

Notes on Mitobatinae IV: *Ischnotherus tenebrosus* new Genus and new Species of Brazilian Harvestman (Opiliones: Laniatores: Gonyleptidae)

ADRIANO B. KURY

With 11 figures in the text

Abstract. *Ischnotherus tenebrosus* n. sp. is described and designated as the type-species of the new genus *Ischnotherus*. *Discocyrtoides pardus* KURY, 1989 is also included in the new genus. Both species are endemic to the remnants of the coastal tropical rain forest (Mata Atlântica) in the state of Espírito Santo, southeastern Brazil.

Key words: Arachnida, Opiliones, Laniatores; *Ischnotheres tenebrosus* n. gen., n. sp.; *Discocyrtoides*; *Mitobates*; Brazil; phylogeny.

Introduction

This is the fourth in a series of projected papers on the Mitobatinae. Previous papers in this series are KURY (1989b, 1990b, 1990c).

In the second semester of 1988, I was able to collect in some of the remaining woods of the tropical rain forest (Mata Atlântica) in the Brazilian state of Espírito Santo. These woods are now heavily injured by deforesting. The Biological Reserve Santa Lúcia in Santa Teresa was the main target, because it is the type-locality of many species of laniatorids collected by A. RUSCHI in the 1930's and 1940's, and poorly described by MELLO-LEITÃO. This Reserve still conserves remnants of primary woods. There I collected, in a place of difficult access, a few individuals of a mitobatine closely related to *Discocyrtoides pardus* KURY, 1989a, which has been described from the southern part of the same state. Other collecting trips, done some months later, provided series of males and females of both species, which enabled me to recognize and define a new genus of the Mitobatinae.

The genus *Discocyrtoides* MELLO-LEITÃO was recently removed from the Bourguiiinae to the Mitobatinae (KURY, 1990a) and some of its species considered to be closely related to *Mitobates* SUNDEVALL (KURY, 1990b). The assumptions about the polarity of the character states were taken from a phylogenetic analysis of the Mitobatinae (KURY, in prep.).

Abbreviations of the institutions in which the specimens are deposited are: Museu Nacional, Rio de Janeiro (MNRJ); Museu de Zoologia da Universidade de São Paulo (MZUSP), Departamento de Zoologia da Universidade Federal do Rio de Janeiro (DZUFRJ); Zoological Museum, Berlin (ZMB); Zoologisk Museum, Copenhagen (ZMK). Unless otherwise stated all measurements are in mm. Nomenclature for pedipalpal spines follows MELLO-LEITÃO. This formula appears occasionally scattered in his papers (e.g., 1940:24) as an alternative to ROEWER's notation, although he never explicitly stated or proposed the formula: there are

two classes of sizes, represented by "I" (robust spine) and "i" (much smaller spine) and ordered from proximal to distal. Coordinates provided are not those of the nearby towns, but of the collecting sites.

Ischnotherus new genus

Type Species. *Ischnotherus tenebrosus* new species.

Included Species. *I. tenebrosus* n. sp. and *I. pardus* (KURY, 1989a) new combination.

Etymology. From Greek *ischnós* = thin and *therós* = beast of prey; referring to the slender facies.

Distribution. Known only from the state of Espírito Santo, southeastern Brazil.

Diagnosis. *Ischnotherus* shares with *Metamitobates* only one putative synapomorphy: 1) ventral branch of glans cochleariform with serrate margins; and it is distinguished from the other mitobatines with rectangular body and unarmed coxa IV in male (like *Mitobates*) by the retention of many presumed ancestral conditions; 2) anterior edge of ventral plate of penis without a deep V-shaped cleft and a distal flange; 3) spination of pedipalpal tibia ectal predominant IiIi (instead of IiiIi); 4) short calcaneus in metatarsi I—IV. As synapomorphies for the two species of *Ischnotherus* can be cited: 5) unique colour pattern of scute with a longitudinal median light stripe and some light transversal stripes (like ribs) on areas I—II and IV—V (instead of uniformly coloured); 6) median third of free tergites lighter coloured; 7) femora I—IV with black panther-like pattern (instead of otherwise black mottled). Character 7 is shared with *Discocyrtoides maculatus*, but it may be homoplastic, since this species is presumed to be closer to *Mitobates* (KURY in prep.).

Ischnotherus tenebrosus new species (Figs. 1—9)

Etymology. The species name is a latin adjective meaning shady, dark; referring to the habitat of the animal.

Distribution. Known only from the type-locality.

Diagnosis. Distinguished from *I. pardus* by its larger size and the apomorphic possession of a pair of conic light yellow tubercles in areas I and II, basitarsus I 4-segmented in both sexes; and narrowed process in the apex of stylus.

Material examined. Espírito Santo, Brazil: Male holotype, 1 female paratype (ZMB 29.849), Reserva Santa Lúcia, Santa Teresa, 20—21 December 1988 (R. L. C. Baptista/A. P. Chaves), 1 male paratype (ZMK), same data; 10 male, 1 female paratypes (DZUFRJ 0409), same data; 6 immatures (DZUFRJ 0407), same data; 3 male, 1 female paratypes (MZUSP 10.579), same locality, 6 September 1988 (R. L. C. Baptista/A. P. Chaves/A. B. Kury).

Description

Male holotype. Dorsum (Figs. 1—2). Dorsal scute 5.29 long; cephalothorax 2.58 long, 3.55 wide; abdominal scute 2.71 long, 4.38 wide. Body nearly rectangular, broadest at area II, sides bowed, hind corners straight. Anterior margin of cephalothorax with a

row of few minute granules; indented for the cheliceral sockets, provided also with median smooth elevation; eye mound (Fig. 3) low, in middle of cephalothorax, armed with a pair of high spines; cephalothorax smooth, with a few minute granules behind the eye mound. Mesotergum limited by grooves I and V and divided in four areas by grooves II to IV; area I divided by a longitudinal groove; area II projecting medially into area I; groove III recurved; grooves IV—V slightly procurved. Area I armed with a pair of acute tubercles; area II armed with a pair of tubercles very close to each other; area III armed with a pair of high spines; area IV and posterior margin of scute (= area V) with a pair of pointed granules each; free tergites with a transverse row of granules. Anal opercle unarmed. Venter. Stigmata clearly visible, stigmatic area and coxae finely granular.

Pedipalpus. (Fig. 4). Strongly built. Trochanter small, with a ventral spine and a dorsal hump armed with few setiferous tubercles; femur armed with robust medio-distal spine and one basal-ventral; patella slightly widened distally, unarmed; tibia with four mesal (IiIi) and four ectal (IiIi) robust spines; tarsus armed with three mesal (IiI) and four ectal (IiIi) spines; tarsus and tibia somewhat flattened; tarsal claw robust, smooth, curved. Measurements in Table 1; variation of the tibial spination in Table 2.

Legs. Very long, notably the fourth pair. Proportion of femora I—IV is: 1 : 3 : 2 : 5. Coxae IV finely granular, broadly surpassing lateral margin of scute, bearing a very short apical apophysis (Fig. 2). All segments unarmed; femur IV straight. Ratio calcaneus/astragalus of metatarsi I—IV: 0.4 : 0.1 : 0.2 : 0.1. Tarsal segmentation 7 : 14 : 8 : 8 to 9. Double tarsal claws of legs III—IV untoothed, bearing no scopula, with a strong tarsal process. Distitarsi I and II with 3 segments each. Measurements in Table 1; variation in tarsal segmentation in Table 3.

Table 1

I. tenebrosus ZMB 29.849 male holotype, appendage measurements (female in parentheses)

	Tr	Fe	Pa	Ti	Mt	Ta	Total
Pedipalpus	0.8(1.0)	1.9(2.2)	1.3(1.2)	1.6(1.8)	—	2.1(2.4)	7.7(8.6)
Leg I	0.8(0.9)	6.4(5.6)	1.4(1.3)	4.8(4.2)	7.9(7.4)	3.1(2.9)	24.4(22.3)
Leg II	1.1(1.1)	17.8(13.5)	1.8(2.2)	15.8(11.2)	21.0(15.3)	7.9(7.3)	65.4(40.6)
Leg III	1.3(1.1)	15.1(10.2)	2.3(2.1)	8.6(6.4)	16.2(10.5)	5.0(4.2)	38.5(34.5)
Leg IV	1.5(1.2)	31.1(15.3)	2.0(2.4)	21.7(9.7)	37.0(16.8)	8.5(5.8)	101.8(51.2)

Table 2

Summary of predominant pedipalpal tibia spination for the two species of *Ischnotherus*. n = number of specimens examined.

Species	n	mesal		ectal	
		IiIi	IiiIi	IiIi	IiiIi
<i>I. pardus</i>	9 males	9	0	17	1
	1 female	0	2	2	0
<i>I. tenebrosus</i>	15 males	26	4	29	1
	3 females	6	0	6	0

Table 3

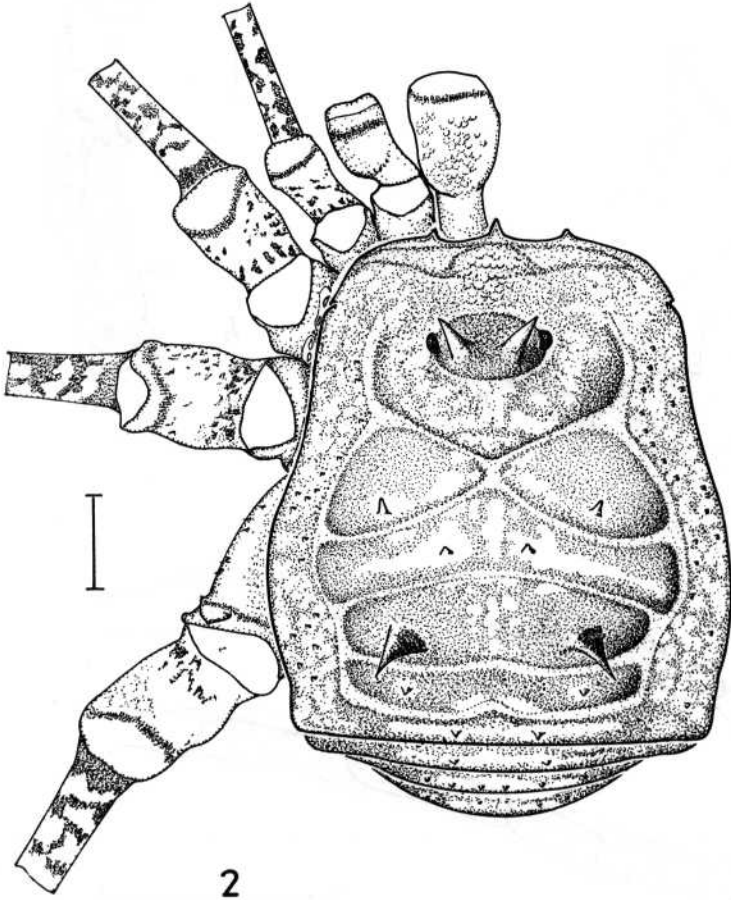
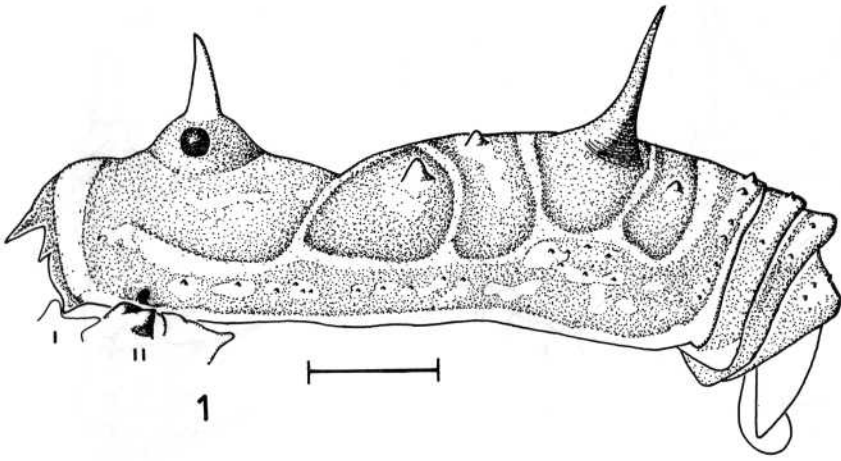
Summary of tarsal segmentation for the two species of *Ischnotherus*. The number in parentheses refers to the number of occurrences. C = coalescent tarsomeres. The numbers in parentheses do not always sum the number of legs due to the missing segments

Leg pair	<i>I. pardus</i>		<i>I. tenebrosus</i>	
	9 males	1 female	15 males	3 females
I	6(15)	6(2)	6(1)	—
	7(2)	—	7(25) 8(2)	7(4) —
II	12(1)	—	C(10)	—
	13(2)	13(2)	14(5)	—
	14(2)	—	15(11)	15(4)
	15(8)	—	16(3)	16(2)
	16(1)	—	17(1)	—
III	6(1)	—	—	—
	7(16)	7(1)	8(23) 9(7)	8(3)
IV	7(18)	7(2)	7(1)	7(1)
	—	—	8(17)	8(2)
	—	—	9(5)	9(3)
	—	—	10(1)	—

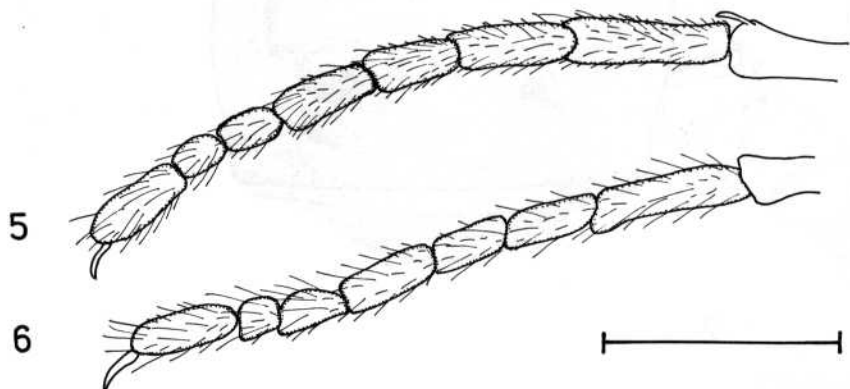
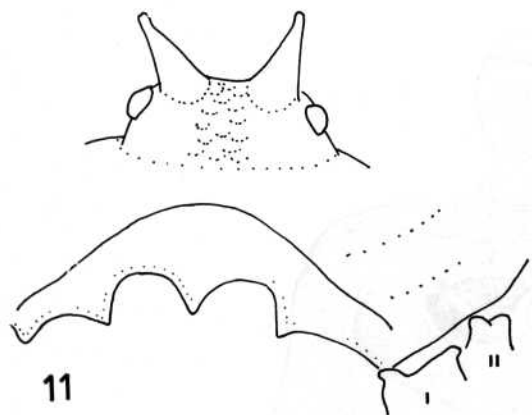
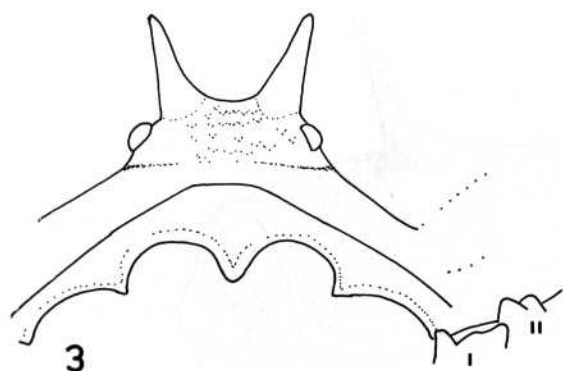
Coloration. Background of dorsal scute light yellow with black pigmentation only interrupted along grooves, in transversal zones on areas I, II and IV, in the cephalothorax and around the granules of the lateral margins. Spines of eye mound, tubercles of areas I and II and paired granules of free tergites light yellow; spines of area III black. Chelicerae, pedipalpus and podomeres light yellow with black mottling, femora I—IV with denser reticle. Coxae light brown, free sternites and anal opercle dark brown.

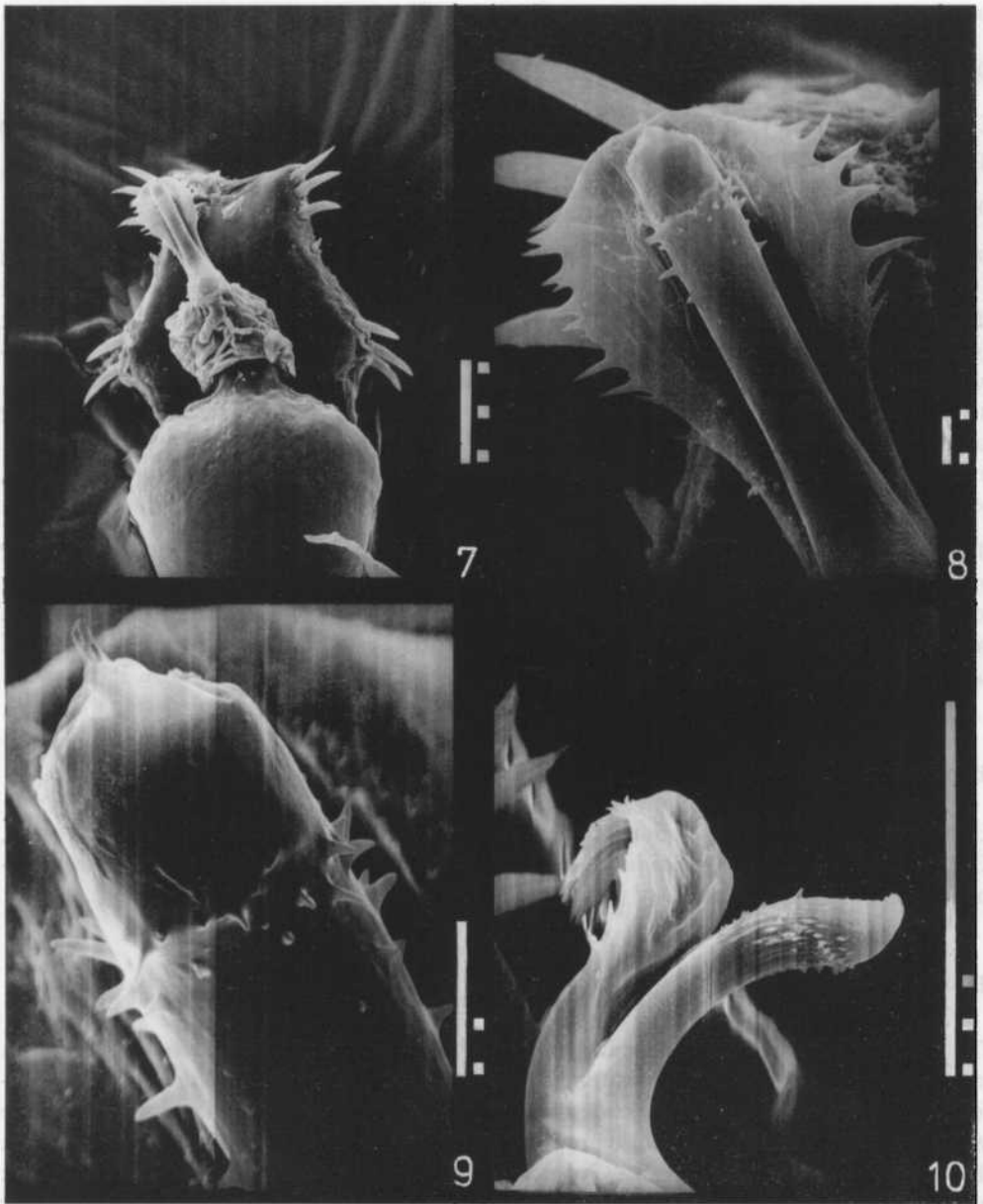
Female. There is no marked sexual dimorphism except for the abdomen slightly more swollen in females, as happens in the other mitobatines, and the leg IV much less lengthened. Proportion of femora I—IV is 1 : 2 : 2 : 3; the length of metatarsus IV is comparable to metatarsus III, while in the male it is almost the double; tibia IV is shorter than tibia II, while in the male it is longer. Measurements of female paratype (ZMB 29.849): dorsal scute 5.09 long; cephalothorax 2.19 long, 3.68 wide; abdominal scute 2.90 long, 4.97 wide. Appendage measurements in Table 1. There is no difference between male and female in bulk of basitarsomeres (Fig. 5) and in tarsal segmentation as can be judged from the three females studied, in contrast with the pattern of the subfamily. Ratio calcaneus/astragalus of metatarsi I—IV: 0.5 : 0.2 : 0.2 : 0.1.

Genitalia. (Figs. 7—9). Penis 3.66 long. Truncus long and slender. Ventral plate (Fig. 7) trapezoidal, with sides curved to the inside; armed with two groups of straight and robust setae, three basal (III) and four distal (iIII). Glans bifid; ventral branch ("fan") (Fig. 8) spoon-like, bordered with sharp marginal sclerites of unequal size; dorsal branch ("stylus") (Fig. 9) cylindrical, straight, provided with tubercles at distal part, except in the apex, ending with a pin-like tip.



Legend see p. 357





Figs. 1–9. *Ischnotherus tenebrosus* n. sp. — Figs. 1–4: male holotype, 1 habitus, lateral view; 2 habitus, dorsal view; 3 eye mound and anterior margin of cephalothorax, frontal view; 4 left pedipalpus, ventral view. — Figs. 5–6: left tarsus of leg I, 5 male; 6 female. — Figs. 7–9: male paratype genitalia, 7 distal part of penis, dorsal view; 8 glans, dorsal view; 9 dorsal branch of glans

Figs. 10–11. *Ischnotherus pardus* (KURY) male DZUFJRJ 0498. — 10 glans penis, lateral view; 11 eye mound, frontal view. (Scale bars are: 1 mm for Figs. 1–6 and 11; 100 μ m for Figs. 7 and 10; 10 μ m for Figs. 8–9.)

Ischnotherus pardus (KURY) new combination (Figs. 10–11)

Discocyrtoides pardus KURY, 1989a: 9, figs. 1–6.

Etymology. From Greek párdos through latin pardus = panther; referring to the spotted colour pattern of the legs.

Distribution. Known only from the type locality.

Diagnosis. Distinguished from *I. tenebrosus* by the unarmed areas I and II and tarsus I 6-segmented in both sexes. As autapomorphies can be cited: 1) the unique arrangement of the triangular sclerites in longitudinal rows forming a "collar" around the stylus; 2) the narrowed ventral branch of glans. See Table 3 for variation of tarsomeres. A summary of pedipalpal tibia spination is given in Table 2. The "panther-like" reticle of femora, cited in my original description of *I. pardus* results from the light spots surrounding each granule over the black background. This condition is also found in *D. maculatus*. In *I. tenebrosus*, the reticle is less evident due to the overall black shading in the legs, perhaps an autapomorphic condition.

Material examined. Espírito Santo, Brazil: Male holotype, 1 male paratype (MZUSP 10.049 and 10.050 — formerly DZUFRJ 0112 and 0113), Fazenda Santa Maria, Apiacá, 10 June 1985 (R. L. C. Baptista), 1 male paratype (MNRJ, formerly DZUFRJ 0117), same locality 22 September 1985 (R. L. C. Baptista); 6 males, 1 female (DZUFRJ 0498), Fazenda Rio Doce, Apiacá, 24–25 June 1989 (R. L. C. Baptista/A. P. Chaves).

Distribution

I. tenebrosus is apparently endemic to the Reserva Biológica Santa Lúcia, Santa Teresa, ES (20° 01' S, 40° 26' W). *I. pardus* is completely isolated in vestigial woods in the extreme southern part of ES (21° 05' S, 41° 31' W).

Habitat

The species of *Ischnotherus* occur in very dark environments. *I. tenebrosus* was found in groups beneath large rocks by waterfalls (as are the species of *Mitobates* of Rio de Janeiro). The type series of *I. pardus* was collected from (?mammal) burrows on ravine walls, while additional material came from under surfaces of large rocks piled near a cliff in woods, away from streams. *I. tenebrosus* and *I. pardus* cohabit with one different species of *Goniosoma* PERTY (Gonyleptidae: Goniosomatinae) each, as do many other Mitobatinae.

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Address of the author: ADRIANO B. KURY, Depto de Zoologia — UFRJ, CCS Bloco A, Ilha da Cid. Univ., 21.941 Rio de Janeiro, Brazil