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## A REVIEW OF *MITOPERNOIDES* REVALIDATED (PROGONYLEPTOIDELLINAE) AND THE SYNONYMY OF *MITOPERNA* WITH *NEOSADOCUS* (GONYLEPTINAE) (ARACHNIDA, OPILIONES, GONYLEPTIDAE)

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### ABSTRACT

*Two monotypic genera originally included in Mitobatinae on the basis of symplesiomorphic traits and currently considered to be synonyms are herein removed to other subfamilies: Mitoperna Roewer, 1931 is newly considered a junior synonym of Neosadocus Mello-Leitão, 1926 (Gonyleptinae). The new combination Neosadocus maximus is proposed for Nèomitobates maximus Giltay, 1928, type species of Mitoperna. Mitopernoides B. Soares, 1945 is revalidated from the synonymy of Mitoperna and newly referred to the Progonyleptoidellinae. A lectotype is designated for its type species, Mitopernoides variabilis, comb. n., which is redescribed.*

**Keywords:** Gonyleptinae, Mitobatinae, Neotropics, new synonymy, Progonyleptoidellinae.

### INTRODUCTION

A review of the Brazilian subfamily Mitobatinae of laniatorean harvestmen, on which previous works have already been published (Kury, 1989a-b; 1990a-b; 1991a-b; 1992a-b) leads to a restriction of the current concept of this taxon as well as of its subordinate taxa. *Ancistrotellus*, *Despiroides*, *Discocyrtoides*, *Leptocnema*, *Metamitobates*, *Metaroeweria*, *Mitobates*, *Neoancistrotus*, *Neobourguyia* and *Ruschia* were treated, some had their

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diagnoses emended, and some of the presumed genera and species synonymized, species described/redescribed and others transferred to other genera. More redescrptions of name bearers under modern standards are still needed to clarify the relationships among taxa. In the present paper, the small genus *Mitoperna*, which includes the synonymized *Mitopernoides*, is reviewed and each of the two included species is assigned to a different subfamily of Gonyleptidae. Acronyms of repositories cited are ABK (Private Collection A. Kury), IRSNB (Institut Royal de Sciences Naturelles de Belgique) and MZUSP (Museu de Zoologia da Universidade de São Paulo).

#### SYSTEMATIC ACCOUNTS

### Gonyleptidae Sundevall, 1833

#### Progonyleptoidellinae Soares & Soares, 1985

#### *Mitopernoides* B. Soares, revalidated

*Mitopernoides* B. Soares, 1945: 91. Type species: *Mitopernoides variabilis* B. Soares, 1945.

*Mitoperna* (part): Soares & Soares, 1949: 236.

**Etymology.** From preexisting generic name *Mitoperna* + Greek *eidos* = image. Gender masculine.

**Diagnosis.** Progonyleptoidellinae with eye mound armed with two small pointed tubercles; posterior margin of scute and free tergites with a row of irregular spines each; pedipalpal patella and tibia much elongate; tarsus I of male hexamerous or heptamerous. Easily distinguished from other genera by the unique cluster of spines in the lateral areas along the coxa IV.

#### ***Mitopernoides variabilis* B. Soares**

(Figs. 1-8)

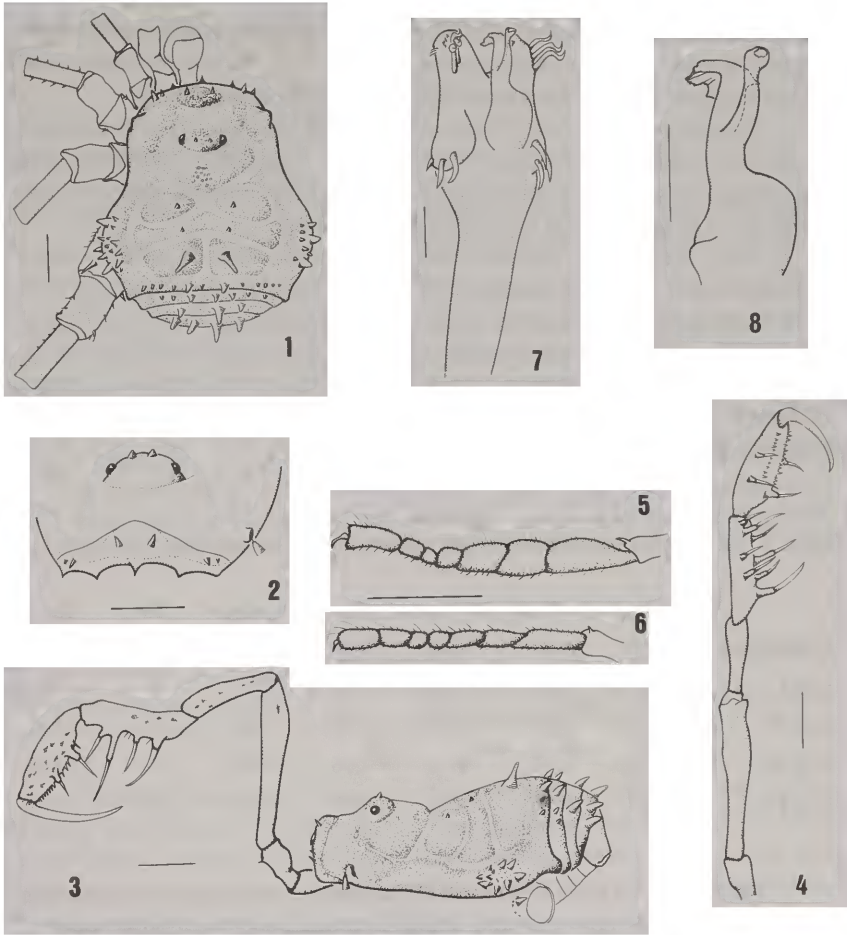
*Mitopernoides variabilis* B. Soares, 1945: 92, Fig. 10.

*Mitoperna variabilis* Soares & Soares, 1949: 236.

**Etymology.** From Latin *variabilis*, due to the unequal sized spines in free tergites.

**Material examined.** Male lectotype presently designated (MZUSP 743), 2 male and 1 female paralectotypes (MZUSP 744 and 761), Brazil, São Paulo, Ubatuba, 15-17 November 1943, leg. A. Zoppei.

**Distribution.** Known only from the type locality.



Figs. 1-8: *Mitopernoides variabilis* Soares, 1945, male lectotype MZUSP 744: 1, habitus, dorsal view; 2, eye mound, frontal view; 3, habitus, lateral view; 4, right pedipalpus, ectal view; 5, tarsus I; 6, female paralectotype MZUSP 761, tarsus I; 7, distal part of penis, dorsal view; 8, glans penis, dorsal view. Scale bars = 1mm for figures 1-6 and = 0.1 for figures 7-8.

**Description.** Male lectotype measurements: Cephalothorax 3.18 mm, 2.71 mm long; abdomen 4.59 mm wide, 2.00 mm long.

**Dorsum** (Fig. 1). Dorsal scute piriform, widest at area II. Anterior margin of scute with two spines in each corner; frontal hump low, armed with a pair of spines. Eye mound armed with a pair of tubercles very close to each other (Fig. 2); cephalothorax smooth. Mesotergum divided in three areas without any trace of area IV; areas I and III divided by median longitudinal grooves; areas I-II armed

with a pair of small tubercles; area III armed with a pair of divergent spines; posterior margin and free tergites armed with a transverse row of spines each. Lateral margins of scute with a group of stout tubercles at areas II-III.

**Pedipalpus** (Figs. 3-4). Much elongate and slender. Coxa, trochanter, patella and femur unarmed; tibia armed with four mesal (Iili) and four ectal (IIli) spines; tarsus with round section, armed with two mesal and two ectal spines and a double ventral longitudinal row of setae.

**Legs.** Slender, all segments unarmed, except coxa IV armed with a small apical outer spine. Basitarsus I of male swollen (Fig. 5). Coxa IV of both sexes not surpassing dorsal scute in dorsal view. Distitarsus I with 3, II with 4 segments. Ratio calcaneus/astragalus of metatarsi I-IV: 1.55/0.91/0.67/0.33. Average of tarsal segmentation among males 6-7/12-15/12-15/14-17. Measurements of podomeres are in Table I. Double claws of tarsi III-IV bearing no scopulae, and with tarsal process.

Table I. *M. variabilis* male lectotype, appendage measurements (in mm).

	Tr	Fe	Pa	Ti	Mt	Ta	Total
<b>Pedipalpus</b>	0.40	1.41	0.48	0.84	----	1.54	4.67
<b>Leg I</b>	0.46	2.89	0.74	1.85	2.91	?	?
<b>Leg II</b>	0.58	7.74	1.29	5.83	7.48	4.54	27.46
<b>Leg III</b>	0.60	5.31	1.20	2.96	4.84	2.51	17.42
<b>Leg IV</b>	0.84	6.70	1.22	4.07	7.35	2.87	23.05

**Colour.** Dorsal scute brown, with black reticle, mesotergal grooves much lighter; tubercles of posterior and lateral margins and free tergites sulphur yellow, appendages light brown.

**Female.** Much similar to male in colour, armature and body/appendage proportions. Ratio calcaneus/astragalus of metatarsi I-IV: 1.62/0.92/0.64/0.34; tarsal segmentation: 7-8/14/13-15/17. Basitarsus I not swollen (Fig. 6).

**Genitalia** (Figs. 7-8). Ventral plate rectangular, with a parabolic cleft in distal margin; two groups of setae on lateral margin, three basal robust and straight, and three distal, long, with helicoidal apex; also a group of very small latero-distal setae, three on each side; basal lobe strongly developed and perpendicular to the plate. Dorsal branch of glans sub-sigmoid, smooth and unarmed, ventral branch lamellar, with serrate margins.

## Gonyleptinae Sundevall, 1833

**Neosadocus Mello-Leitão**

*Neosadocus* Mello-Leitão, 1926: 378. Type species: *Sadocus bufo* Mello-Leitão, 1923; Soares & Soares, 1949: 196 (complete synonymy).

*Mitoperna* Roewer, 1931: 115. Type species: *Neomitobates maximus* Giltay, 1928; Mello-Leitão, 1932: 412; 1935: 109; Soares & Soares, 1949: 236. *New Synonymy*.

Remarks. *Neosadocus* included formerly four species: *N. bufo* (Mello-Leitão, 1923), *N. latus* (Mello-Leitão, 1935), *N. minor* (Mello-Leitão, 1935) and *N. variabilis* (Mello-Leitão, 1935), the last three synonymized by Soares & Soares (1984) under *N. bufo*. A review is needed to establish the systematic and geographic relations of the populations referred to *Neosadocus*. It appears that the name *Neosadocus bufo* is applied to more than one species. *Mitoperna maxima* shares with *Neosadocus bufo* the microsculpture of pedipalpal tarsus, coarse tergal granulations, large body size and colour pattern of dorsal scute and appendages.

***Neosadocus maximus* (Giltay), comb. n.**

*Neomitobates maximus* Giltay, 1928: 84; 1930: 238.

*Mitoperna maxima*: Roewer, 1931: 115, Fig. 5; Mello-Leitão, 1932: 412; Soares & Soares, 1949: 236.

Material examined. Female holotype (IRSNB), Louis Giltay det., 1928, Brazil, São Paulo, "Piassagera" (= Piassagüera, Cubatão 23°50'41"S 46°22'16"W) 2 October 1922 leg. P. Brien, on the ground under leaves and rotten logs in the forest; 1 male, 1 female (MZUSP 13.594) São Paulo, Piassagüera 30 August 1952 leg. Werner, Serafin; 3 males, 1 female (ABK 812) São Paulo, Ubatuba, Picinguaba 7/9 July 1993 leg. M. R. Gomes/O. L. Peixoto/A. M. T. C. Silva/ S. P. C. Silva.

Distribution. Northern São Paulo state, Serra do Mar.

Diagnosis. Can be promptly distinguished from *N. bufo* by the colour pattern of body, light reddish brown, with sulfur-yellow granules (uniform dark gray, almost black in *N. bufo*), structure of tubercles of areas I to III, and armature of femur IV.

Remarks. *N. maximus* seems to occur only in the northern São Paulo portion of Serra do Mar, but an extension of this range or any statement of sympatry with *N. bufo* is impossible without a review of the other species. A redescription of this species will be better placed in a revision of the genus *Neosadocus*, where meaningful characters may be highlighted.

## DISCUSSION

*Mitopernoides variabilis* is known only from the type series, hitherto taken as four females. Dissections revealed that three of them are indeed males. The synonymy of *Mitopernoides* with *Mitoperna*, established by Soares & Soares (1949), is based only in general traits, coherent with the Roewerian system, but flawed under a phylogenetic approach. There is no evidence of a sister group relationship between *Mitopernoides variabilis* and *Mitoperna maxima*, in the same way that there is no positive evidence to assign either of the species to the Mitobatinae as currently defined.

Derived character states relating *Mitoperna maxima* and *Mitopernoides variabilis* with the Gonyleptinae-like subfamilies, namely Gonyleptinae, Coelopyginae, Sodreaninae, Progonyleptoidellinae and Hernandariinae (Kury, 1992b) include: 1) frontal hump of carapace with paired armature; 2) ventral plate of penis with parabolic cleft; 3) basal lobes of ventral plate perpendicular to its plane; 4) distal setae of ventral plate helycoidal. On the other hand, possible synapomorphies which could relate them to the Mitobatinae - like: 1) sexual dimorphism in femur IV, 2) basitarsus I not swollen, 3) fan of ventral process of glans starting from the base - do not occur in these species.

*Mitopernoides* should be included in the Progonyleptoidellinae by the presence of the following putative synapomorphies (a phylogenetic analysis is not available): 1) much elongate calcaneus of legs I-IV; 2) pedipalpal tarsus with round section, armed with two ventral rows of setae; 3) distitarsus II tetramerous; 4) high tarsal counts; 5) all articles of pedipalpus long and slender.

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