



## TERRESTRIAL ISOPODS (CRUSTACEA, ONISCIDEA) FROM ROCAS ATOLL, NORTHEASTERN, BRAZIL <sup>1</sup>

(With 15 figures)

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**ABSTRACT:** Four Oniscidea species are recorded from Rocas Atoll, State of Rio Grande do Norte: *Olibrinus antennatus* Budde-Lund, 1902, *Littorophiloscia culebrae* (Moore, 1901), *Niambia squamata* (Budde-Lund, 1885) and *Porcellionides pruinosus* (Brandt, 1833). These are the first records of terrestrial isopods from Rocas Atoll. *Littorophiloscia culebrae* is recorded for the first time from Brazil. *Niambia atracheata* (Schmalfuss & Ferrara, 1978) is considered to be a junior synonym of *N. squamata*.

**Key words:** Terrestrial isopods. Oniscidea. Rocas Atoll. Brazil. New synonymy.

**RESUMO:** Isópodos terrestres (Crustacea, Oniscidea) do Atol das Rocas, nordeste do Brasil.

Quatro espécies de Oniscidea são registradas para o Atol das Rocas, no Estado do Rio Grande do Norte: *Olibrinus antennatus* Budde-Lund, 1902, *Littorophiloscia culebrae* (Moore, 1901), *Niambia squamata* (Budde-Lund, 1885) e *Porcellionides pruinosus* (Brandt, 1833). Estes são os primeiros registros de isópodos terrestres para o Atol das Rocas. *Littorophiloscia culebrae* é registrada pela primeira vez para o Brasil. *Niambia atracheata* (Schmalfuss & Ferrara, 1978) é considerada sinônimo júnior de *N. squamata*.

**Palavras-chave:** Isópodos terrestres. Oniscidea. Atol das Rocas. Brasil. Nova sinonímia.

### INTRODUCTION

Terrestrial isopods are widely distributed and vary greatly in their mode of life and habitat. They can be found from the littoral zone to desert areas, as well as forests, grasslands, ant and termite nests, bromeliads and caves. About 120 species of terrestrial isopods are recorded from Brazil (SOUZA-KURY, 1998; LEISTIKOW & WÄGELE, 1999; SCHMALFUSS, 2003). Only one species has been recorded previously from the State of Rio Grande do Norte: *Atlantoscia floridana* (van Name, 1940), collected in the city of Maracaíba (LEMONS DE CASTRO, 1985). The present paper deals with terrestrial isopods collected from the coralline islands of Rocas Atoll off the coast of Rio Grande do Norte (between 3°45'S and 3°56'S and 33°37'W and 33°56'W), where no oniscidean species were previously known. Four species have been recognized, all certainly introduced by passive dispersal across the ocean or through human activities. Shell

fragments, bones of birds and fishes, and vegetal debris are dispersed on the islands (IBAMA, 2006). The latter can represent the food source for the terrestrial isopods that inhabit the atoll.

Institution abbreviations are: Natural History Museum, London (BMNH), and Museu Nacional, Rio de Janeiro (MNRJ).

### OLIBRINIDAE

*Olibrinus antennatus* (Budde-Lund, 1902)  
(Figs. 1-2)

*Trichoniscus antennatus* Budde-Lund, 1902:379.  
*Olibrinus antennatus*; Schmalfuss, 2003:182; Taiti & Ferrara, 2004:223, Pl.4 (for earlier references and synonymies).  
*Olibrinus mangroviarum*; Schmalfuss, 2003:182.  
*Olibrinus nicobaricus*; Schmalfuss, 2003:182.  
*Olibrinus olivaceus*; Schmalfuss, 2003:182.  
*Olibrinus pigmentatus*; Schmalfuss, 2003:182.  
? *Olibrinus* sp.; Lemos de Castro, 1972:357.

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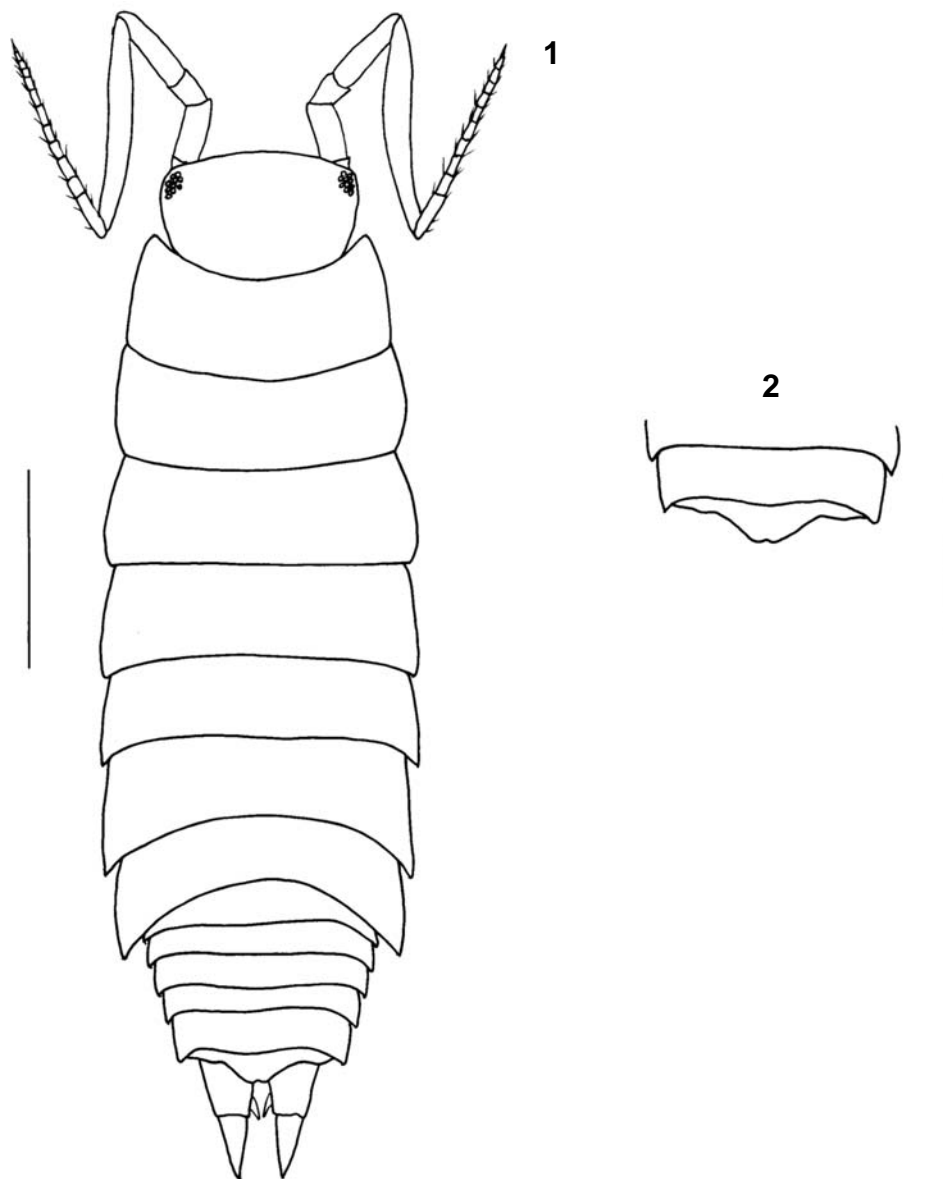
Material examined – BRAZIL, RIO GRANDE DO NORTE, Atol das Rocas, Ilha do Cemitério, in coarse sediment beneath stones in the intertidal zone, MNRJ 16921, 1♀, C.Serejo and M.C.Rayol coll., 09/XI/2001

Diagnosis – Colour: reddish-brown in vivo, pale brown in alcohol. Body smooth (Fig.1). Eye of 10-11 ommatidia. Telson very short, with sinuous sides and a notch at the apex (Fig.2). Flagellum of antenna consisting of 10-18 articles. Endite of maxillule without penicils. Pereopods with a bifid dactylar seta. Exopods of pleopods 2-5 with plumose setae on margin. Male pleopod 1 endopod thickset, with distal part bearing numerous scales.

Maximum length: ♂ and ♀ = 10mm.

Distribution – This amphibious species is common in mangrove swamps and under coral rocks along the coasts of the tropics (TAITI & FERRARA, 2004).

Remarks – *Olibrinus antennatus* has several junior synonyms (see TAITI & FERRARA, 2004). For a description see FERRARA (1972), as *O. mangroviarum*. This is the first certain record of *O. antennatus* from Brazil and the entire Atlantic area. In Brazil, an unidentified species of *Olibrinus* was previously recorded by LEMOS DE CASTRO (1972) from the Abrolhos Archipelago. Most probably that record refers also to *O. antennatus*, but identification can be made with certainty only after re-examination of the material studied by Lemos de Castro.



*Olibrinus antennatus*: fig.1-♀; fig.2- telso. Scale bars: (1) = 1mm, (2) = 0.5mm.

#### PHILOSOCIIDAE

##### *Littorophiloscia culebrae* (Moore, 1901) (Figs.3-6)

*Philoscia culebrae* Moore, 1901:176, pl.11, figs.13-17. *Littorophiloscia culebrae*; Taiti & Ferrara, 1986:1358, fig.8 (for earlier references and synonyms); Schotte & Heard 1991:247; Rodriguez & Barrientos 1993:190, figs.23-26; Taiti & Howarth, 1996:63; Leistikow & Wägele, 1999:18;

Taiti, 1999:37; Schmalzfuss, 2003:151; Taiti & Ferrara, 2004:237, Pl.6.

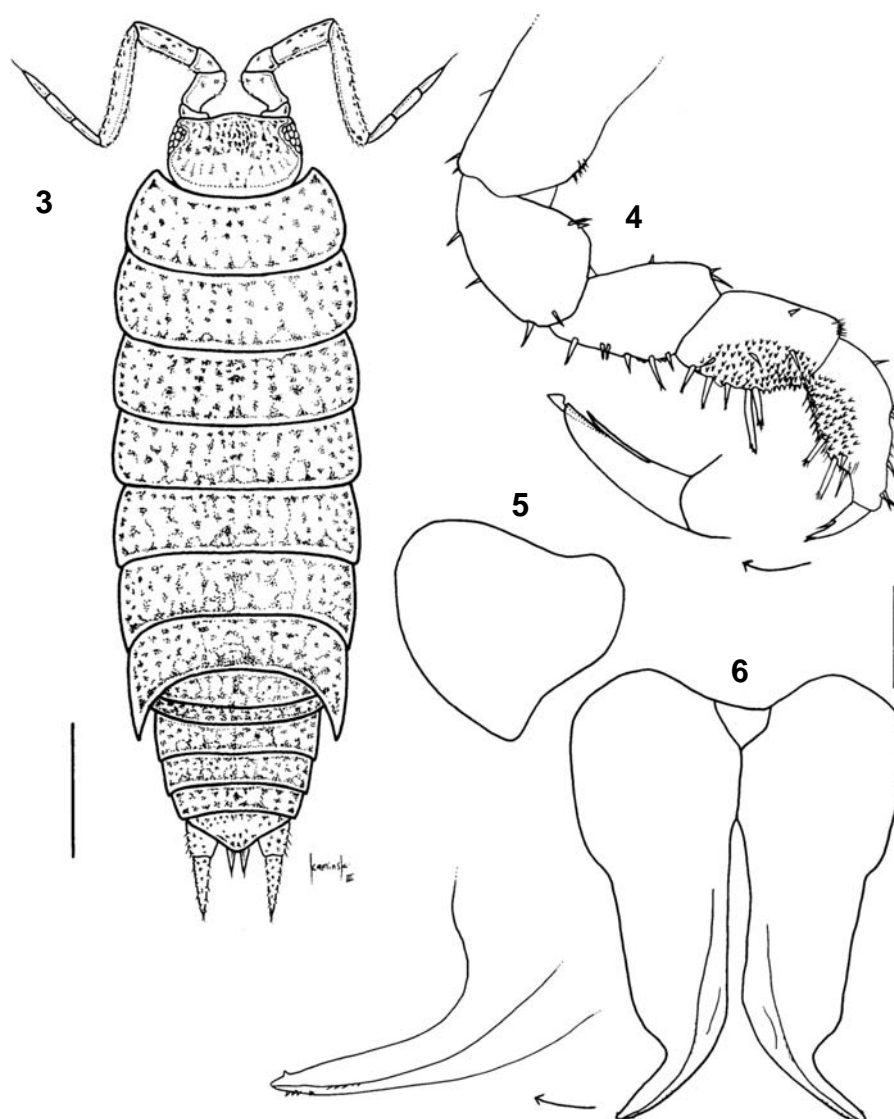
Material examined – BRAZIL, RIO GRANDE DO NORTE, Atol das Rocas, east side of Ilha do Farol, supralittoral, MNRJ 16922, 1♂, 3♀, 1 ovigerous ♀, C.Serejo and M.C.Rayol coll., 30/X/2001.

Diagnosis – Colour: yellowish with brown spots (Fig.3). Dorsum covered with scale-spines. Antenna with fifth joint of peduncle as long as flagellum. Pereopods with unguis seta apically

enlarged (Fig.4). Male pleopod 1 exopod triangular with sinuous outer margin (Fig.5); endopod with outer margin bearing a hump and a very small lobe at the apex (Fig.6).

Maximum length – ♂ = 2.5mm; ♀ with marsupium = 3.6mm.

Distribution – The species has been recorded from the USA (Florida, Puerto Rico and Hawaii), Cuba, Virgin Islands, Canary Islands, Angola, Madagascar and Yemen (Socotra Archipelago) (SCHMALZFUSS, 2003; TAITI & FERRARA, 2004).



*Littorophiloscia culebrae*: fig.3- ♂; fig.4- pereopod 1; fig.5- pleopod 1 exopod; fig.6- pleopod 1 endopod. Scale bars: (3) = 1mm; (4-6) = 0.1mm.

Remarks – This is the first record of *L. culebrae* from Brazil. Two other species of *Littorophiloscia* were previously recorded in this country: *L. tropicalis* Taiti & Ferrara, 1986 from Cabo Frio, State of Rio de Janeiro (LEMONS DE CASTRO, 1965), and *L. insularis* (Lemos de Castro & Souza, 1986) from Ilha de Fortaleza, State of Pará (LEMONS DE CASTRO & SOUZA, 1986). According to LEISTIKOW (2001) these two species are morphologically very similar. One of the most important features distinguishing *L. culebrae* is the shape of the male pleopod 1 endopod.

#### PLATYARTHRIIDAE

##### *Niambia squamata* (Budde-Lund, 1885) (Figs.7-13)

*Leptotrichus squamatus* Budde-Lund, 1885:196; ?Dollfus, 1898:125; ?Dollfus, 1899:256.

*Niambia squamata*; Budde-Lund, 1904:37; Budde-Lund, 1909:60, pl.VI figs.1-3; Stebbing, 1910:441; Van Name, 1920:45, 102, figs.122-126; Barnard, 1932:259, fig.23j; Paulian de Félice, 1940:109; Vandel, 1946:247; Arcangeli, 1950:56; Arcangeli, 1952:300; Brian, 1953:11, pl.2, fig.3; Lemos de Castro, 1967:315; Lemos de Castro, 1971:3, fig.5; Lemos de Castro, 1972:357; Schmalzfuss & Ferrara, 1978:77; Ferrara & Taiti, 1979:123; Souza-Kury, 1998:664; Schmalzfuss, 2003:179.

*Leptotrichus atracheatus* Schmalzfuss & Ferrara, 1978:85, figs.169-170. New synonymy.

*Niambia atracheata*; Schmalzfuss, 1982:132; Ferrara & Schmalzfuss 1985:64; Schmalzfuss, 2000:3; Schmalzfuss, 2003:178.

*Porcellio (Leptotrichus) squamatus*; Jeppesen, 2000:260.

*Niamba* [sic!] *squamata*; Leistikow & Wägele, 1999:28.

? nec *Niambia squamata*; Panning, 1924:172.

Material examined – ANGOLA (CABINDA): LANDANA, 1♂ Syntype, Budde-Lund collection, BMNH 1921:10:18:1453. BRAZIL, PARÁ, Belém, MNRJ 10077, 2♀, O.Cunha coll., ?/?/1952; CEARÁ, Fortaleza, MNRJ 10073, 1♂, Fausto coll., 13/VII/1970; RIO GRANDE DO NORTE, Natal, MNRJ 10072, 1♀, A.Lemos de Castro coll., 01/III/1980; Atol das Rocas, Ilha do Farol, MNRJ 14842, 3♂, 7♀, 1 ovigerous ♀, P.S.Young, P.C.Paiva and A.A.Aguiar coll., 24/X/2000; MNRJ 16923, 1♀, pitfall trap, S.N.Brandão, N.Magalhães and C.R.Tavares coll., 10/VII/2001; MNRJ 18180, 2♂, 6♀, 4 ovigerous ♀, pitfall trap, S.N.Brandão, N.Magalhães and C.R.Tavares coll.,

10/VII/2001; near the house, MNRJ 18179, 4♂, 7♀, 5 ovigerous ♀, S.N.Brandão, N.Magalhães and C.R.Tavares coll., 06/VII/2001, PERNAMBUCO, Fernando de Noronha, MNRJ 10071, 2♀, M.Alvarenga coll., ?/V/1954; BAHIA, Abrolhos, Santa Bárbara Island, MNRJ 10075, 2♂, 2♀, A.Lemos de Castro coll. 28/X/1969; MNRJ 10076, 2♂, J.Becker coll. 02/X/1969.

Distribution – Brazil, ?Senegal, Cape Verde Islands, ?Sao Thomé, Ivory Coast, Nigeria, Congo, Angola (SCHMALZFUSS, 2003).

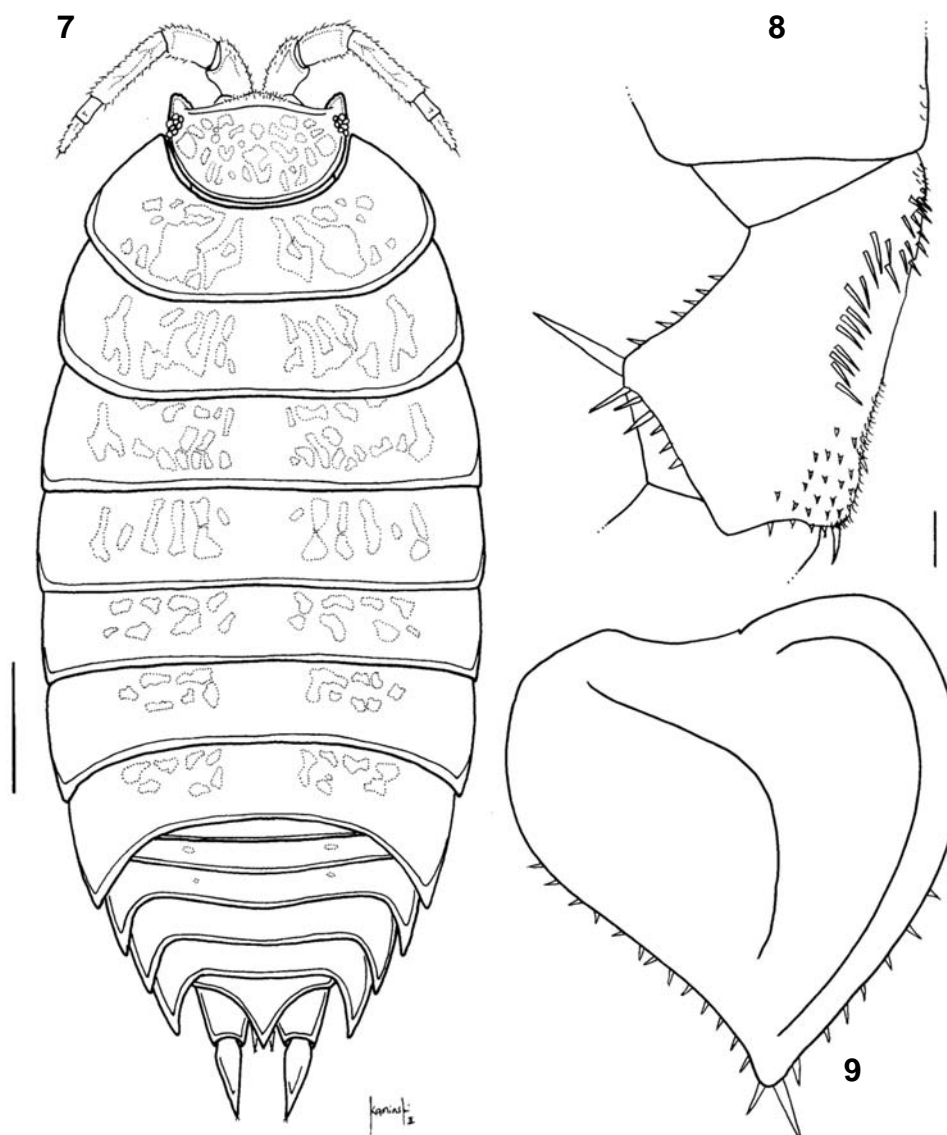
Diagnosis – Pereon epimera steep (Fig.7); dorsum densely covered with hair-like setae and scale-spines; cephalon with small rounded lateral lobes, slightly protruding in comparison with the bulbous profrons (Fig.10); telson with triangular distal part, acute apex (Fig.11); antennae very short, not reaching caudal margin of pereonite 1; male pereopod 7 ischium with a row of long spines (Figs.8, 13); pleopod exopods with respiratory areas; male pleopod 1 exopod with very short triangular medial lobe (Figs.9, 12).

Maximum length – ♂ = 7mm; ♀ with marsupium = 8mm.

Remarks – *Niambia squamata* was described by BUDE-LUND (1885) in the genus *Leptotrichus* and later transferred to the genus *Niambia* (BUDE-LUND, 1904). The original description was based on three syntype specimens from Cabinda, Angola (JEPPESEN, 2000): a male specimen from Laudana [= Landana], deposited in the Natural History Museum, London (ELLIS & LINCOLN, 1975), and two female specimens from Chinchoxo, deposited in the Museum für Naturkunde, Berlin (H.Schmalzfuss, pers.com.).

SCHMALZFUSS & FERRARA (1978) described *Leptotrichus atracheatus* on 5 syntypes from an uncertain locality, either Zampalma, Sao Thomé or Luanda, Angola, since both localities were reported on the two labels inside the tube. Later SCHMALZFUSS (1982) transferred the species to the genus *Niambia*. This species shows a peculiar character that is not mentioned for any other species of *Niambia*, i.e., a row of strong pointed setae near the sternal margin of the male pereopod 7 ischium (see figure 169 in SCHMALZFUSS & FERRARA, 1978).

We have re-examined the male syntype of *N. squamata*, 7.5mm long (Figs.10-13), deposited in the Natural History Museum, London. Although it is damaged, the pereopod 7 ischium shows the row of strong setae near the sternal margin as described for *N. atracheata*: only one seta is still present in



*Niambia squamata*: fig.7- ♂; fig.8- pereopod 7 ischium; fig.9- pleopod 1 exopod. Scale bars: (7) = 1mm; (8-9) = 0.1mm.

this appendage of the syntype, but the bases where the rest of the setae were inserted are still clearly visible (Fig.13). Considering that also the shape of the male pleopod 1 exopod of *N. atracheata* is identical to that of *N. squamata* (compare figure 170 in SCHMALFUSS & FERRARA, 1978 and figure 12), we consider *N. atracheata* to be a junior synonym of *N. squamata*.

Re-examination of the specimens recorded as *N. squamata* by LEMOS DE CASTRO (1967; 1971; 1972) confirmed the identification of this species, which is considered introduced in Brazil.

#### PORCELLIONIDAE

##### *Porcellionides pruinosus* (Brandt, 1833) (Figs.14-15)

*Porcellio pruinosus* Brandt, 1833:181.

*Porcellionides pruinosus*; Souza-Kury, 1998:666; Leistikow & Wägele, 1999:35; Schmalfuss, 2003:243 (for earlier references and synonyms).

Material examined – BRAZIL, RIO GRANDE DO NORTE, Atol das Rocas, Ilha do Farol, MNRJ 16349, 39 manca, 46♂, 49♀, 4 ovigerous ♀, P.S.Young, P.C.Paiva and A.A.Aguiar coll. 24/

X/2000; MNRJ 16919, 11♂, 3♀, 3 ovigerous ♀, pitfall trap, S.N.Brandão, N.Magalhães and C.R.Tavares coll., 10/VII/2001; near the house, MNRJ 16920, 7♂, 6♀, 3 ovigerous ♀, pitfall trap, S.N.Brandão, N.Magalhães and C.R.Tavares coll. 10/VII/2001; near the house, MNRJ 16924, 1♂, 3♀, C.Serejo and M.C.Rayol coll. 18/X/2001.

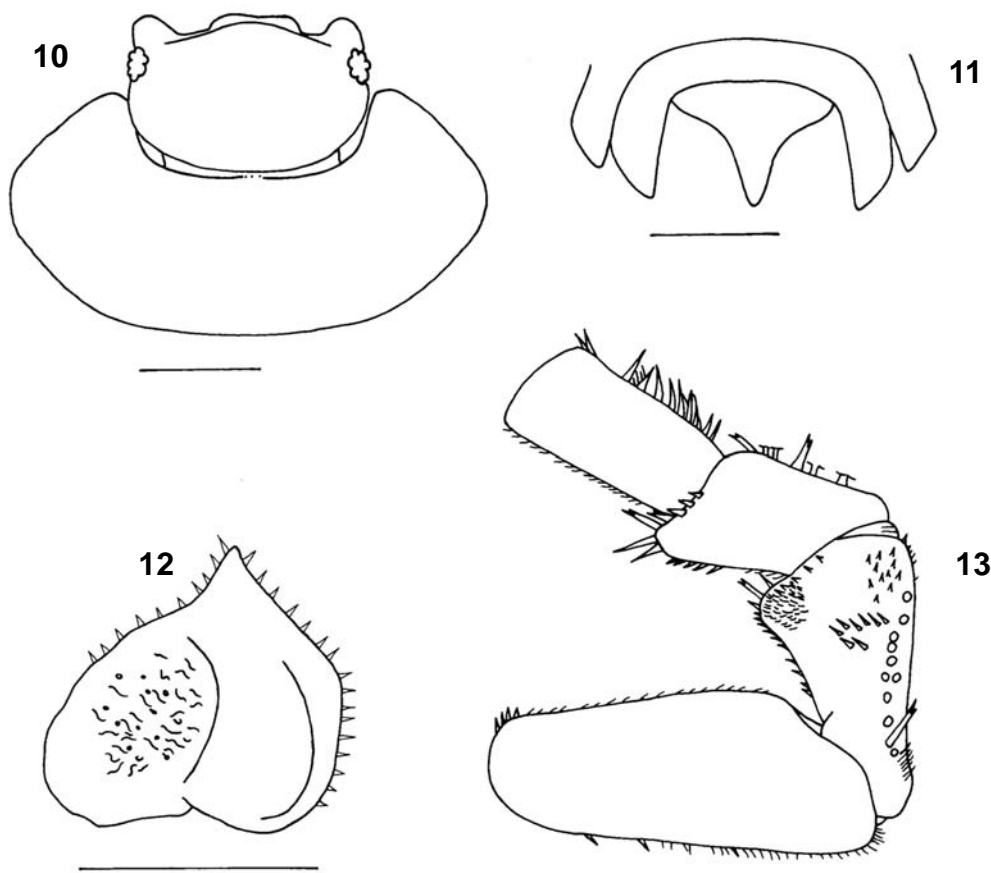
Distribution – Species of Mediterranean origin with a cosmopolitan distribution. Records from Brazil: States of Pará, Bahia (Abrolhos), Santa Catarina and Rio Grande do Sul (LEMONS DE CASTRO, 1967; 1971; 1972; ARAUJO *et al.*, 1996).

Diagnosis – Colour in vivo purple-grey with plum-like bloom on dorsal surface. Cephalothorax bearing small antero-lateral lobes, very prominent

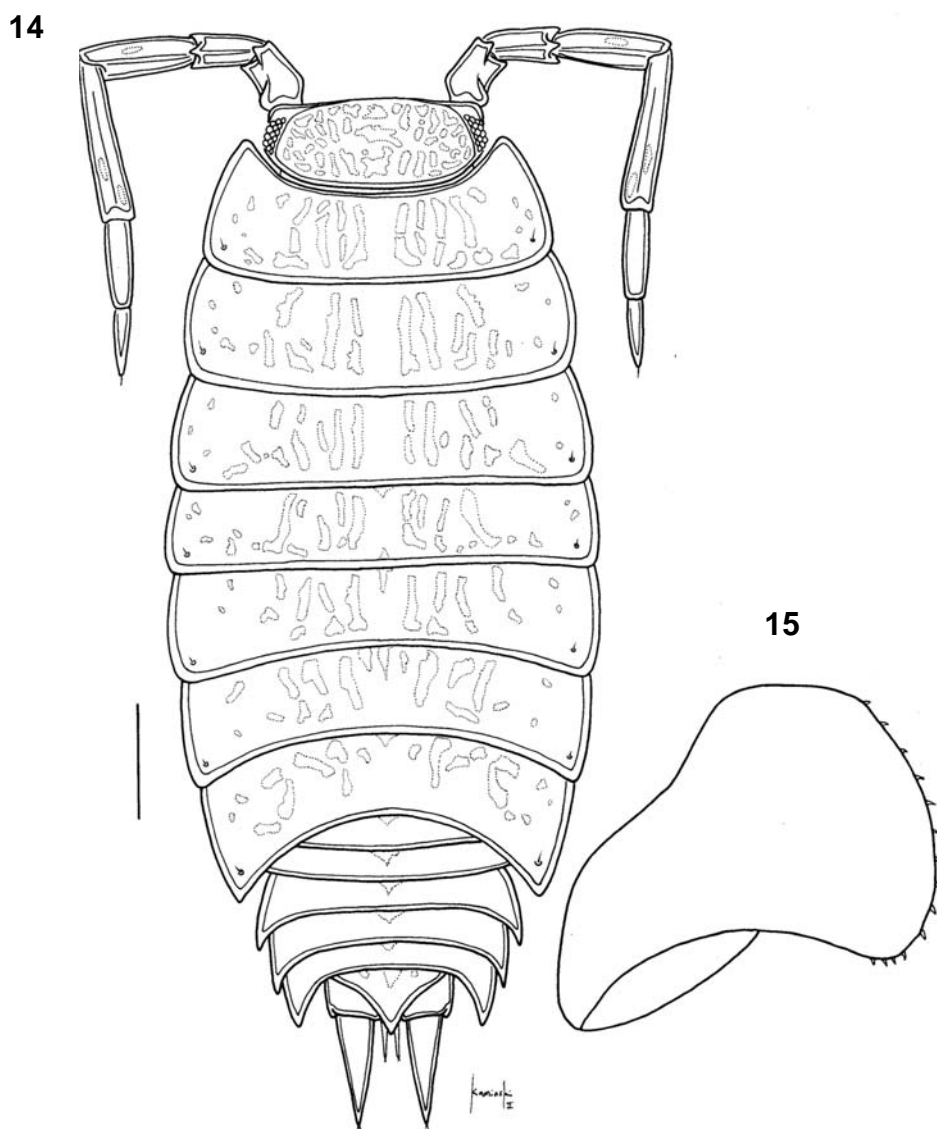
V-shaped supra-antennal line, eyes with 19-22 ommatidia (Fig.14). Flagellum of antenna composed of two articles, the first twice as long as the second. Pleon much narrower than pereion. Pleotelson triangular with acute apex. Two pairs of pleopodal lungs. Male pleopod 1 exopod pear-shaped with short rounded distal lobe (Fig.15).

Maximum length – ♂ = 11mm; ♀ = 13mm.

Remarks – The preference of *P. pruinus* for synanthropic habitats suggests its introduction through human activities in many parts of the world. According to DANGERFIELD & TELFORD (1990) this species is capable of very rapid population growth, which probably explains its success in colonizing disturbed sites.



*Niambia squamata*, ♂ syntype: fig.10- cephalothorax and pereonite I; fig.11- telson; fig.12- pleopod exopod 1; fig.13- pereopod 7. Scale bars: 1mm



*Porcellionides pruinosus*: fig.14- ♂; fig.15- pelopod exopod 1. Scale bars: (14) = 1mm; (15) = 0.1mm.

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