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A NEW SPECIES OF *ANDRODELOSCIA* (ISOPODA : PHILOSCIIDAE) FROM THE BRAZILIAN AMAZON

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RESUMO

Uma nova espécie de Androdeloscia (Isopoda: Philosciidae) da Amazônia brasileira. Uma nova espécie de Androdeloscia é descrita para a Amazônia brasileira. Ela. possui as seguintes apomorfias, uma concavidade seguida de uma elevação marcante na porção central da franja lateral da maxílula, ápice do endópode 1 do macho coberto densamente por espinhos nas margens externas e internas, mas com ápice reto e sem espinhos. A nova espécie compartilha uma sinapomorfia exclusiva com as outras duas espécies conhecidas da Amazônia Brasileira: a presença de quatro dentes bifurcados na maxílula. Caracteres diagnósticos, sinonímia, distribuição e referências são fornecidos para as 22 espécies conhecidas de *Androdeloscia*.
Palavras-chave: Crustacea, isópode terrestre, Prosekiini, ¨Philosciidae¨, nova espécie.

ABSTRACT

A new species of Androdeloscia (Isopoda: Philosciidae) from the Brazilian Amazon. A new species of Androdeloscia is described from the Brazilian Amazon. It has two autapomorphies, a concavity followed by a conspicuous elevation on the central portion of the lateral fringe of the maxillule and the apex of endopod 1 of male densely spinulose on internal and external margins, with apex straight and unarmed. The new species shares a unique synapomorphy with the two previously known species from Brazilian Amazon, the presence of four cleft teeth on the maxillule. Diagnostic characters, synonyms, distribution, and references are provided for the 22 known species of *Androdeloscia*.
Key words: Crustacea, terrestrial isopod, Prosekiini, ¨Philosciidae¨, new species.

INTRODUCTION

There were 3637 species of Oniscidea catalogued up to the year 2004 (SCHMIDT, 2008), about 80% of which belong to the Crinocheta, the most numerous of the five subgroups of oniscids (ERHARD, 1996),

containing the most successful adaptations to the driest terrestrial habitats and representing the only group to have a phylogenetic hypothesis (SCHMIDT, 2008). The problematical ¨Philosciidae¨ Kinahan, 1957 contain about 450 species of the ¨runner-type¨ (slender body, smooth dorsal surface, long legs and long second antennae, a three-jointed flagellum on the second antenna, and a pleon narrower than the pereon), considered to represent a plesiomorphic facies (SCHMIDT and LEISTIKOW, 2005). However, it has been possible to establish a monophyletic subclade Prosekiini Leistikow, 2001, which includes *Andenoniscus* Verhoeff, 1941, *Xiphoniscus* Vandel, 1968, *Erophiloscia* Vandel, 1972, *Androdeloscia* Leistikow, 1999, *Prosekia* Leistikow, 2000, and *Metaprosekia* Leistikow, 2000. Synapomorphies for Prosekiini are: **"**antenule with the medial aesthetascs gathered in a tuft, directed more or less medio-distally, not attached to article 3; transverse fold between aesthetascs tuft and distal pair of aesthetascs, and male pleopod 1 with hyaline lamellae near apex**"** (see LEISTIKOW, 2001; SCHMIDT, 2008). On the basis of the apomorphic character, we suggest that *Alboscia* Schultz, 1995 also belongs to this clade.

The genus *Androdeloscia* was established by LEISTIKOW (1999) for those members of the genus *Prosekia* Vandel, 1968 having the following characteristics: small size; *linea frontalis* reduced; the shape of the male pleopod V exopodite apically drawn out to some extent; and a furrow parallel to the medial margin of the caudal surface covered with pectinate scales in the male pleopod V exopodite (this last trait was recognized as an autapomorphy for *Androdeloscia*) (LEISTIKOW, 1999, 2001; SCHMIDT and LEISTIKOW, 2005). *Erophiloscia* from South America east of Ecuador and Peru, is indicated as the sister-group of *Androdeloscia* (LEISTIKOW, 2001).

LEISTIKOW (1999) described 13 new species of *Androdeloscia*: *A. taitii* Leistikow, 1999*, A. opercularis* Leistikow, 1999*, A. dalensi* Leistikow, 1999*, A. poeppigi* Leistikow, 1999*, A. malleus* Leistikow, 1999*, A. conipus* Leistikow, 1999*, A. plicatipus* Leistikow, 1999*, A. feistae* Leistikow, 1999*, A. ferrarai* Leistikow, 1999*, A. longiunguis* Leistikow, 1999*, A. digitata* Leistikow, 1999*, A. merolobata* Leistikow, 1999*,* and *A. pseudosilvatica* Leistikow, 1999 and established the new combinations *A. hamigera* (Vandel 1952), *A. tarumae* (Lemos de Castro 1984), and *A. silvatica* (Lemos de Castro and Souza 1986), for species originally described in *Prosekia* and *Androdeloscia.*

In his subsequent paper, LEISTIKOW (2000) dealt with isopods from Guatemala and Mexico, describing *Androdeloscia valdezi* Leistikow, 2000*,* and transfering *Philoscia formosa* (Mulaik, 1960) to *Androdeloscia*. In the World Catalog of Terrestrial Isopods, containing a revised and updated on-line version dated 2004, SCHMALFUSS (2003) accepted two new combinations of LEISTIKOW (1999), but maintained *Prosekia tarumae*. In a more recent paper, SCHMIDT and LEISTIKOW (2005) described four more species of *Androdeloscia*: *A. boliviana* Leistikow and Schmidt, 2005*, A. escalonai* Leistikow and Schmidt, 2005*, A. monstruosa* Leistikow and

Schmidt, 2005, and *A. muscorum* Leistikow and Schmidt, 2005, and placed *A. plicatipus* Leistikow, 1999 in the synonymy of *A. feistae* Leistikow, 1999. There are presently 21 species of *Androdeloscia* (SCHMIDT and LEISTIKOW, 2005).

The following list of the 21 known species of Androdeloscia includes synonyms, distribution and references.

A. boliviana Schmidt and Leistikow, 2005 – Bolivia - SCHMIDT and LEISTIKOW, 2005.
A. conipus Leistikow, 1999 – Peru - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.
A. dalensi Leistikow, 1999 – Venezuela - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.
A. digitata Leistikow, 1999 - Brazil (Amazon) - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.
A. escalonai Schmidt and Leistikow, 2005 - Venezuela - SCHMIDT and LEISTIKOW, 2005.
A. feistai Leistikow, 1999 – Peru - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.
Syn: A. plicatipus Leistikow, 1999
A. ferrarai Leistikow, 1999 – Peru - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.
A. formosa (Mulaik, 1960) – Peru - MULAIK, 1960; LEISTIKOW, 2000; SCHMIDT and LEISTIKOW, 2005.
Syn: Philoscia formosa Mulaik, 1960.
A. hamigera (Vandel, 1952) - Venezuela **-** VANDEL, 1952; LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.
Syn.= *Prosekia hamigera* (Vandel, 1952)
A. longiunguis Leistikow, 1999 – Peru - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.
A. malleus Leistikow, 1999 – Peru - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.
A. merolobata Leistikow, 1999 – Peru - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.
A. monstruosa Schmidt and Leistikow, 2005 – Venezuela - SCHMIDT and LEISTIKOW, 2005.
A. muscorum Schmidt and Leistikow, 2005 – Bolivia - SCHMIDT and LEISTIKOW, 2005.
A. opercularis Leistikow, 1999 – Venezuela - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.
A. poeppigi Leistikow, 1999 – Peru - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.

A. pseudosilvatica Leistikow, 1999 – Venezuela - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.
A. silvatica (Lemos de Castro and Souza, 1986) - Brazil (Amazon; south of Ceará) Venezuela - LEMOS DE CASTRO and SOUZA, 1986; LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005; SOUZA and GRANGEIRO, 2006. Syn: *Prosekia silvatica* (Lemos de Castro and Souza, 1986).
A. taitii Leistikow, 1999 – Peru - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.
A. tarumae (Lemos de Castro, 1984) - Brazil (Amazon) - LEMOS DE CASTRO, 1984; LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005. Syn: *Prosekia tarumae* (Lemos de Castro, 1984).
A. valdezi Leistikow, 1999 – Guatemala - LEISTIKOW, 1999; SCHMIDT and LEISTIKOW, 2005.

In the Appendix 1 we give the main diagnostic characters for the 22 known species of the genus. The genus *Androdeloscia* has an ample distribution in the Neotropics— Mexico, Guatemala, Venezuela, Peru, and Brazil. There are a total of 3 species known from Brazilian Amazonia: *A. digitata, A. tarumae,* and *A. silvatica* (LEMOS DE CASTRO, 1984; SCHMIDT and LEISTIKOW, 2005). Up to the present, only one species of the genus, *A. silvatica*, was registered for another region in Brazil — State of Ceará, northeast Brazil (SOUZA and GRANGEIRO, 2006).

The new species described herein belongs to a rich and diversified collection of Oniscidea collected in the Brazilian Amazon by the late Dr. Joachim Adis (Max-Planck Institut), presently being studied at the State University of Ceará and the Federal University of Paraíba by the authors of this paper.

SYSTEMATICS

Order ISOPODA
Superfamily ONISCIDEA
Family PHILOSCIDAE
Tribe PROSEKIINI Leistikow, 2001

Genus *Androdeloscia* Leistikow, 1999.
Type species: *Androdeloscia hamigera* Vandel, 1952

***Androdeloscia leilae* n. sp.**
(Figures 1 to 5)

Holotype: INPA 1750, male, part preserved in alcohol and part mounted on slide.
Type locality: BRAZIL, Lago Januari: mixed water, 03º02'S, 60º17'W, *Leg*. J.

Adis *et al*., 16/V/1988.

Paratypes:

INPA 1751, 116 males, 264 females, BRAZIL, Lago Januari: mixed water, 03º02'S, 60º17'W, *leg*. J. Adis *et al*. cols., 16/V/1988;

INPA 1752, 28 males, 54 females, BRAZIL, Lago Januari: mixed water, 03º02'S, 60º17'W, *leg*. J. Adis *et al*. cols., 31/V/1988;

MZUSP 20006, 3 males, 1 females, BRAZIL, Lago Januari: mixed water, 03º02'S, 60º17'W, *leg*. J. Adis *et al*. cols., 12/IV/1988;

MZUSP 20007, 4 males, 4 females, BRAZIL, Capoeira do rio Tarumã Mirim: secondary forest, 03º02'S, 60º17'W, *leg*. J. Adis *et al*. cols., 29/IV/1988;

INPA 1753, 3 males, 6 females, BRAZIL, Lago Januari: mixed water, 03º02'S, 60º17'W, *leg*. J. Adis *et al*. cols., 15/VI/1988;

INPA 1754, 3 males, 10 females, BRAZIL, Lago Januari: mixed water, 03º02'S, 60º17'W, *leg*. J. Adis *et al*. cols., 15/V/1988.

Diagnosis.

Body pigmented, dark-brown, small light spots on cephalothorax. Eyes with nine well pigmented ommatidia; telson with 5 light spots: two lateral pairs and one drop-shaped spot centro-distally (Figure 1A). *Noduli laterales* conspicuous, *nodulus* of pereonite IV inserted more dorsally. Distal article of antennule with 11 subapical and 2 apical aesthetascs (Figure 1B). Margin of maxillule with a concavity followed by a conspicuous elevation on the central portion of the lateral fringe. Male pereopod 7 with a discrete lobe on merus. Male pleopod 1 with apex of endopodite slightly bent laterally in its proximal part, which has a row of small spines in the internal and external margins; distal part of apex unarmed and straight.

Description of the Holotype:

Dimensions (Aprox.): Male: total length 4,0 mm maximum width 1,0 mm. Female paratype: total length 3,0mm, maximum width 1,0mm.

Color: Brown, with small light spots on head and pleon, and other light spots of variable size on lateral portions of pereonites I-VII. Telson with a distinct color pattern – there are five light spots: Two lateral pairs and one drop-shaped stain on disto-central region of telson (Figure 1A).

Tegument: Smooth, covered by small, simple setae; *noduli lateralis* forming single row on pereonites I-VII, conspicuous and flagelliform. The relative position of the *noduli lateralis* is represented in the figure 5.

Head: Slightly covered by the first pereonite; frontal and lateral lobes slightly developed; frontal line tenuous, demarcated by curvature of vertex; supra-antennal line well marked; composite eye with nine ommatidea.

Pleon: Narrow in relation to pereon.

Telson: Triangular, with extremity rounded and sides straight (Figure 1A).

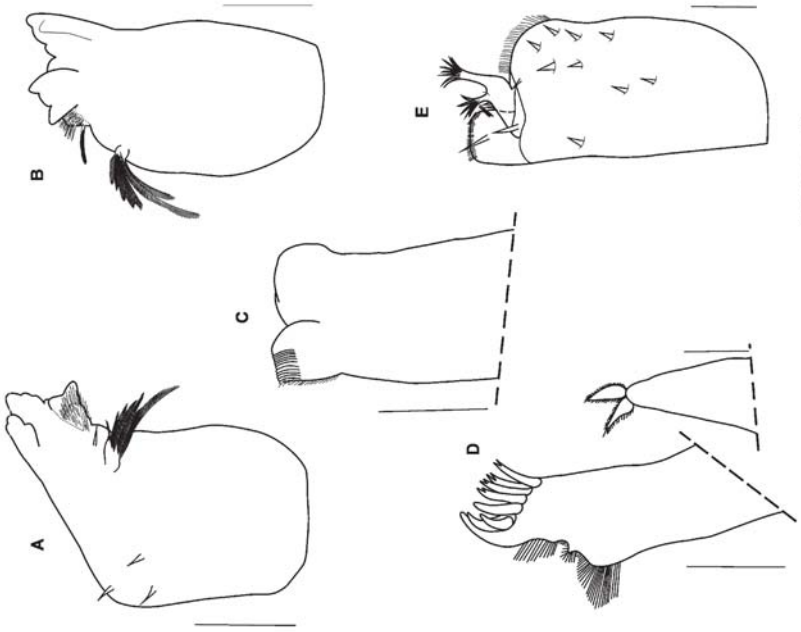

Figure 2

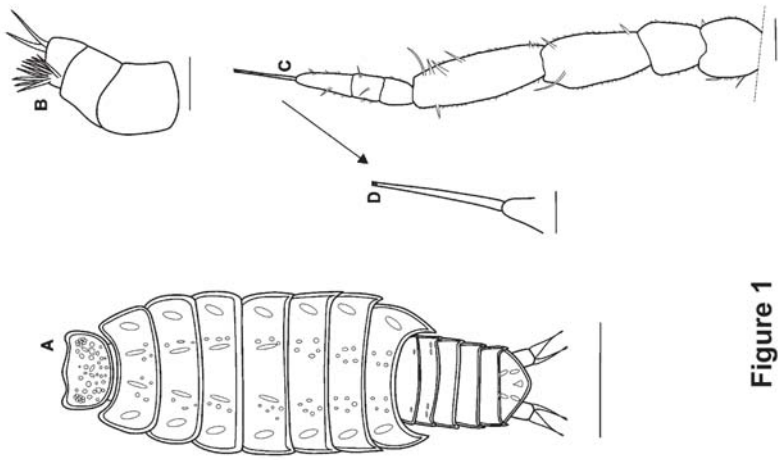

Figure 1

Figure 1 - *Androdeloscia leilae* n. sp. Male holotype (INPA 1750). A= Habitus dorsal, B= Antennule, C= Antenna, D= Antenna magnified: Scale bars = 0.1 mm for drawings A e C, 0,025 mm for drawing B and 0,05 mm for drawing D.

Figure 2 - *Androdeloscia leilae* n. sp. Male holotype (INPA 1750). A = Left mandible, B= Right mandible, C= Maxilla, D= Maxillule, E= Maxilipede. Scale bars = 0.05 mm.

Antennule: Distal article shortest, with two apical and 9 subapical aesthetascs; proximal and median articles subequal. A gap between the apical and subapical groups of aesthetascs is present (autapomorphy of Prosekiini) (Figure 1B).

Antenna: Flagellum triarticulate, distal article longest, proximal and middle articles subequal; apical cone covered by cuticular sheath, long and slender, and as long as distal article, consisting apically of a tuft of very small free sensillae (Figure 1C-D).

Mandibles: Molar penicil with seven branches in the right mandible and with six branches in the left (Figure 2A-B).

Maxillule: Medial maxillular endite with two penicils, with a roudend apex, and without an apical tip. Lateral maxillular endite with 4 + 4 teeth, inner set cleft; central portion of lateral fringe with a concavity followed by a small but conspicuous elevation (autapomorphy) (Figure 2D).

Maxilla: Maxilla with inner lobe smaller than outer lobe. Inner lobe with a row of about 10 narrow and elongate structures having on apex in the shape of a cusp (Figure 2C).

Maxilliped: Basipodite much broader than apical region, with latero-distal edge rounded, and bearing hair-like setae and some tricorn-like setae caudally. Endite rectangular without knob-like penicil and with one conspicuous seta; a very small spine-like seta in the latero -distal corner; and a row of small hair-like setae apically. Palp with proeminent proximal and medial setal tufts. Proximal article with 1 strong seta (Figure 2E).

Pereopods: With short and long, simple, setae; dactylar seta long; carpus of pereopods, except III, with tufts of lateral setae. Pereopod I stout; carpus with carpal seta conspicuous and sensory setae with one apical and two lateral fringes.

Sexual characters of male pereopods: Carpus of pereopod I with two ornamental setae and a brush of fine setae (Figure 3C-D) which cover a larger surface than in female (Figure 4C); propodus and merus of pereopod I with many spines. Merus of pereopod VII with lobe on outer distal region (Figure 3F), absent in female (Figure 4D).

Pleopods: Absence of respiratory surfaces. Endopodite of pleopod I with subapical transverse groove and with apex bent laterally, forming a hook. Distal part of endopodite without lateral protrusions. Proximal part of

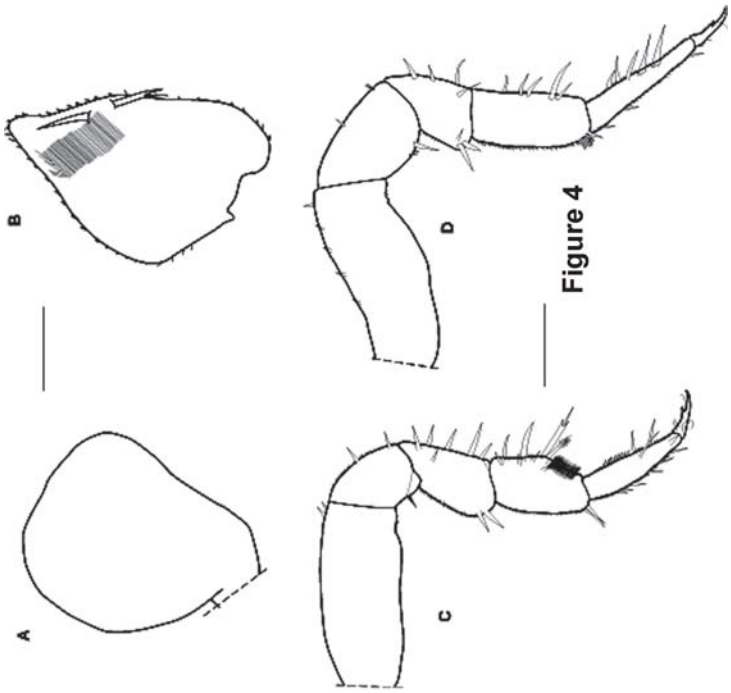

Figure 4

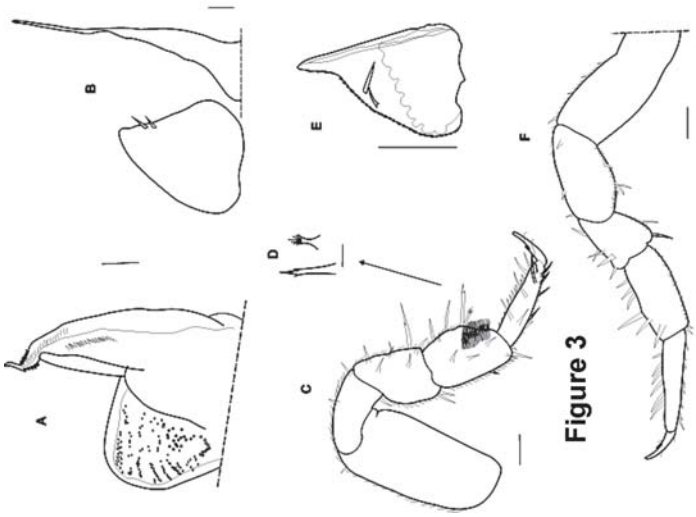

Figure 3

Figure 3 - *Androdeloscia leilae* n. sp. Male holotype (INPA 1750). A= Pleopod I, B= Pleopod II, C= Pereopod I, D= Spine of pereopod I, E= Pleopod V, F= Pereopod VII. Scale bars = 0.01 mm for drawings A-B, 0.1 mm for drawings C-F.

Figure 4 - *Androdeloscia leilae* n. sp. Female paratype (INPA 1751 A). A= Exopod I, B= Exopod V, C= Pereopod I, D= Pereopod VII. Scale bars = 0.1 mm.

endopodite produced into a more or less long projection alongside the distal part. Exopodite distally rounded. Pleopod II with endopod longer than large; exopod with triangular shape and having two apical setae on internal border. Exopodite V on mesial margin with hairy groove and with two long setae on external border and many setae surrounding all of the external border; groove present for the fitting of the endopod II, an autapomorphy of *Androdeloscia* (Figure 3).

Sexual characters of male pleopods: Endopod of pleopod I hook-shaped or with transverse groove, having about six spiniform apical projections on inner and outer surfaces; inner surface, from apex to median part of endopod, with a row of short setae. Exopod of pleopod I oval (Figure 3A), in female the exopod is approximately quadrangular (Figure 4A). Endopod of pleopod II longer than large; exopod of pleopod II triangular (Figure 3B). Exopod of pleopod V of male with groove for the fitting of pleopod II, absent in female (Figure 4B) and with apex elongate (Figure 3E). Males are smaller than females.

Etymology.
The new species was named after Leila Aparecida Souza, who has contributed so much to the knowledge of Brazilian Oniscidea.

Remarks. *Androdeloscia leilae* sp. n. may be distinguished from all other species of the genus mainly by the shape of endopod I of male, the apex of which is densely spinulose on internal and external margins (Figure 3A) and by the shape of the maxillule, provided with a concavity followed by a conspicuous elevation in the central portion of the lateral fringe (Figure 2D).

A. leilae sp. n. shares with the two other Brazilian Amazon species, *A. digitata* and *A. tarumae*, the unique presence of four cleft teeth on the distal end of the endite of the maxillule. With the exception of *A. hamigera*, in which this number has apparently been reduced independently to 3 cleft teeth, all the remaining species of the genus have the plesiomorphic count of 5-6 cleft teeth in this position. In our opinion, this new clade is positioned between two successive outgroups and most basal lineages of *Androdeloscia*, *A. muscorum* and *A. boliviana*, and the clade of all remaining *Androdeloscia. A. boliviana* apparently represents the most basal species of *Androdeloscia*,

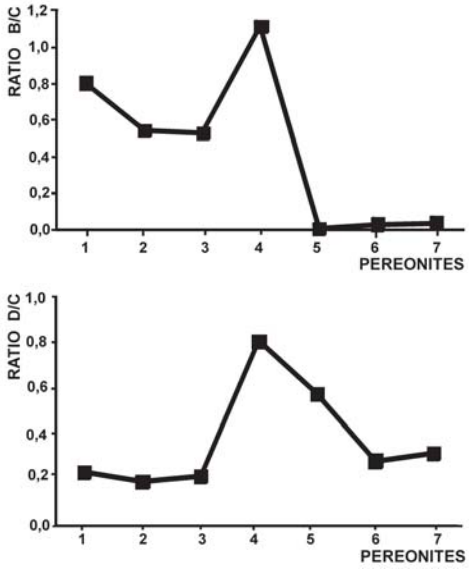

Figure 5- *Androdeloscia leilae* n. sp. Paratype (INPA 1751 A). Relative position of the *Noduli laterales* on pereonites I–VII defined by the ratios B/C and D/C. B = distance from the *Nodulus lateralis* to the posterior margin of the pereonite, C= antero-posterior max. length of the pereonal tergite; D= distance from the *Nodulus lateralis* to the lateral margin of the pereonite

for having 14-15 ommatidia, while the remaining species have 11 or less. The succession of more derived clades which follow Brazilian Amazon clade begin with the Peruvian clades 8 and character 23 of LEISTIKOW (2001) (*A. ferrarai, A. longiunguis, A. merolobata,* and *A. taitii*) and at least part of this author´s clade 6 (based on his character 9: *A. conipus*, *A. poeppigi*, *A. festae*, and *A. malleus*). These are then plausibly followed by the Venezuelan and Central American species. The latter clade is apparently adapted to less humid habitats and share with clade 6 of LESTIKOW (2001) the smaller size of males, which are 4mm or less in length.

We have been unable to interpret the complex evolution of the projections on the merus of pereopod VII: Although the three projections found in *A. silvatica*, *A. pseudosilvatica,* and *A. formosa* seem to be unique, their derivation from a smaller number of meral projections occurring in *A. tarumae*, tubercles occurring in *A. muscorum,* and lobes occurring in *A. digitata*, *A. longiunguis*, and *A. merolobata,* has not become clear in a phylogenetic context. We hope the description of further Brazilian species from the Amazon will shed further light on this interesting character.

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REFERENCES

ARAUJO, P. 1999 - Two new species of *Alboscia* Schultz, 1995 from Rio Grande do Sul, Brasil (Isopoda: Oniscidea: Philosciidae). *Crustaceana* 72: 487-496.

ARAUJO, P. and QUADROS, A.F. 2005 - A new species of *Alboscia* Schultz, 1995 (Crustacea: Isopoda: Oniscidea) from Brazil. *Zootaxa* 1018: 55-60.

ERHARD, F. 1996 - Das pleonale skelet-muskel-system und die phylogenetisch-systematische stellung der familie mesoniscidae (Isopoda: Oniscidea). *Stuttgarter Beiträge zur Naturkunde* 538: 1–40.

KINAHAN, J. 1857 - Analysis of certain allied genera of terrestrial isopods with description of a new genus and a detailed list of the British species of *Ligia*, *Philougria*, *Philoscia*, *Porcellio*, *Oniscus* and *Armadillium*. *Natural History Review* 4: 258–282.

LEISTIKOW, A. 1999 - *Androdeloscia* gen. n., a new genus of South American terrestrial isopoda with description of 13 new species (Crustacea: Oniscidae: “Philosciidae”). *Revue Suisse de Zoologie* 106: 813–904.

LEISTIKOW, A. 2000 - Terrestrial Isopoda from Guatemala and Mexico (Crustacea: Oniscidae: Crinocheta). *Revue Suisse de Zoologie* 107: 283–323.

LEISTIKOW, A. 2001 - Phylogeny and Biogeography of South American Crinocheta, traditionally placed in the family “Philosciidae” (Crustacea: Isopoda: Oniscidea). *Organisms Diversity* and *Evolution* 4: 1–85.

LEMOS DE CASTRO, A. 1984 - Uma nova espécie de *Prosekia* (Philosciidae, Isopoda) de uma floresta inundável (Igapó) na Amazônia Central. *Amazoniana* 8: 441–445.

LEMOS DE CASTRO, A. and SOUZA, L. A. 1986 - Três espécies novas de isópodes terrestres do gênero *Prosekia* Vandel da Amazônia brasileira (Isopoda, Oniscoidea, Philosciidae). *Revista Brasileira de Biologia* 46: 429–438.

MULAIK, S. 1960 - Contribución al conocimiento de los isópodos terrestres

de Mexico (Isopoda, Oniscoidea). *Revista de la Sociedad Mexicana de Historia Natural* 21: 79–292.

SCHMALFUSS, H. 2003 - World catalog of terrestrial isopods (Isopoda: Oniscidea). *Stuttgarter Beiträge zur Naturkunde* 654: 1–341.

SCHMIDT, C. and LEISTIKOW, A. 2005 - Review of the genus *Androdeloscia* Leistikow, with description of four new species (Crustacea, Isopoda, Oniscidea). *Entomologische Abhandlungen* 62: 117–163.

SCHMIDT, C. 2008 - Phylogeny of the Terrestrial Isopoda (Oniscidea): a Review. *Arthropod Systematics* and *Phylogeny* 66: 191–226.

SCHULTZ, G. 1995 - Terrestrial isopod crustaceans (Oniscidea) from Paraguay with definition of a new family. *Revue suisse de Zoologie* 102: 387–424.

SOUZA, L. A. and GRANGEIRO, D.C. 2006 - Primeiro registro de crustáceos terrestres (Isopoda, Oniscidea) para a Chapada do Araripe, Ceará, Brasil. *Cadernos de Cultura e Ciência* 1: 33–39.

VANDEL, A. 1952 - Étude des isopodes terrestres récoltés au Vénézuela par le Dr. G. Marcuzzi. *Memorie del Museo cívico di Storia naturale di Verona* 3: 59–203.

VANDEL, A. 1968 - Isopodes terrestres. *Mission Zoologique Belge aux ilês Galapagos et en Ecuador* 1: 37–168.

VANDEL, A. 1972 - Les isopodes terrestres de la Colombie. *Studies on Neotropical Fauna* 7: 147–172.

VERHOEFF, K. 1941 - Land-Isopoden. *Beiträge zur Fauna Perus* 1: 73–80.

APPENDIX 1

Main diagnostic characters for the 22 known species of *Androdeloscia*

Species	Nr. of ommatidia	Antennule	Maxillulae	Mandibles	Merus of pereopod VII	Endopodite of pleopod I	Exopodite of pleopod V
A. leilae sp.nov.	8	With 2 apical and 9 subapical aesthetascs	4+4 teeth, four of inner set cleft	Molar penicil with 7 branches in right mandible and 6 in left, pars intermedia with 1 penicil on right mandible	With 1 short distal lobe	Distal part with lateral protrusions, proximal part not produced into a more or less globose projection on the outer side of the distal part, apex straight, with tubercles and bent laterally, without subapical transverse groove	Triangular
A. boliviana	14-15	With 2 apical and 8 subapical aesthetascs	4+6 teeth, four of inner set cleft, and 1 very small seta in subapical position on caudal face	Molar penicil of both mandibles with about 4 branches, pars intermedia with 2 penicils on left and 1 on right mandible	Without lobes	Distal part without lateral protrusions, proximal part produced into a more or less long projection beside the distal part, apex smooth and twisted or coiled, without subapical transverse groove	With mesal margin distally produced into a long, distinct tip
A. conipus	6	With 2 apical and 10 subapical aesthetascs	4+5 teeth, four of inner set cleft	Molar penicil of both mandibles with about 4 branches, pars intermedia with 2 penicils on left and 1 on right mandible	Without lobes	Distal part without lateral protrusions, proximal part produced into a more or less long projection beside the distal part, apex smooth, straight or curved or bent laterally, without subapical transverse groove	With mesal margin distally produced into a long, distinct tip
A. dalensi	8	With 2 apical and 10 subapical aesthetascs	4+5 teeth, five of inner set cleft, and subapical tooth caudally	Molar penicil of both mandibles with 5 branches, pars intermedia with 2 penicils left and 1 on right mandible	Without lobes	Distal part without lateral protrusions, proximal part not produced into a more or less long projection beside the distal part, apex straight, curved or bent laterally and with tubercles, without subapical transverse groove	Triangular

APPENDIX 1 continued

Species	Nr. of ommatidia	Antennule	Maxillulae	Mandibles	Merus of pereopod VII	Endopodite of pleopod I	Exopodite of pleopod V
A. digitata	8	With 2 apical and 10 subapical aesthetascs	4+4 teeth, four of inner set cleft, and subapical tooth caudally	Molar penicil of both mandibles with about 4 branches, pars intermedia with 2 penicils left and 1 on right mandible	With 1 very long distal lobe	Distal part without lateral protrusions, proximal part produced into a more or less long projection beside the distal part, apex smooth, and twisted or coiled, without subapical transverse groove	With mesal margin distally produced into a long, distinct tip
A. escalonai	8	With 2 apical and 4 subapical aesthetascs	4+5 teeth, five of inner set cleft, and 1 much smaller simple tooth-seta on distal margin	Molar penicil of both mandibles with 4 branches, pars intermedia with 1 penicil on both mandibles	Without lobes	Distal part without lateral protrusions, proximal part not produced into a more or less long projection beside the distal part, apex smooth, straight or curved or bent laterally, without subapical transverse groove	Triangular
A. feistai = A. plicatipus	7	With 2 apical and 10 subapical aesthetascs	4+6 teeth, five of inner set cleft, and 1 vestigial tooth	Molar penicil with about 4 branches, pars intermedia with 2 penicils left and 1 on right mandible	Without lobes	Distal part without lateral protrusions, proximal part not produced into a more or less long projection beside the distal part, apex twisted or coiled with tubercles, without subapical transverse groove	Triangular
A. ferrarai	10	With 2 apical and about 9 subapical aesthetascs	4+5 teeth, four inner set cleft	Molar penicil of both mandibles with about 4 branches, pars intermedia with 2 penicils left and 1 on right mandible	Without lobes	Distal part without lateral protrusions, proximal part not produced into a more or less long projection beside the distal part, apex straight or curved or bent laterally with tubercles, with subapical transverse groove	Triangular
A. formosa	8	Without details or description	4+3 teeth, three of inner set cleft	Molar penicil of both mandibles with 4 branches	With 3 lobes: 2 distal and 1 proximal	Distal part without lateral protrusions, proximal part produced into a more or less long projection beside the distal part, apex smooth, straight or curved or bent laterally, without subapical transverse groove	Triangular

APPENDIX 1 continued

A. hamigera	8	With 2 apical and about 6 subapical aesthetascs	3+5 teeth, four of inner set cleft	Molar penicil of both mandibles with about 7 branches, pars intermedia with 2 penicils left and 1 on right mandible	Without lobes	Distal part without lateral protrusions, proximal part not produced into a more or less long projection beside the distal part, apex smooth, straight or curved or bent laterally, without subapical transverse groove	With mesal margin distally produced into a long, distinct tip
A. longiunguis	8	With 3 apical and more of 8 subapical aesthetascs	4+6 teeth, four of inner set cleft, and innermost simple tooth short, rostrally with subapical vestigial tooth	Molar penicil of both mandibles with 3 branches, pars intermedia with 2 penicils and coniform setae on left and 1 on right mandible	With 1 short proximal lobe	Distal part without lateral protrusions, proximal part not produced into a more or less long projection beside the distal part, apex twisted or coiled with tubercles, with subapical transverse groove	Triangular
A. malleus	7	With 2 apical and 9 subapical aesthetascs	4+5 teeth, four of inner set cleft	Molar penicil of both mandibles with 4 branches, pars intermedia with 2 penicils left and 1 on right mandible	Without lobes	Distal part with lateral protrusions, proximal part produced into a more or less long projection beside the distal part, apex smooth, twisted or coiled, without subapical transverse groove	Triangular
A. merolobata	7	With 2 apical and about 9 subapical aesthetascs	4+6 teeth, four of inner set cleft, and simple teeth short, subapical vestigial tooth on rostral surface	Molar penicil of both mandibles with 4 branches, pars intermedia with 2 penicils left, 1 on right mandible	With 1 short distal lobe	Distal part without lateral protrusions, proximal part not produced into a more or less long projection beside the distal part, apex twisted or coiled with tubercles, with subapical transverse groove	Triangular

APPENDIX 1 continued

Species	Nr. of ommatidia	Antennule	Maxillulae	Mandibles	Merus of pereopod VII	Endopodite of pleopod I	Exopodite of pleopod V
A. monstruosa	7	With 2 apical and about 4 subapical aesthetascs	4+5 teeth, four of inner set cleft, and1 much smaller simple tooth-seta on distal margin	Molar penicil with by a tuft of hairy setae, pars intermedia with 2 penicils left and 1 on right mandible	Without lobes	Distal part without lateral protrusions, proximal part produced into a more or less long projection beside the distal part, apex traight or curved or bent laterally with tubercles, without subapical transverse groove	Triangular
A. muscorum	11	With 2 apical and 6 subapical aesthetascs	4+6 teeth, four of inner set cleft, 1 very small seta in subapical position on caudal face	Molar penicil with by a tuft of hairy setae, pars intermedia with 2 penicils left and 1 on right mandible	Without lobes, with ventro-caudal tubercle	Distal part without lateral protrusions, proximal part produced into a more or less long projection beside the distal part, apex twisted or coiled with tubercles, without subapical transverse groove	Triangular
A. opercularis	7	With 2 apical and 10 subapical aesthetascs	4+5 teeth, five of inner set cleft, and 1 short subapical tooth caudally	Molar penicil of both mandibles with 4 branches, pars intermedia with 2 penicils left and 1 on right mandible	Without lobes	Distal part without lateral protrusions, proximal part produced into a more or less long projection beside the distal part, apex straight or curved or bent laterally with tubercles, without subapical transverse groove	Triangular
A. poeppigi	7	With 2 apical and 10 subapical aesthetascs	4+5 teeth, four of inner set cleft	Molar penicil of both mandibles with 4 branches, pars intermedia with 2 slender penicils left and right with few setae and 1 penicil	Without lobes	Distal part with lateral protrusions, proximal part not produced into a more or less long projection beside the distal part, apex smooth, straight or curved or bent laterally, without subapical transverse groove	With mesal margin distally produced into a long, distinct tip

APPENDIX 1 continued

A.pseudosilvatica	About 7	With 2 apical and 2 subapical aesthetascs	4+5 teeth, four of inner set cleft	Molar penicil of both mandibles with about 4 branches, pars intermedia with 2 left and 1 on right mandible	With 3 lobes on merus: 2 distal and 1 proximal	Distal part without lateral protrusions, proximal part produced into a more or less long projection beside the distal part, apex with smooth, straight or curved or bent laterally, without subapical transverse groove	Triangular
A. silvatica	About 7	With 2 apical and about 4 subapical aesthetascs	4+5 teeth, four of inner set cleft	Molar penicil of both mandibles with 3 branches, pars intermedia only sparcely setose	With 3 lobes on merus: 2 distal and 1 proximal	Distal part without lateral protrusions, proximal part produced into a more or less long projection beside the distal part, apex straight or curved or bent laterally with tubercles, without subapical transverse groove	Triangular
A. taitii	About 7	With 2 apical and about 10 subapical aesthetascs	4+6 teeth, four of inner set cleft	Molar penicil of both mandibles with about 4 branches	Without lobes	Distal part without lateral protrusions, Proximal part not produced into a more or less long projection beside the distal part, apex twisted or coiled with tubercles, with subapical transverse groove	Triangular
A. tarumae	About 11	With 2 apical and 6 subapical aesthetascs	4+4 teeth, four of inner set cleft	Molar penicil of both mandibles with 4 branches, pars intermedia with 2 right and 1 penicil on left mandible	Without lobes, with incision on distal border	Without details or description	Without details or description
A. valdezi	About 8	With 2 apical and about 9 subapical aesthetascs	4+6 teeth, five of inner set cleft	Molar penicil of both mandibles with 3 branches, pars intermedia with 2 left and 1 penicil on right mandible	Without lobes on merus	Distal part with lateral protrusions, proximal part produced into a more or less long projection beside the distal part, apex straight or curved or bent laterally with tubercles, without subapical transverse groove	Triangular