

**First record of *Porcellionides pruinosus* (Brandt, 1833)
(Oniscidea: Porcellionidae) from Trindade Island,
off Espírito Santo state coast, Brazil**

Luana L. Souza¹, Hugo J. C. C. Azevedo¹, André B. Vargas¹,
André R. Senna^{1*} & Leila A. Souza²

ABSTRACT: A species of the terrestrial isopod genus *Porcellionides* Miers, 1878 have a new record presented in this paper. *Porcellionides pruinosus* (Brandt, 1833), previously known in Brazil only from the states of Pará, Bahia, São Paulo, Santa Catarina, and Rio Grande do Sul, is recorded for the first time from Trindade Island, 1,140 km off Espírito Santo state coast. *Porcellionides pruinosus* is commonly recorded from urban habitats, being this record its first from an oceanic island.

Keywords: Crustacea, Isopoda, new record, oceanic island, Brazil.

RESUMO: Primeiro registro de *Porcellionides pruinosus* (Brandt, 1833) (Oniscidea: Porcellionidae) para a Ilha da Trindade, ao largo da costa do estado do Espírito Santo, Brasil. Uma espécie de Isopoda terrestre do gênero *Porcellionides* Miers, 1878 tem um novo registro apresentado neste artigo. *Porcellionides pruinosus* (Brandt, 1833), previamente conhecido no Brasil apenas para os estados do Pará, Bahia, São Paulo, Santa Catarina e Rio Grande do Sul, é registrado pela primeira vez para a Ilha da Trindade, 1.140 km ao largo da costa do estado do Espírito Santo. *Porcellionides pruinosus* é comumente registrado em ambientes urbanos, sendo este seu primeiro registro em uma ilha oceânica. **Palavras-chave:** Crustacea, Isopoda, novo registro, ilha oceânica, Brasil.

Introduction

According to Schmidt (2008), in his proposed classification of Oniscidea, the terrestrial isopods include 28 families; most of them occurring in the

¹ Centro Universitário de Volta Redonda (UniFOA), Curso de Ciências Biológicas. Av. Paulo Erlei Alves Abrantes, 1.325, Três Poços, CEP: 27240-560, Volta Redonda, RJ, Brasil, <http://www.unifoa.edu.br/>.

² Universidade Estadual do Ceará (UECE), Campus do Itaperi, Instituto Superior de Ciências Biomédicas, Laboratório de Carcinicultura. Av. Dedé Brasil, 1.700, CEP: 60740-903, Fortaleza, CE, Brasil, <http://www.uece.br/uece/>.

*Corresponding author: senna.crustacea@gmail.com

Recebido: 3 jan 2013. Aceito: 8 jul 2013

Neotropics (Souza *et al.*, 2010). Currently, there are about 130 species of Oniscidea recorded from Brazil (Souza-Kury, 1998; Araujo & Leistikow, 1999; Schmalfluss, 2003; Araujo & Almerão, 2007; Campos-Filho & Araujo, 2011; Souza *et al.*, 2011; Campos-Filho *et al.*, 2012, 2013), but this knowledge is still scarce when compared with is known on the Brazilian biodiversity, considered a mega-diverse country (Mittermeier, 1988; Marques & Lamas, 2006) or even the Atlantic Forest, one of the five biggest hotspots for the biodiversity around the world (Myers *et al.*, 2000).

According to Castro (2009), Trindade Island presents 13 km² of area, and is situated 1,140 km off the coast of the Brazilian state of Espírito Santo, in the same parallel of its capital, the municipality of Vitória (Figure 1). There are seven species of isopods recorded from this island: *Diploexochus echinatus* Brandt, 1833, *Calycuoniscus bodkini* Collinge, 1915, *C. spinosus* Collinge, 1917, *Ligia platycephala* (Van Name, 1925), *Tylos wegeneri* Vandel, 1952, *Venezillo clausus* (Budde-Lund, 1885), and *V. venustus* (Budde-Lund, 1893) (Souza-Kury, 1998; Schmalfluss, 2003).

The terrestrial isopod genus *Porcellionides* Miers, 1878 is compound by runner, gregarious and mesic species. According to Schmalfluss (2003), there are 51 species grouped in this genus, and four of them, *Porcellionides advena* (Stuxberg, 1872), *P. pruinus* (Brandt, 1833), *P. schwencki* (Moreira, 1927), and *P. sextasciatus* (Kock, 1847), are recorded from Brazil (Souza-Kury, 1998).

Material and Methods

A survey at the Trindade Island (20°31'29"S - 29°19'29"W), off the Espírito Santo state coast, 1,140 km Eastern from the municipality of Vitória, was carried out in March 2010, resulting in the collection of three specimens of the terrestrial isopod species *P. pruinus*. Material was collected from Desejado Peak, 620 m of altitude, manually from the litter. The examined specimens are preserved in ethanol 70% and housed at the Crustacea Collection of the *Museu Nacional, Universidade Federal do Rio de Janeiro* (MNRJ).

Results

Porcellionides pruinus (Brandt, 1833)

Material examined: 1 male, 9.0 mm, 1 female, 8.0 mm, 1 female, 6.0 mm, Brazil, Trindade Island, Desejado Peak, 620 m of altitude, 20°31'29"S - 29°19'29"W, 22 March 2010, from litter, Alves, R. J. V. col., MNRJ 23432.

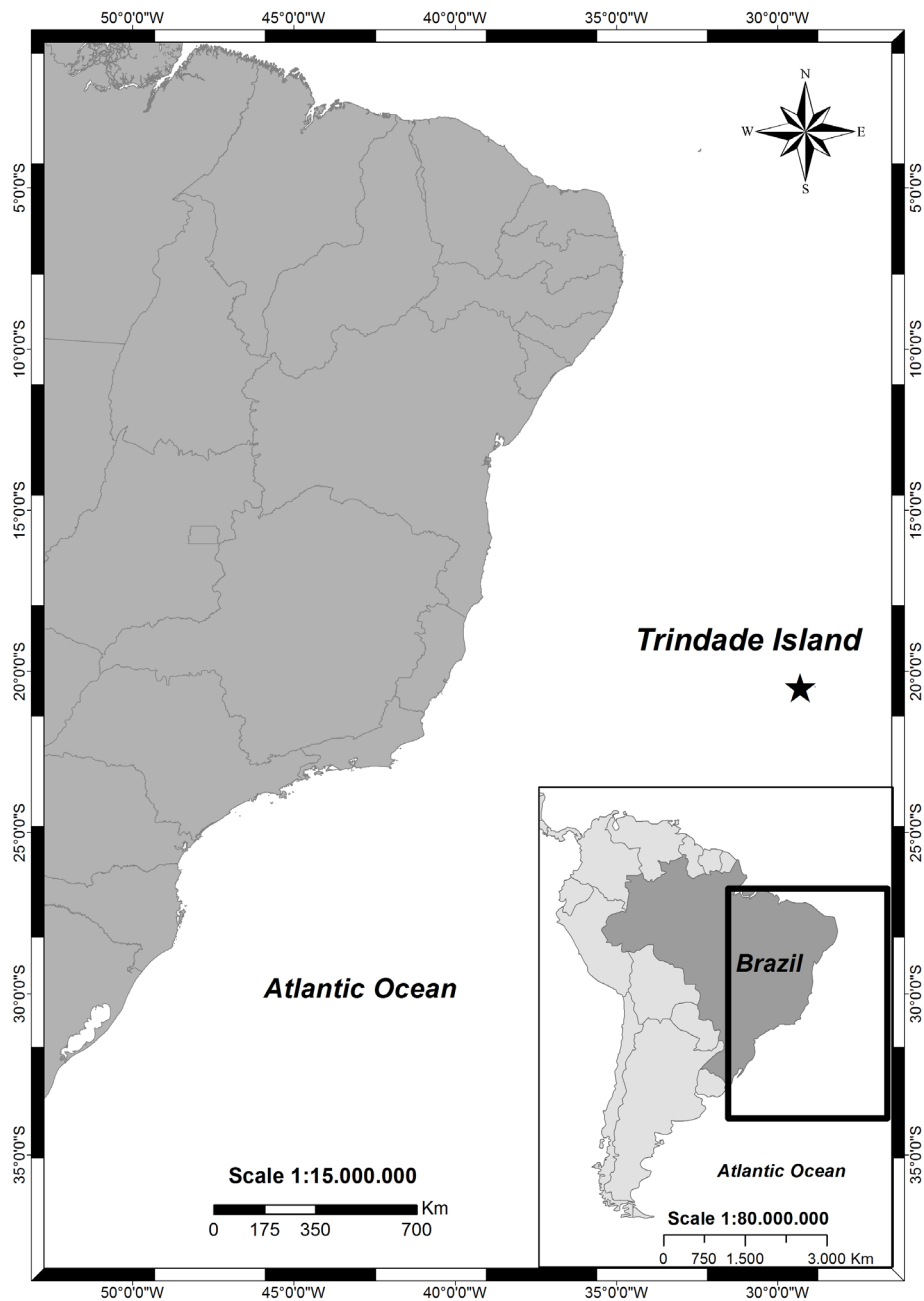


Figure 1. Sampling locality of *Porcellionides pruinosus* (Brandt, 1833), Brazil, Trindade Island, Desejado Peak, 620 m of altitude, 20°31'29"S - 29°19'29"W.

Diagnosis. The mtDNA of *Porcellionides pruinosus* (like that of *Armadillidium vulgare*) is unique among metazoan, it is composed of circular “head-to-head” dimers (28 kb) and linear monomers (14 kb) both transmitted maternally, and no circular monomers (Doublet *et al.*, 2012). Tricorns are present all over the dorsal body surface with very obtusely angled arms and rows of spherical structures are also present. Uropods and the pleon epimera are a shade of orange (Holdich, 1984).

Description. Pigmentation after conserved in ethanol 70%, brown with small bright patches. Antenna elongate, flagellum 2-articulate, article 1 about twice as long as article 2. Maxilla 1, outer plate with 4+6 robust setae (being 4 apically bifid). Maxilliped, inner plate bearing three small curved spines in the distal margin. Pereonites covered by small tubercles. Pleopod 1 of male, exopod piriformis; pleopods 1-2, exopod bearing pleopodal lungs. Uropod, outer ramus tapering distally, about 3X the inner ramus length. Telson subtriangular, with acute apex.



Figure 2. *Porcellionides pruinosus* (Brandt, 1833): male, 9.0 mm, from Brazil, Trindade Island, Desejado Peak, 620 m of altitude, 20°31'29"S - 29°19'29"W, 22/III/2010, from litter, Alves, R.J.V. col., MNRJ 23432. Scale bar: 5.0 mm.

Discussion

The specimens analyzed does not present the grey-whitish aspect caused by its tegument pruinosity, described by Araujo *et al.* (1996). However, the authors cite this characteristics present only in live specimens, not describing their tegument appearance after conserved in ethanol. *Porcelionides pruinosus* presents a cosmopolitan distribution, introduced in South America (Ferrara & Taiti, 1981), being recorded in Brazil from Pará, Bahia, São Paulo, Santa Catarina, and Rio Grande do Sul, besides Venezuela and Argentina (Araujo *et al.*, 1996; Souza-Kury, 1998).

This is the first recorded of *P. pruinosus* from Trindade Island. Furthermore, this is the first record of *P. pruinosus* from an oceanic island, once it is commonly recorded from urban habitats. This species was probably accidentally introduced in Trindade Island during reforestation projects carried out in the island. The reforestation area is located next to the Axial Plateau, an area that houses the highest elevations on the island, including Desejado Peak, the sampling site of the examined material (Alves, 1998; Clemente *et al.*, 2011). The native vegetation, an extensive forest of *Colubrina glandulosa* (Perkins), was degraded by the goats, introduced in the island during the Eighteenth Century (Duarte & Horta, 2012).

In the future, population studies on this species would be quite interesting. As it is a species adapted to urban habitats, it could have an advantage in competition for resources with other onicideans in forest remnants.

Acknowledgements

This study was in part financially supported by *Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro* (FAPERJ) as grant given to one of the authors (ARS), process No. E-26/110.773/2012. This project also received financial support from *Núcleo de Pesquisa do Centro Universitário de Volta Redonda* (NUPE-UniFOA). The distribution map was made by Danielle P. Cintra, from UniFOA and *Instituto de Geociências/Universidade Federal do Rio de Janeiro* (IGEO/UFRJ).

Literature Cited

Alves, R.J.V. 1998. Ilha da Trindade & Arquipélago Marin Vaz: um ensaio geobotânico. Serviço de Documentação da Marinha, Rio de Janeiro.

- Araujo, P.B. & Almerão, M. 2007. Nova espécie de *Trichorhina* (Isopoda, Oniscidea, Platyarthrydae) do Brasil. *Iheringia, Série Zoologia*, 97(2): 219–222.
- Araujo, P.B., Buckup, L. & Bond-Buckup, G. 1996. Isópodos terrestres (Crustacea, Oniscidea) de Santa Catarina e Rio Grande do Sul, Brasil. *Iheringia, Série Zoologia*, 81: 111–138.
- Araujo, P.B. & Leistikow, A. 1999. Philosciids with pleopodal lungs from Brazil, with description of a new species (Crustacea, Isopoda). *Contributions to Zoology*, 68(2): 109–141.
- Brandt, J.F. 1833. Conspectus monographiae crustaceorum oniscidorum latreillii. – *Bulletin de la Société Impériale des naturalistes de Moscou*, 6: 171–193.
- Budde-Lund, G. 1885. *Crustacea Isopoda Terrestria per Familia et Genera et Species Descripta*. p. 1–319.
- Budde-Lund, G. 1893. Landisopoder fra Venezuela, indsamlede af Dr. Fr. Meinert. *Entomologiske Meddelelser*, 4: 111–129.
- Campos-Filho, I.S. & Araujo, P.B. 2011. New species of *Benthana* Budde-Lund, 1908 (Crustacea: Oniscidea: Philosciidae) from Paraná, Brazil. *Zootaxa*, 2765: 38–46.
- Campos-Filho, I.S., Contreira, S.G. & Lopes-Leitzke, E.R. 2012. A new species of *Atlantoscia* Ferrara & Taiti, 1981 (Oniscidea: Philosciidae) from Rio Grande do Sul, Brazil. *Nauplius*, 20(2): 137–144.
- Campos-Filho, I.S., Lisboa, J.T. & Araujo, P.B. 2013. Review of *Atlantoscia* Ferrara & Taiti, 1981 (Crustacea: Isopoda: Oniscidea: Philosciidae) with new records and new species. *Organisms Diversity & Evolution*, <http://dx.doi.org/10.1007/s13127-013-0124-8>.
- Castro, J.W.A. 2009. Geologia Ambiental das Ilhas da Trindade e Fernando de Noronha - Brasil. In *Ilhas Oceânicas Brasileira: Pesquisa e Manejo*, Vol. II. Mohr, L.V., Castro, J.W.A. & Alves, R.J.V. (Org.). Brasília: MMA. p. 35–53.
- Clemente, E.P., Schaefer, C.E.R.G. & Oliveira, F.S. 2011. Proposta de zoneamento ambiental para a Ilha de Trindade (ES). *Boletim de Pesquisa e Desenvolvimento*, 171: 1–27.
- Collinge, W.E. 1915. Description of a new genus and species of terrestrial Isopoda from British Guiana. *Journal of the Linnean Society, Zoology*, 32: 509–511, pl. 50.
- Collinge, W.E. 1917. Description of *Paracubaris spinosus*, a new genus and species of terrestrial isopoda from British Guiana. *Journal of the Linnean Society, Zoology* 34: 61–63, pl. 6.
- Doublet, V., Raimond, R., Grandjean, F., Lafitte, A., Souty-Grosset, C. &

- Marcade, I. 2012. Widespread atypical mitochondrial DNA structure in isopods (Crustacea, Peracarida) related to a constitutive heteroplasmy in terrestrial species. *Genome*, 55(3): 234–244.
- Duarte, R.H. & Horta, G.C.M.M. 2012. Barth e a Ilha da Trindade, 1957-1959. *História, Ciências, Saúde–Manguinhos*, 19(3): 951–968.
- Ferrara, F. & Taiti, S. 1981. Terrestrial isopods from Ascension Island. *Monitore Zoologico Italiano*, 13(Suppl. 14): 189–198.
- Holdich, D. 1984. The cuticular surface of woodlice: A search for receptors. *Symposium at the Zoological Society of London*, 53: 9–48.
- Koch, C. 1847. *System der Myriapoden, mit den Verzeichnissen und Berichtigungen zu Deutschlands Crustaceen, Myriapoden und Archniden*; 270 p.; Isopoden: 201–212, 220–225, pls. 8–9.
- Marques, A.C. & Lamas, C.J.E. 2006. Taxonomia zoológica no Brasil: estado da arte, expectativas e sugestões de ações futuras. *Papéis Avulsos de Zoologia*, 46: 139–174.
- Miers, E.J. 1878. On a collection of Crustacea, Decapoda and Isopoda, chiefly from South America, with descriptions of new genera and species. *Proceedings of the Zoological Society of London*, 43: 653–679, pls. 66–69.
- Mittermeier, R.A. 1988. Primate diversity and the tropical forest: Case studies from Brazil and Madagascar and the importance of the megadiversity countries. In: *Biodiversity*. Wilson, E.O. (Ed.). Washington D.C.: National Academy Press. p. 145–154.
- Moreira, C. 1927. Duas espécies novas de crustáceos isópodes terrestres do Brasil. *Boletim Biológico. Laboratório de Parasitologia. Faculdade de Medicina de São Paulo*, 10: 194–200.
- Myers, N., Mittermeier, R.A., Mittermeier, C.G., Fonseca, G.A.B. & Kents, J. 2000. Biodiversity hotspots for conservation priorities. *Nature*, 403: 853–858.
- Schmalzfuss, H. 2003. World catalog of terrestrial isopods (Isopoda: Oniscidea). *Stuttgarter Beitr. Naturk.*, A 654: 1–34. Revised and Updated Version: http://www.oniscidea-catalog.naturkundemuseum-bw.de/Cat_terr_isop.pdf (12 May 2013).
- Schmidt, C. 2008. Phylogeny of the Terrestrial Isopoda (Oniscidea): a review. *Arthropod Systematics and Phylogeny*, 66(2): 191–226.
- Souza, L.A., Senna, A.R. & Kury, A.B. 2010. A new species and first record of *Gabunillo* Schmalzfuss & Ferrara, 1983 (Isopoda, Oniscidea, Armadillidae) from the Neotropics. *Zootaxa*, 2677: 1–14.
- Souza, L.A., Araújo, J.P. & Campos-Filho, I.S. 2011. The genus *Trichorhina* Budde-Lund in Brazil, with description of seven new species (Isopoda,

- Oniscidea, Platyarthridae). *Iheringia, Série Zoologia*, 101(3): 239–261.
- Souza-Kury, L.A. 1998. Malacostraca - Peracarida. Isopoda. Oniscidea. In: *Catalogue of Crustacea of Brazil*. Young, P.S. (Ed.). Rio de Janeiro: Museu Nacional. p. 653–674.
- Stuxberg, A. 1872. Tvenne nya Oniscider, bescripne. *Öfversigt af kongliga Vetenskaps-Akademiens Förhandlingar*, 29: 3–6.
- Van Name, W.G. 1925. The isopods of Kartabo, Bartica District, British Guiana. *Zoologica*, 6: 461–503.
- Vandel, A. 1952. Étude des isopodes terrestres récoltés au Vénézuéla par le Dr. G. Marcuzzi. *Memorie del Museo civico di Storia naturale di Verona*, 3: 59–203.