


## SHORT COMMUNICATION

# Filling a gap in the distribution of *Taulidesmella tabatinga* (Polydesmida, Pyrgodesmidae): a new record from the upper Amazon River, Brazil

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## ABSTRACT

The millipede species *Taulidesmella tabatinga* is known from the border of Brazil with Peru and Colombia, Iquitos (Peru), and environs of Manaus (Brazil). Based on freshly collected material during the rainy season in 2014 along the Amazon River upriver from its confluence with the Negro River, we report a new record of *T. tabatinga* in floodplain forests in the municipality of Alvarães, Amazonas state (Brazil), filling a gap of 1,000 km between its previously known occurrence points. This record indicates that *T. tabatinga* is likely widespread along both margins of the upper Amazon River, mostly associated with tree trunks and litter of riparian and floodplain forests.

**KEYWORDS:** Amazon rainforest, Neotropics, floodplain forest, Diplopoda

## Preenchendo uma lacuna na distribuição de *Taulidesmella tabatinga* (Polydesmida, Pyrgodesmidae): um novo registro do alto Rio Amazonas, Brasil

### RESUMO

A espécie de Diplopoda *Taulidesmella tabatinga* é conhecida apenas da região de fronteira entre o Brasil com Peru e Colômbia, Iquitos (Peru), e arredores de Manaus (Brasil). Com base em material coletado recentemente durante a estação chuvosa em 2014 ao longo do Rio Amazonas a montante da confluência com o Rio Negro, nós reportamos um novo registro para *T. tabatinga* em florestas de várzea no município de Alvarães, Amazonas, preenchendo uma lacuna de 1000 km entre seus pontos de ocorrência previamente conhecidos. Este novo registro indica que *T. tabatinga* provavelmente é amplamente distribuída ao longo de ambas margens do alto do Rio Amazonas, principalmente associada a troncos de árvores e serapilheira de matas ciliares e inundáveis.

**PALAVRAS-CHAVE:** floresta amazônica, Neotrópico, floresta inundável, Diplopoda

The millipede family Pyrgodesmidae is distributed in tropical regions, and marginally in Europe, northern Africa, southern USA, Japan, Taiwan, and central China (Enghoff *et al.* 2015). The family is composed of nearly 170 genera, mostly monotypic, and 400 species (Hoffman 1980; Enghoff *et al.* 2015). In Brazil, the highest species richness is found in the southeast region, mainly in the states of São Paulo and Rio de Janeiro (Schubart 1944, 1945; Silvestri 1948). In northern Brazil, they are known mainly from the environs of Manaus, state of Amazonas (Hoffman 1985; Golovatch 1996, 1997, 1999, 2001; Golovatch and Adis 1998; Golovatch and Sierwald 2001). The diversity and richness of the family in the

Neotropics are still poorly known, primarily due to the scarcity of specialists in the group and lack of sampling.

The genus *Taulidesmella* Kraus, 1959 is a pyrgodesmid endemic to the Neotropical region characterized by the absence of ozopores, 20 body rings in adults, and males with gonopods deeply bipartite and telopodite suberect (see Figure 31 in Kraus 1959; Figure 9 in Golovatch and Adis 1998). To date, the genus is known from its type species, *T. chanchamayo* Kraus, 1959, collected in the Andean region of Peru (Kraus 1959), and *T. tabatinga* Golovatch and Adis, 1998, known from Tabatinga, the environs of Manaus (Brazil), and Iquitos (Peru). Despite the scarce occurrence records of

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the genus, the biology and ecology of *T. tabatinga* is relatively well documented. Adults of this species living in floodplain forests can climb tree trunks right before inundation events, aggregating in groups of around 200 specimens on the bark surface up to 2 m above the water-level during the day. The species shows physiological alterations related to flood tolerance, and foraging adaptations related to the presence of elongated teeth of pectinate lamellae coated by green algae (Golovatch and Adis 1998).

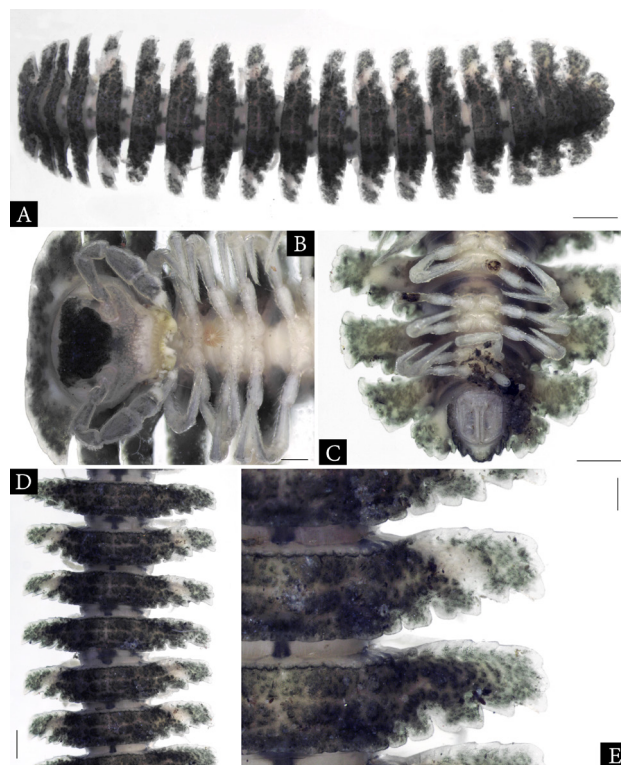
Based on freshly collected material along the Amazon River upriver from its confluence with the Negro River during the rainy season in 2014, we report a new record for *T. tabatinga*, filling a gap of around 1,000 km between its previously known occurrence points in the Amazon region.

Six specimens (Figures 1 and 2) were collected in the municipality of Alvarães, state of Amazonas, Brazil (Figure 3), in an area of floodplain forest about 20 km from the urban center of Tefé. The material examined is deposited in the zoological collection of Instituto Butantan, São Paulo, Brazil (IBSP). The specimens were identified according to the description provided by Golovatch and Adis (1998). Photographs were taken with a Leica DFC 500 digital camera mounted on a Leica MZ16A stereomicroscope at IBSP (São Paulo, Brazil). Focus-stacked images were composed with Leica Application Suite (ver. 2.5.0, Leica Microsystems, Canton de Saint-Gall, Switzerland). The geographical coordinates and ecological remarks were obtained directly from the original label of all the samples. The distribution map was prepared using the software DIVA-GIS 7.5.0 (Hijmans et al. 2001) with the locality data provided by the examined material and original description.

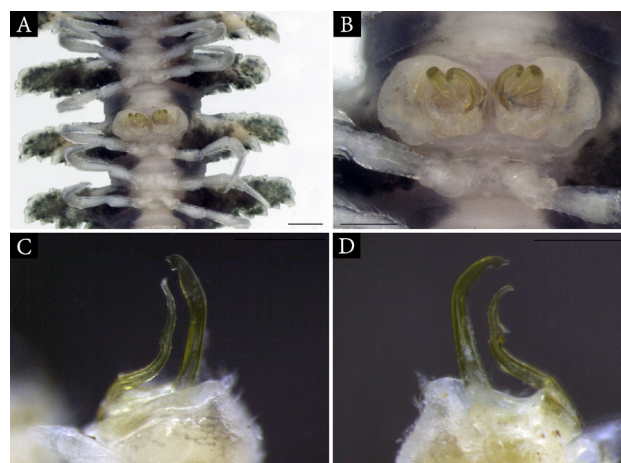
***Taulidesmella tabatinga* Golovatch & Adis, 1998**

**New distributional record.** BRAZIL: *Amazonas*: Alvarães, trilha do Paracuúba, Comunidade Jarauá (02°50'02.5"S, 65°02'42.8"W), 04–11/iv/2014, C.A. Rheims, R.Y. Lemos, J. Cabra-García and R.P. Indicatti coll., ♂ (IBSP 8287); 3♂♂ 2♀♀ (IBSP 8296).

**Descriptive notes.** Description here presented based on the examined specimens to illustrate morphological features. *Measurements:* length ca. 13–14 mm, width of midbody rings 3.2 mm. Coloration (long-preserved in 70% ethanol): body dark grey to blackish, head and antennae blackish, legs faded (Figures 1–2). *Head:* Head circular, labral region moderately setose, vertex microgranulate. Interantennal isthmus nearly twice wider than diameter of antennal socket (Figure 1b); antennae moderately subclavate, antennomere 5 longer and thicker. *Body rings:* collum flabellate, with 12 lobes, completely covering the head from above (Figure 1a, b); slightly tuberculate anteriorly, superficially microgranulate dorsally, coating with cerotegument. Metaterga microtuberculate, with three transverse rows of slightly rounded tubercles,



**Figure 1.** Adult female of *Taulidesmella tabatinga* (IBSP 8296). A – Dorsal view of whole body; B – Anterior region, in ventral view; C – Posterior region, in ventral view; D – Midbody rings, in dorsal view; E – Detail of midbody rings, in dorsal view. Scale bars: A = 1 mm; B, E = 0.3 mm; C–D = 0.5 mm. This figure is in color in the electronic version.



**Figure 2.** Adult male of *Taulidesmella tabatinga* (IBSP 8297): A – Ventral view of midbody rings with gonopods fully exposed; B – Detail of gonopods fully exposed; C – Left gonopod, in ectal view; D – Left gonopod, in mesal view. Scale bars: A = 0.5 mm; B = 0.3 mm; C–D = 0.2 mm. This figure is in color in the electronic version.

coating with cerotegument; paraterga broad, rather irregularly tuberculate, with three moderately incised lobulations (Figure 1d, e). Last body ring projected caudad beyond tergal distal region. Ozopore absent. Epiproct short, fully exposed in dorsal view, directed ventrocaudad; hypoproct broad, subtriangular,



**Figure 3.** Distribution map of *Taulidesmella tabatinga* records in the Amazon region. The red triangles refer to the previously known records and the yellow star to the new record. This figure is in color in the electronic version.

with 1+1 strong, widely separated paramedian knobs (Figure 1c). Legs invisible from above; unmodified, relatively long, slender. *Gonopods*: gonopodal aperture somewhat transversely oval (Figure 2a); gonopods in situ held subparallel to each other (Figure 2b). Coxite relatively large, subglobose, finely granulate and microsetose. Telopodite suberect, fully exposed distally, strongly setose on prefemoral region. Acropodite slender, deeply bipartite (Figure 2c, d); solenomere S-shaped, mesally lobed, curved mesad; ectal branch longer than solenomere, curved mesad, slightly expanded, with two small lobes distally.

**Diagnosis.** The species differs from the congeneric *T. chanchamayo* by having larger and flatter body size, collum with 12 rounded lobes (Figure 1). Males of *T. tabatinga* are characterized by large and subglobose coxites, finely granulate, microsetose distally; telopodite exposed distally. Acropodite deeply bipartite: solenomere S-shaped, mesally lobed and curved mesad; ectal branch curved mesad, expanded distally (Figure 2c, d).

**Distribution.** *Taulidesmella tabatinga* has been reported from environs of Manaus, the border of Brazil with Colombia and Peru (Tabatinga), and Iquitos (Nanay River, Peru) (Golovatch and Adis 1998). The new record from Alvarães fills a gap of distributional range by approximately 1,000 km (in a straight line) between the occurrence points of Tabatinga and Manaus, along the floodplain forests of the upper and central Amazon River (Figure 3). The record reported in here indicates that *T. tabatinga* is likely widespread along both margins of the upper Amazon River, as suggested by Golovatch and Adis (1998). Further surveys are likely to reveal the frequency of occurrence of this and other species of *Taulidesmella* in the region.

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