2017: 338.

Hoplobunus femoralis (Pickard-Cambridge, 1905) comb. nov.

Metaconomma femorale Pickard-Cambridge, 1905: 576; Roewer, 1912: 152; 1923: 115; 1927: 273; Sørensen 1932: 277; Caporiacco, 1938: 279; Kury & Cokendolpher, 2000: 143; Kury, 2003: 237.

(Figs. 1-6)

Diagnosis. *Hoplobunus femoralis* can be recognized from *H. barretti* by the following external characters: cheliceral fixed finger with many small contiguous teeth (Fig. 4), instead of almost smooth (Cruz-López & Francke, 2017: Fig. 11A); cheliceral hand very swollen (Fig. 3), ratio between length/width = 2.25, instead of cheliceral hand less swollen (Cruz-López & Francke, 2017: Fig. 11B), ratio between length/width = 2.5 in *H. barretti*; ventral tubercles of pedipalpal femur very short, the basal most prominent (Fig. 5); whereas in *H. barretti* all ventral tubercles are the same size, the basal most barely outstanding (Cruz-López & Francke, 2017: Fig. 10A, B); and the basal most ventral tubercles of femur IV larger than the others (Fig. 6); whereas *H. barretti* has the distal most ventral tubercles larger than the others (Cruz-López & Francke, 2017: 12E, F).

Redescription based on the male holotype (NHM). Scutum type zeta, mid-bulge smooth and leveled at mesotergal area I, posterior margin of scutum larger than mid-bulge area, coda I shallow. Ocularium at frontal margin, conical and with a small spine apically, eyes at the base. Mesotergal areas well defined, covered by few and small tubercles. Free tergites with few tubercles (Fig. 1). Coxae I and II with long spiniform setiferous tubercles, coxae III and IV almost smooth. Stigmatic area inverse T-shaped, spiracles visible. Free sternites without ornamentation (Fig. 2). Chelicera very swollen, ratio of scutum length divided by the cheliceral hand length = 1.35 and ratio between cheliceral length and cheliceral width = 2.25. Basichelicerite short, with the bulla well-marked. Cheliceral fingers stout, movable finger with a large rounded and large basal tooth, fixed finger with many small and contiguous teeth (Figs. 3, 4). Pedipalpal femur compressed laterally, dorsally unarmed, ventrally with a row of 9 very large spiniform setiferous tubercles, the basal most very enlarged. Patella without dorsal ornamentation, with a rounded dorso-apical apophysis. Tibia swollen and

with IIII (1 = 2 = 3 = 3) enlarged spiniform setiferous tubercles on both margins, bases of these tubercles are cylindrical with the apical setae short. Tarsus with III (1 > 2 > 3) spiniform setiferous tubercles on both margins. Tarsal claw slightly longer than tarsus (Fig. 5). Only the leg IV was examined. Trochanter IV with a short, rounded dorsal apophysis. Femur with 2 ventral rows of spiniform tubercles, the basal most larger than all others. Patella with a mesal ventro-apical spiniform apophysis. Tibia with 2 ventral rows of tubercles increasing in size distally (Fig. 6). Tarsal count according to Pickard-Cambridge (1905): 6:10-11:7:7. Penis was not examined.

Female. Unknown.

Taxonomic summary

Type material: type male (NHM) from Teapa, Tabasco, Mexico, H. H. Smith leg. No more data.

False records. Caporiacco (1938) reported *H. femoralis* from Ocotlán, without any additional data. Posteriorly, Kury and Cokendolpher (2000) and Kury (2003) indicated that this record is from Ocotlán in the state of Jalisco. In fact, in Mexico there are at least 5 localities named Ocotlán in the states of Hidalgo, Jalisco, Oaxaca, Puebla and Tlaxcala. The family Stygnopsidae is distributed along the Sierra Madre Oriental in Mexico (Cruz-López and Francke, 2017), and at present the family has not been reported from the Sierra Madre Occidental, on the Pacific side of the country, where Jalisco is located. For this reason, we consider that the assignment of the record of Caporiacco to the state of Jalisco is dubious as it can be referred to any other Ocotlán.

On the type locality of H. femoralis. Since 2009, we have made numerous efforts to collect specimens of *H. femoralis* at the type locality during different seasons, and



Figures 1-4. Type male (NHM) of *Hoplobunus femoralis* comb. nov. 1, Habitus dorsal; 2, habitus ventral; 3, chelicera ectal; 4, chelicera frontal. Scale bars 1 and 2 = 1.5 mm, 3 and 4 = 1 mm.

have not found any *Hoplobunus*, even immature stages, even though we have collected other stygnopsids and small harvestmen. Although we suspect that Pickard-Cambridge (1905) could have mistaken the type locality with another; however, in Teapa, Tabasco we have collected other species described by Pickard-Cambridge (1905) from that locality and collector, the cosmetids *Erginulus clavotibialis* (Pickard-Cambridge, 1905) and *Heterovonones incrassatus* (Pickard-Cambridge, 1905), and the sclerosomatids *Leiobunum dromedarium* Pickard-Cambridge, 1905, *Prionostemma foveolatum* (Pickard-Cambridge, 1905) and *Prionostemma fulvum* (Pickard-Cambridge, 1905).

Tabasco is one of those that has been most affected by deforestation and land-use change due to cattle rising in Mexico (Alejandro-Montiel et al., 2010). We suspect that

our inability to find any specimens of *H. femoralis* and of the zalmoxid *Pyropharynx gracilis* (Pickard-Cambridge, 1905) in the vicinity of Teapa is because of anthropogenic habitat loss.

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References

- Acosta, L. E., Pérez-González, A., & Tourinho, A. L. (2007). Methods for taxonomic study. In R. Pinto-da-Rocha, R., G. Machado, & G. Giribet (Eds.), *Harvestmen: the Biology of Opiliones* (pp. 494–505). Cambridge, MA: Harvard University Press.
- Alejandro-Montiel, C., Galmiche-Tejeda, A., Domínguez-Domínguez, M., & Rincón-Ramírez, A. (2010). Cambios en la cubierta forestal del área ecoturística de la Reserva Ecológica de Agua Selva, México. *Tropical and Subtropical Agroecosystems*, 12, 605–617.
- Banks, N. (1900). New genera and species of American Phalangida. *Journal of the New York Entomological Society*, 8, 199–201.
- Caporiacco, L. di. (1938). Aracnidi del Messico, di Guatemala e Honduras Britannico. *Istituto di Zoologia della R. Università di Firenze*, 77, 251–282.
- Cruz-López, J. A., & Francke, O. F. (2013). Two new species of the genus *Paramitraceras* Pickard-Cambridge, 1905 (Opiliones: Laniatores: Stygnopsidae) from Chiapas, Mexico. *Zootaxa*, 3641, 481–490. <https://doi.org/10.11646/zootaxa.3641.4.13>
- Cruz-López, J. A., & Francke, O. F. (2017). Total evidence phylogeny of the North American harvestman family Stygnopsidae (Opiliones: Laniatores: Grassatores) reveals hidden diversity. *Invertebrate Systematics*, 31, 317–360. <https://doi.org/10.1071/IS/16053>
- Cruz-López, J. A., & Francke, O. F. (2018). Taxonomic observations on the poorly known genera *Isaeus* and *Tampiconus* (Opiliones: Laniatores: Stygnopsidae). *Revista Mexicana de Biodiversidad*, 89, 1045–1053. <https://doi.org/10.22201/ib.20078706e.2018.4.2569>
- Edgar, A. L. (1990). Opiliones (Phalangida). In D. L. Dindal (Ed.), *Soil Biology guide* (pp. 529–581). New York: John Wiley & Sons.
- Goodnight, C. J., & Goodnight, M. L. (1942). Phalangida from Mexico. *American Museum Novitates*, 1211, 1–18.
- Goodnight, C. J., & Goodnight, M. L. (1945). Additional Phalangida from Mexico. *American Museum Novitates*, 1281, 1–17.



Figures 5, 6. Holotype male (NHM) of *Hoplobunus femoralis* comb. nov. 5, Pedipalp mesal, leg IV mesal. Scale bars 5 = 0.5 mm, 6 = 1 mm.

- Goodnight, C. J., & Goodnight, M. L. (1953). The opilionid fauna of Chiapas, Mexico, and adjacent areas (Arachnoidea, Opiliones). *American Museum Novitates*, 1610, 1–81.
- Goodnight, C. J., & Goodnight, M. L. (1967). Opilionids from Texas caves (Opiliones, Phalangodidae). *American Museum Novitates*, 2301, 1–8.
- Goodnight, C. J., & Goodnight, M. L. (1971). Opilionids (Phalangida) of the family Phalangodidae from Mexican caves. *Association for Mexican Cave Studies, Bulletin*, 4, 33–45.
- Goodnight, C. J., & Goodnight, M. L. (1973). Opilionids (Phalangida) from Mexican caves. *Association for Mexican Cave Studies, Bulletin*, 4, 83–96.
- Kury, A. B. (2003). Annotated catalogue of the Laniatores of the New World. *Revista Ibérica de Aracnología (volumen especial monográfico)*, 1, 1–337.
- Kury, A. B., & Cokendolpher, J. C. (2000). Opiliones. In J. Llorente-Bousquets, J. E. González-Soriano, & N. Papavero (Eds.), *Biodiversidad, taxonomía y biogeografía de artrópodos de México: hacia una síntesis de su conocimiento, Vol. II* (pp. 137–157). México City: Facultad de Ciencias, UNAM/ Conabio/ Bayer.
- Kury, A. B., & Medrano, M. (2016). Review of terminology for the outline of dorsal scutum in Laniatores (Arachnida, Opiliones). *Zootaxa*, 4097, 130–134. <https://doi.org/10.11646/zootaxa.4097.1.9>
- Loman, J. C. C. (1902). Neue aussereuropäische Opilioniden. *Zoologische Jahrbücher*, 16, 163–216.
- Mello-Leitão, C. F. (1940). Sete gêneros e vinte e oito espécies de Gonyleptidae. *Arquivos de Zoologia do Estado de São Paulo*, 1, 1–52.
- Pickard-Cambridge, F. O. (1905). Order Opiliones. In F. D. Godman, & O. Salvin (Eds.), *Biologia centrali-americana* (pp. 546–585). London: Dulau & Co.
- Rambla, M., & Juberthie, C. (1994). Opiliones. In C. Juberthie, & V. Decu (Eds.), *Encyclopaedia biospeologica* (pp. 215–230). Netherlands: Société de Biospéologie.
- Roewer, C. F. (1912). Die Familien der Assamiden und Phalangodiden der Opiliones-Laniatores. (=Assamiden, Dampetriden, Phalangodiden, Epedaniden, Biantiden, Zalmoxiden, Samoiden, Palpipediden anderer Autoren). *Archiv für Naturgeschichte*, 78, 1–242.
- Roewer, C. F. (1923). *Die Weberknechte der Erde. Systematische Bearbeitung der bisher bekannten Opiliones*. Jena: Gustav Fischer.
- Roewer, C. F. (1927). Weitere Weberknechte I. (1. Ergänzung der: “Weberknechte der Erde,” 1923). *Abhandlungen der Naturwissenschaftlichen Verein zu Bremen*, 26, 261–402.
- Šilhavý, V. (1974). Cavernicolous opilionids from Mexico. Subterranean fauna of Mexico. Part. II. *Quaderno della Accademia Nazionale dei Lincei, Problemi Attuali di Scienza e Cultura*, 171, 175–194.
- Šilhavý, V. (1977). Further cavernicolous opilionids from Mexico. Subterranean fauna of Mexico. Part. III. *Quaderno della Accademia Nazionale dei Lincei, Problemi Attuali di Scienza e Cultura*, 171, 219–233.
- Sørensen, W. E. (1902). Gonyleptiden (Opiliones, Laniatores). *Ergebnisse der Hamburger Magalhaensischen Sammelreise*, 6, 1–36.
- Sørensen, W. E. (1932). Descriptiones Laniatorum (Arachnidorum Opilionum Subordinis). (Opus posthumum recognovit et edidit Kai L. Henriksen). *Det Kongelige Danske Videnskabernes Selskabs skrifter - Mémoires de l'Académie Royale des Sciences et des Lettres de Danemark. Ser. 9, 3*, 197–422.