First record of Stygnidae for the state of Espírito Santo and description of a new *Protimesius* (Arachnida: Opiliones: Laniatores)

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ABSTRACT. *Protimesius osvaldoi* **sp. nov.** is described from the Reserva Biológica de Sooretama, state of Espírito Santo, southeastern Brazil, being the first record of Stygnidae from this State and the southernmost record of the family in the Brazilian Atlantic Forest (hitherto, the family was recorded down to Bahia only), extending in 210 km south of the previously known distribution. This is a large species, with armature of leg IV very reduced and penial morphology differing from the closest counterparts mainly in the ventral plate, which recedes deeply at the lateral borders and has the distal margin curved ventrally and by the presence of two small intermediate setae. *Protimesius* Roewer, 1913 consisted hitherto of 17 species, recorded from northern/northeastern Brazil and Amazonia of adjacent countries. A key is given for the 17 species of *Protimesius* for which males are known.
KEY WORDS. Atlantic Forest; harvestmen; neotropics.

RESUMO. **Primeiro registro de Stygnidae para o estado do Espírito Santo e descrição de um novo *Protimesius* (Arachnida: Opiliones: Laniatores).** *Protimesius osvaldoi* **sp. nov.** é descrita da Reserva Biológica de Sooretama, Espírito Santo, sudeste do Brasil, sendo considerado o primeiro registro de Stygnidae para este Estado (até então a distribuição registrada para a família se estendia apenas até a Bahia) e o registro mais ao sul na Floresta Atlântica, aumentando em 210 km ao sul a distribuição do grupo. *Protomesius osvaldoi* é uma espécie de tamanho grande, com armação reduzida na perna IV e placa ventral. *Protimesius* possui 17 espécies, registradas no norte e nordeste do Brasil e Região Amazônica. É apresentada uma chave para as 17 espécies de *Protimesius* com machos conhecidos.
PALAVRAS-CHAVES. Floresta Atlântica; neotrópico; opiliões.

Protimesius Roewer, 1913 includes median-large Stygnidae with unpectinate claws and long legs and pedipalpus. They are distributed from central-western (Mato Grosso), northeastern (Bahia, Maranhão, Paraíba) and northern Brazil (Acre, Amapá, Amazonas, Pará, Rondônia) to the Peruvian Amazonian region, French Guiana and Surinam. (Kury 2003, Villarreal-Manzanilla & Pinto-da-Rocha 2006). In a recent review of the family (Pinto-da-Rocha 1997) 10 species were included in the genus. Later, six more were added to the generic composition, one by Pinto-da-Rocha (2000) and five by Villarreal-Manzanilla & Pinto-da-Rocha 2006.

In the present paper, a new species of *Protimesius* is described, representing the first record of the Stygnidae from the Brazilian state of Espírito Santo (southeastern Brazil). This record is the southernmost hitherto published for the genus and also for Stygnidae considering the Atlantic Forest biome. The previous most meridional record from Atlantic Forest was *Protimesius mendopticus* (H. Soares, 1978) from Prado, state of Bahia, 210 km to the north. Nevertheless, Stygnidae is still unknown from south of the Rio Doce, which seems to be a major division for the opilionofaunas in the forest biome (Pinto-da-Rocha *et al*. 2005). Outside the Atlantic Forest, in the Cerrado (savannah) biome, the southernmost record for the family is that of *Stygnus multispinosus* (Piza, 1938) from Aquidauana (state of Mato Grosso do Sul) and Ilha Solteira (state of São Paulo), both close to parallel 20ºS (therefore 1 degree southerner than the present record) in the semi-arid diagonal of the Neotropics.

Color names follow the NBS/ISCC color centroids system (see Kury & Orrico 2006 for details, also http://www.anthus.com/Colors/Cent.html). Abbreviations of depository institutions are: (MNRJ) Museu Nacional, Universidade Federal do Rio de Janeiro, curator: A.B. Kury, and (MZSP) Museu de Zoologia, São Paulo, curator: R. Pinto-da-Rocha. Measurements are in millimeters.

Protimesius osvaldoi sp. nov.

Type material. Male holotype from Brazil, *Espírito Santo*: Barrancos (REBIO Sooretama, 19.0012S, 040.1392W, 93 m), Project AMMA Expedition (A. Giupponi, A. Kury, C. Sampaio, E. Vasconcelos, E. Wienskoski, T. Bernabé & T. Souza *leg*.), 19.IV.2006, free nocturnal collecting. Paratypes: four males and

three females (MNRJ 17860); one male and one female (MZSP-28719) from the same locality as holotype; Four males and three females (MNRJ 17859) from Brazil, *Espírito Santo*: Quirinão (REBIO Sooretama, 19.022753S, 040.124307W), Project AMMA Expedition , 20.IV.2006, free diurnal collecting. WWF Ecoregion NT0103 (Bahia Coastal Forests).

Etymology. The species is named after our friend Osvaldo "Camomila" Villarreal Manzanilla, who is starting a productive career on Opiliones systematics , focusing especially on Stygnidae.

Diagnosis. *Protimesius osvaldoi* can be distinguished from other members of the genus by the following combination of characters: white band on posterior margin of dorsal scutum (Figs 1 and 2); dorsal scutum with minute granules (Fig. 1); male femur and tibia IV smooth, male patella IV with only two dorso-apical tubercles (Figs 5 and 6). The penis resembles that of *P. carnaval* (Villarreal & Pinto-da-Rocha 2006, figs 44 and 45) and *P. gracilis* (Pinto-da-Rocha 1997, figs 543 and 544) by the presence of three pairs of setae on basal and also on apical ventral plate, but differs by the shape of the ventral plate, which recedes deeply at the lateral borders and has the distal margin curved ventrally and by the presence of two small intermediate setae (Figs 7-9).

Description. Male holotype. Measurements: dorsal scutum length 5.2; width 4.2; prosoma length 2.7; width 3.8; interocular distance 2.5; cheliceral segment II 6.2; III 2.7; pedipalpus 23; leg I 26; II 49; III 36; IV 48.

Dorsum (Figs 1 and 2). Dorsal scutum rectangular, minute granulate, slightly constricted at area III, entirely glossy and unarmed except for a pair of high erect paramedian spiniform apophyses in area III. Mesotergum divided into four areas, area I divided into left and right halves. Scutal groove strongly projected into area I. Eye mounds smooth, widely separated, placed vertically more or less at external pedipalpus line and horizontally at coxa III line. Frontal hump of carapace roughly spherical, low unarmed. Free tergites unarmed.

Chelicera. Basichelicerite comparable in size with pedipalpal coxa. Bulla well developed. Hands heavily swollen; finger II with two large basal and three smaller teeth; III with one large basal and one smaller.

Pedipalpus (Figs 3 and 4). Coxa with five dorsal and seven ventral tubercles. Trochanter deformed to accommodate cheliceral hand, with three ventral tubercles. Femur very long. Tibia distally growing thin, with IIiIii ectal and IIiIii mesal setae. Tarsus with Iiii ectal and IiIii mesal spines. Claw as long as tarsus.

Legs. All podomeres straight, smooth and unarmed, except for trochanter IV with three ventral tubercles and for patella IV subapically triangular-shaped and with a pair of apical spurs (Figs 5 and 6). Tarsal counts: 7, 19, 6, 7. With scopulae.

Color. Body and appendages background brownish orange with deep brown reticulation and mottling, specially honeycombed on the cheliceral hands, white membrane between posterior margin and free tergite I.

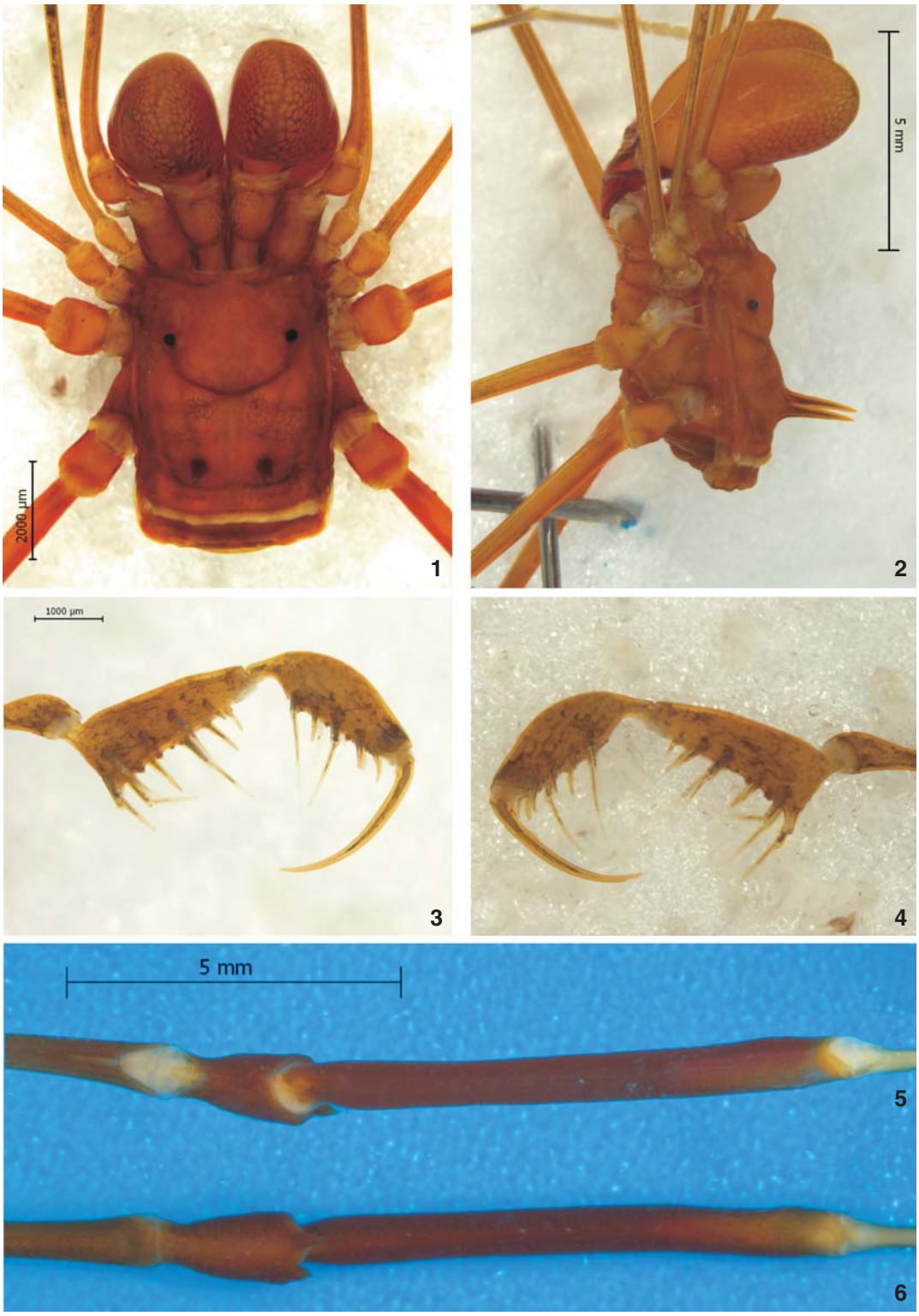
Genitalia (Figs 7-9). Apical portion of truncus swollen, forming a setigerous ventral plate which is continuous to the truncus (not clearly articulated). Ventral plate distal half resembling a narrow tongue, slightly curved at the apex with distal border slightly concave. Ventral plate abruptly truncated transversally on the dorso-basal part, forming a supporting platform for the glans complex. Setae paired, arranged in four groups: 1) latero-basal, with three pairs of foliaceous large setae; 2) ventro-lateral median, with two pairs of very small acuminate setae; 3) latero-distal, with three pairs of large spatulate setae with wrinkled apex; 4) dorso median, with one pair of very small acuminate setae flanking the glans. Glans sac short, giving rise to long and thin dorsal process and stylus strongly bent into a straight angle with a few acuminate distal granules.

Female (Paratype, MZSP- 28719). Dorsal scutum length 4.7; width 3.8; prosoma length 2.1; width 3.3; interocular distance 1.8; cheliceral segment II 2.7; III 1.5; pedipalpus 21; leg I 22; II 45; III 34; IV 44. Similar to male except by leg IV smooth and cylindrical; tarsal counts: 7, 16/17, 6, 7.

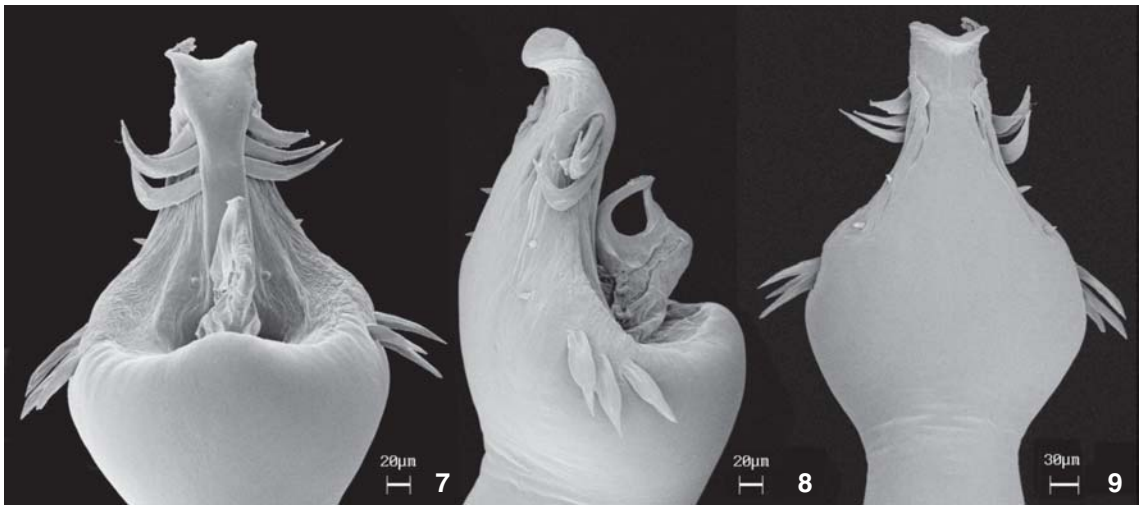
Key for males of 17 species of *Protimesius*

***** Males of *P. coxalis* (Roewer, 1931) and *P. palpalis* are unknown.

1. Femur and patella IV without tubercles 2
1′. Femur and patella IV tuberculate 3
2. Tibia IV armed with two ventroapical tubercles (Pinto-da-Rocha 2000, fig. 3) ..... *P. apiacas* Pinto-da-Rocha, 2000
2′. Tibia IV unarmed (Pinto-da-Rocha 1997, fig. 401) .... *P. longipalpis* (Roewer, 1943)
3. Trochanter IV with one dorsal, long and acute tubercle (Pinto-da-Rocha 1997, fig. 392) 4
3′. Trochanter IV without an acute and long tubercle 5
4. One ventral row of similar-sized tubercles of on ventral femur IV; dorsal region smooth .... *P. cirio* Villarreal & Pinto-da-Rocha, 2006
4′. Two ventral rows of tubercles on femur IV (longer tubercles on middle); dorsal region with one row (Pinto-da-Rocha 1997, figs 392 and 393) ..... *P. laevis* (Sørensen, 1932)
5. Patella IV with a dorsal row of tubercles (at least four) increasing in size apicad 6
5′. Patela IV without a dorsal row of tubercles 9
6. Tibia IV with a dorsal row of acute tubercles 7
6′. Tibia IV without dorsal tubercles 8
7. Tibia IV with one dorsal row of tubercles from the base almost to the apex; prosoma with medio-anterior mound (Pinto-da-Rocha 1997, figs 371 and 376) .... *P. evelineae* (Soares & Soares, 1978)
7′. Tibia IV with one dorsal row of tubercles on 1/3 basal; prosoma without medio-anterior mound (Pinto-da-Rocha 1997, figs 371 and 376) .... *P. foliadereis* Villarreal & Pinto-da-Rocha, 2006
8. Femur IV with ventral row small tubercles on 1/5 apex (Pinto-da-Rocha 1997, fig. 392) ..... *P. amplichelis* (Roewer, 1931)



Figures 1-6. *Protimesius osvaldoi* **sp. nov.**, male paratype: (1) habitus, dorsal view; (2) same, lateral view; (3) left pedipalpus, tibia and tarsus, mesal view; (4) same, ectal view; (5) patella and tibia IV, ventral view; (6) same, dorsal view.



Figures 7-9. *Protimesius osvaldoi* **sp. nov.**, male paratype. Penis, distal portion, respectively dorsal, lateral and ventral views.

8′. Femur IV with one ventral retrolateral row of tubercles on 2/3 apical (Villarreal-Manzanilla & Pinto-da-Rocha 2006, fig. 21) ..... *P. boibumba* Villarreal & Pinto-da-Rocha, 2006

9.Tibia IV clavate; femur IV with two small lateral rows of tubercles at base (Villarreal-Manzanilla & Pinto-da-Rocha 2006, fig. 13).... *P. junina* Villarreal & Pinto-da-Rocha, 2006

9′. Tibia IV cylindrical and femur without lateral rows of tubercles at base 10

10. Tibia IV without tubercles 11

10′. Tibia IV tuberculate 13

11. Femur IV very tuberculate in all regions (Pinto-da-Rocha 1997, figs 408 and 409) .. *P. mendopticus* (H. Soares, 1978)

11′. Femur IV only with tubercles on ventro-apical region or smooth 12

12. Femur IV with tubercles on ventro-apical region (Villarreal-Manzanilla & Pinto-da-Rocha 2006, fig. 35) .... *P. carnaval* Villarreal & Pinto-da-Rocha, 2006

12′. Femur IV smooth ..... *P. osvaldoi* **sp. nov.**

13. Leg IV short (30 mm) and tuberculate on all sides (Pinto-da-Rocha 1997, fig. 378) ..... *P. gracilis* Roewer, 1913

13′. Leg IV long (37-41 mm) and weakly tuberculate (lateral and dorsal regions of femur and tibia smooth) 14

14. One white band on posterior margin of dorsal scutum .... *P. albilineatus* (Roewer, 1957)

14′. Two white spots on posterior margin of dorsal scutum .. .. *P. trocaraincola* Pinto-da-Rocha, 1997

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