

**On two species of the millipede genus *Pycnotropis* CARL, 1914
from Amapá state, Brazil (Diplopoda, Polydesmida,
Aphelidesmidae)**

by

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Abstract

Both species of *Pycnotropis* hitherto known from Amapá state, Brazil, i.e. *P. subareata* (JEEKEL, 1963) and *P. goeldii* GOLOVATCH, VOHLAND & HOFFMAN, 1998, are revised based on type material. Both appear quite similar but superficially "good" species differing in a number of peripheral and gonopod characters such as outline of some metaterga as well as the degree of development of both certain sternal structures and gonotelopodite branches. An improved key is provided to these two species to facilitate their recognition.

Keywords: **Diplopoda, Polydesmida, Aphelidesmidae, *Pycnotropis*, key, Amapá, Brazil.**

Resumo

Duas espécies de *Pycnotropis* conhecidas até agora do estado do Amapá, *P. subareata* (JEEKEL, 1963) e *P. goeldii* GOLOVATCH, VOHLAND & HOFFMAN, 1998, são revidadas baseando-se em material tipo. Ambas parecem bastante similar mas superficialmente são "boas" espécies, diferindo em vários caracteres periferais e gonopodais como o contorno de alguns metatergos como também o grau de desenvolvimento de certas estruturas sternais e da ramificação do gonotelopodito. Uma chave melhorada é providenciada para estas duas espécies para facilitar o seu reconhecimento.

Introduction

According to the latest review (GOLOVATCH et al. 1998), the prolific millipede genus *Pycnotropis* CARL, 1914 is not only the largest amongst Aphelidesmidae but also one of the most common and diverse among Neotropical Diplopoda in general. This family is very likely to be North Andean in origin, with only a few members that have reached as far north as Mexico and as far south as Amazonia (VOHLAND 1998). In fact *Pycnotropis* is about the sole aphelidesmid genus that has managed to colonize virtually entire Amazonia and is definitely still at a stage of active speciation.

While many of the currently known 26 valid species of *Pycnotropis* seem quite local in distribution, being restricted to the Andes of Peru, Ecuador or Colombia, at the opposite extreme a few floodplain congeners appear confined to seasonally inundated forests of Amazonia. It is this handful that includes the particularly widespread and

ecologically plastic *P. tida* (CHAMBERLIN, 1941) that ranges from the upper reaches of Rio Marañón, Peru to the environs of Manaus, Brazil (GOLOVATCH et al. 1998; VOHLAND & ADIS 1999). Probably not only because of an especially intensive and diligent collecting effort but also due to the proximity to the presumed generic centre of origin, rather numerous species of *Pycnotropis* seem endemic to the environs of Iquitos, Peru, largely terra firme sites. A few localities, mostly terra firme as well, lying further downstream in Brazil likewise appear to support an endemic species each; two such species have been encountered in Amapá state, i.e. quite close to the mouth of Amazon River, though we know nothing about their habitats. The latter region is thus the southeasternmost distribution limit not only of *Pycnotropis* but of the entire family Aphelidesmidae.

Thus the conclusion has been drawn that the Amazon seems to have served as a major pathway for repeated downstream dispersal of various biotic elements, including *Pycnotropis*, from the Andes, Surinam Plateau and other highlands surrounding the Amazon catchment area. Indeed, *P. tida* provides a very good example of how downstream gene drift and subsequent (re)colonization(s) by opportunists could have operated on a geological time scale to trigger off secondary speciation in *Pycnotropis* at least in Central and Eastern Amazonia (GOLOVATCH et al. 1998; VOHLAND & ADIS 1999). There can be no doubt that many more *Pycnotropis* species are still to be discovered and described while what we currently know is but a fragment of the real diversity of this remarkable genus.

As an unfortunate situation, both Amapá species of *Pycnotropis*, i.e. *P. subareata* (JEEKEL, 1963) and *P. goeldii* GOLOVATCH, VOHLAND & HOFFMAN, 1998, being quite similar both externally and in gonopod traits, appear to contain a few lacunae in the description and/or the character matrix (cf. GOLOVATCH et al. 1998). Thus, the original, and sole, description of *P. subareata*, however detailed (JEEKEL 1963), was incomplete in omitting several structural peculiarities now known to be important for distinguishing species in this genus. These omissions concern certain measurements, the shape of the caudal corner of paraterga 16, the height of paraterga, the degree of development of some sternal cones and of spinules below paraterga, and the exact conformation of the gonopod telopodite. As regards *P. goeldii*, by some accident data concerning the shape of paratergum 16 were omitted from the character matrix, though clearly described in the main text.

To refine the diagnosis of *P. subareata*, especially so vis-a-vis the nearly sympatric *P. goeldii*, type material of both these species was received for restudy. As both species are indeed very similar, it appears highly important to draw a better distinction between them.

Material

Type material has been received for study from the following museum collections.

(1) *Amplinus subareatus* JEEKEL, 1963 – Muséum national d'Histoire naturelle, Paris: ♂ holotype, 1 ♀ allotype, 2 ♂♂ paratypes, Brazil, Amapá, "Guyane contesté franco-brésilien, Placers de Carsevenne, 1899", leg. F. GEAY (cf. JEEKEL 1963).

(2) *Pycnotropis goeldii* GOLOVATCH, VOHLAND & HOFFMAN, 1998 – Museu Paraense Emílio Goeldi, Belém, Brazil: 1 ♂ paratype, Brazil, Amapá, "Serra do Navio, Mata, 17.05.1989", leg. R. N. BITTENCOURT (cf. GOLOVATCH et al. 1998).

Taxonomic part

As a direct, side-by-side comparison shows, *P. subareata* seems quite similar to, yet apparently different from, *P. goeldii*. The main differences and some additional similarities concern the following characters. Colour pattern seems virtually the same in both species, though *P. subareata* material seems more strongly faded. *P. subareata* is somewhat larger than *P. goeldii*, body length varying from ca. 55 to 58 (♂) to 63 mm (♀) versus ca. 50 mm (♂ only), body width from 5.0-5.7 and 8.7-9.0 (♂), or 8.0 and 10.0 mm (♀) versus 4.6-4.8 and 8.0 mm (♂) on midbody pro- and metazona, respectively. Collum almost pointed in *P. subareata* versus narrowly rounded in *P. goeldii*. Metatergal areation usually more strongly obliterated in *P. subareata* as compared to *P. goeldii*, this being particularly evident on collum which remains fully however faintly areated over the dorsum. The same concerns a few postcollar metaterga as well. Caudal corner in *P. goeldii* paraterga usually somewhat better protruding as compared to *P. subareata*, yet somite 16 in both species equally acute, almost pointed. Paraterga set equally low, mostly just a little above midheight on midbody somites, rather narrow in lateral view (Fig. 1), in *P. subareata* ♀ set a bit lower than in ♂. Cones below paraterga in both species similar, rather numerous but inconspicuous, never spiniform, those closer to caudal edge just a bit larger than others. Sterna 5 and 6 in *P. subareata* ♂ relatively low but equally well separated as in *P. goeldii* (Fig. 2). Finally, in both species gonopod telopodite very similar, yet outer branch somewhat less strongly sigmoid in *P. subareata* (Figs. 3-4) than in *P. goeldii*.

All these differences seem to provide a reliable basis for treating these two species as distinct from one another. The following key can be offered for their easier separation:

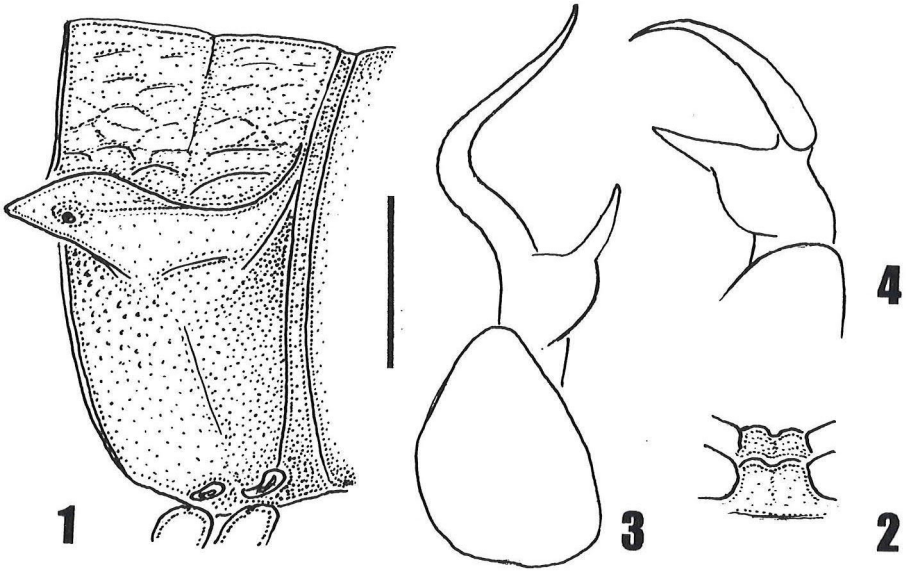
Collum and a few postcollar metaterga fully however faintly areate across dorsum. Body size smaller: metaterga ≤8.0 wide (♂). Cones on ♂ sterna 5 and 6 more conspicuous. Gonopod telopodite somewhat more strongly sigmoid *P. goeldii*
 - Dorsal parts of collum and of a few postcollar metaterga virtually without areation, latter retained only sublaterally. Body size larger: metaterga >8.5 mm wide (♂, ♀). Cones on ♂ sterna 5 and 6 lower (Fig. 2). Gonopod telopodite branches straighter, rather poorly sigmoid (Figs. 3 & 4) *P. subareata*

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Figs. 1-4:

Pycnotropis subareata (JEEKEL, 1963), ♂ holotype (1) & ♂ paratypes (2-4).

1: somite 10, lateral; 2: sternal cones between legs 5 and 6; 3: right gonopod, subcaudal; 4: left gonopod, lateral. Scale bar: 2.0 mm (1 & 2), 0.5 mm (3 & 4).