

# *Loneuroides* García Aldrete (Psocodea: 'Psocoptera': Ptiloneuridae): new species and first record for Brazil

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**Abstract.** *Loneuroides* is registered for the first time in Brazil. A new species from the Brazilian state of Bahia, is here described and illustrated. It differs from all the other species in the genus in details of the female ninth sternum and by number of primary branches in vein M of fore- and hind- wings. A map with the distribution of the species of *Loneuroides* is included.

**Key-Words.** Epipsocetae; Psocids; Neotropics; Taxonomy.

## INTRODUCTION

*Loneuroides* García Aldrete (2006) is one of 12 genera in the psocopteran family Ptiloneuridae. The type species, *Loneuroides venezolanus* García Aldrete was described on the basis of two females from Venezuela. García Aldrete *et al.* (2016) described six additional Colombian species of *Loneuroides* and described and illustrated the male of *L. venezolanus*. One of us (AMSN) recently found, in a miscellany of insects preserved in 80% ethanol at the Federal University of Bahia, one female specimen of *Loneuroides* not assignable to any of the known species, this find is of interest, as the known species of the genus were known from northwestern South America, in Andean areas of Colombia and Venezuela (García Aldrete, 2006; García Aldrete *et al.*, 2016); the specimen found in Brazil, near the Atlantic, is quite distant from the distribution of the other species. The purpose of this paper is to describe and illustrate the specimen found, that constitutes a new record for Brazil.

## MATERIAL AND METHODS

One female specimen (Fig. 1) was available for study. It was dissected in 80% ethanol; their parts were mounted in Canada balsam: head, right antenna with distal flagellomeres and mouthparts (right lacinia and maxillary palp, right mandible,

left mandible, labium and labrum), and right legs, right and left wings, and genitals. Before dissecting, the specimen was placed in 80% ethanol under a dissecting microscope, illuminated with cold, white light, and observed at 50X to record color. Standard measurements (in  $\mu\text{m}$ ), were taken with a filar micrometer. Abbreviations of parts measured are as follows: FW and HW: right fore- and hind- wing lengths, F, T, t1, t2 and t3: lengths of femur, tibia and tarsomeres 1, 2 and 3 of right hind leg, f1...fn: lengths of flagellomeres 1...n of right antenna, Mx1-Mx4: lengths of palpomeres 1-4 of right maxillary palpus, IO: minimum distance between compound eyes in dorsal view of head, D and d: antero-posterior and transverse diameter, respectively, of right compound eye in dorsal view of head, PO: d/D. The final storage of the specimens was in "CD boxes" as described by Silva-Neto *et al.* (2016a).

Photographs of the specimen were taken with a Leica DFC500 digital camera attached to a Leica M205C stereomicroscope, connected to a computer with the Leica Application Suite LAS V3.6 software, which includes an Auto-Montage module (Syncroscopy software). The distribution map was generated on the website [www.simplemap-pr.net](http://www.simplemap-pr.net).

The type will be deposited in the entomological collection "Prof. Johann Becker" of the Zoological Museum of the State University of Feira de Santana (ZMFS), Feira de Santana, Bahia, Brazil.

## RESULTS

### *Loneuroides baianus* sp. nov. Female (Figures 1-8)

**Diagnosis:** Vein M of forewing six-branched with one crossvein between A2 and the wing margin. Hindwing M two-branched. Ninth sternum broad, trapeziform, anteriorly wide, concave in the middle; sides converging towards a membranous convex apex, an anterior transverse sclerotized band concave in the middle, a mesal and a posterior transverse sclerotized bands convex and slightly concave in the middle, respectively in the middle. V2+3 with a row of seven large setae on v2, posterior process straight, distally with a field of microspines, v1 long, slender.

**Color:** Body yellow, with ochre brown spots. Compound eyes black, ocelli hyaline, with ochre centripetal crescents; head pattern (Fig. 2). Scape brown, pedicel dark brown, f1-f3 yellow with proximal ends brown, rest of each flagellomere white. Mx1-Mx2 pale yellow, Mx3-Mx4 yellow. Femora yellow; tibiae pale brown with distal ends dark brown, tarsomere 1 pale brown, tarsomeres 2-3 brown. Forewings with a marginal, slender, pigmented brown band from R4+5 to confluence of Cu2-1A, with two hyaline areas between each intersection of the veins and the edge of the wing; a dark pigment spot at the base of each setae on the basal section of vein R, M+Cu1 and A1, pterostigma brown with a hyaline area in the lower angle. Veins pale brown, with dark brown areolae on setal insertions (Fig. 3). Hindwings almost hyaline, with a small, pale brown area proximally and a small pale brown spot at confluence of CuP and wing margin; veins brown, with brown spots at wing margin (Fig. 4).

**Morphology:** Head with vertex concave in the middle, slightly above the level of the upper border of the compound eyes; compound eyes without interommatidial setae (Fig. 2). Outer cusp of lacinial tip broad, with seven denticles (Fig. 5). Forewing pterostigma narrow basally, wider in the middle, slightly extended towards Rs; areola postica tall, triangular, with apex rounded; M stem slightly concave proximally, then almost straight (Fig. 3). Hindwing M two-branched (Fig. 4). Subgenital plate broad, sides converging to a pointed apex; pigmented area wide along sides and posterior border; setae as illustrated (Fig. 6). Ninth sternum (Fig. 7) broad, trapeziform, anteriorly wide, concave in the middle; sides converging towards a membranous convex apex. Gonapophyses (Fig. 7): v1 heavily sclerotized, distally acuminate, v2+3 proximally wide, with a pointed heel. Paraprocts almost triangular, broad, sensory fields with 33 trichobothria on basal rosettes; setae as illustrated (Fig. 8). Epiproct triangular, with a group of three mesal setae, other setae as illustrated (Fig. 8).

**Measurements (in microns):** FW: 5637, HW: 3721, F: 1483, T: 2439, t1: 963, t2: 111, t3: 190, f1: 905, f2: 1066, f3: 1199, Mx4: 382, IO: 655, D: 489, d: 355, PO: 0.72.

**Material examined:** Holotype female (ZMFS). BRAZIL. Bahia. Camacan. Reserva Particular do Patrimônio Natural Serra Bonita. 15°24'04.0"S, 39°33'58.6"W. 27.XI.2011. Light trap. A.R. Calor.

**Etymology:** The specific name is an adjective that refers to the Brazilian state of Bahia.

## DISCUSSION

The distribution of the previously described species of *Loneuroides* was restricted to northwestern South America, in Colombia and Venezuela. The new record for the Brazilian state of Bahia extends to the southeast the distribution of this genus in 4615 kms (Fig. 9).

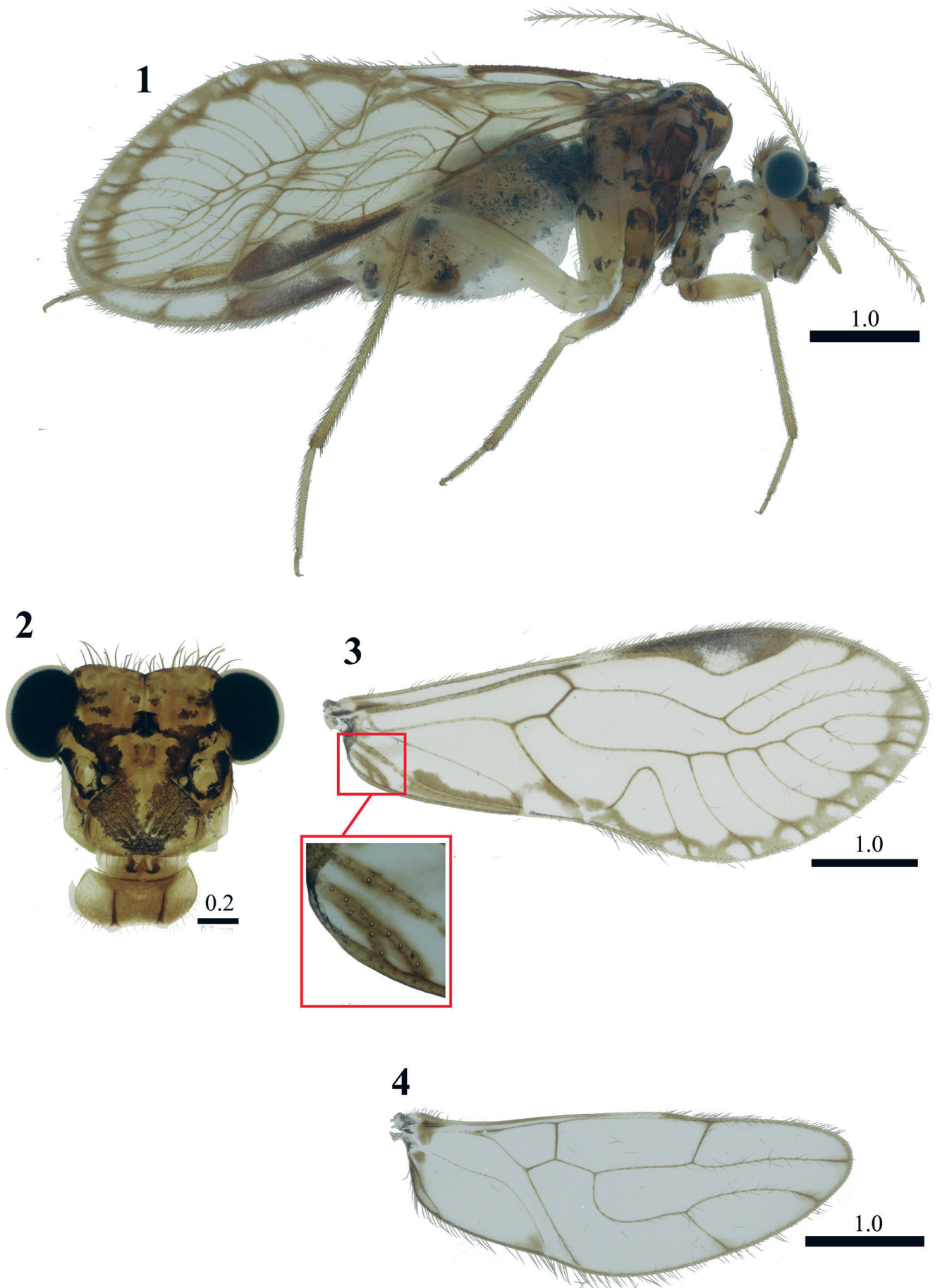
Presence of one crossvein between A2 and the forewing margin is a character shared only by *Timnewia* García Aldrete and *Loneuroides* García Aldrete. The latter differs from the former in having the hindwing vein M branched, in having more than four branches in vein M of the forewing and by lacking one crossvein between vein A1 and wing margin.

Casasola González (2006) inferred the phylogenetic relationships of the genera of Epipsocetae, and recognized *Loneuroides* as sister group of a clade which included *Timnewia* and *Euplocania*. Silva-Neto *et al.* (2016b) inferred the phylogenetic relationships of the genera of Ptiloneuridae and corroborated the monophyly of *Loneuroides*, and recognized it as sister group of *Ptiloneura* Enderlein. Silva-Neto *et al.* (2016b) proposed also the clade that included *Loneuroides* and *Ptiloneura* as sister group of *Loneura* Navás.

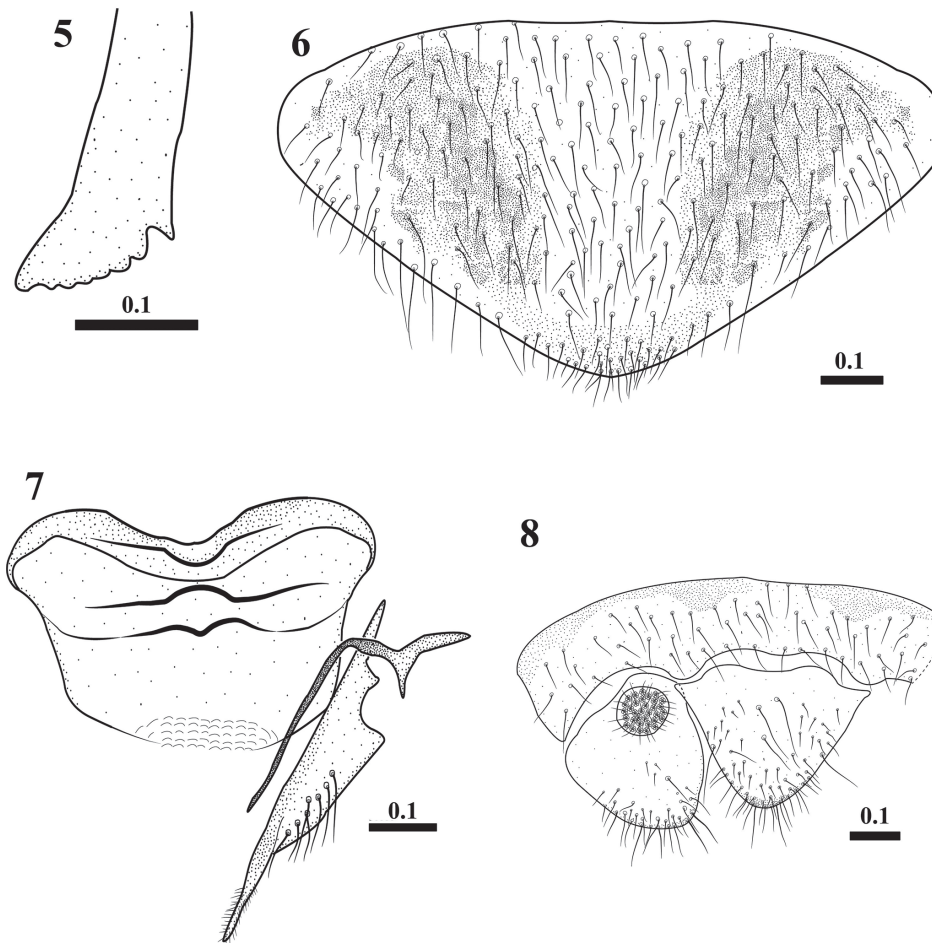
García Aldrete *et al.* (2016) mentioned that *Loneuroides*, *Ptiloneura* and *Loneura*, appear to constitute a cluster of related genera based on similar characteristics of pterostigma, areola postica and marginal pigmented band of the forewing. The above authors also mention that *Loneuroides* can be easily distinguished from the other two genera of this cluster by having one crossvein between A2 and the wing margin.

Among the eight species of *Loneuroides*, only *L. venezolanus* García Aldrete, *L. tamaensis* García Aldrete *et al.*, and *L. baianus* have known females; the last two species are known only by females.

*Loneuroides baianus* differs from the other *Loneuroides* species with females known in details of the ninth sternum (compare Fig. 7 in this paper with fig. 6 in García Aldrete, 2006 and fig. 35 in García Aldrete *et al.*, 2016) and by having gonapophyses with seven large setae on v2, rather than four setae as in other females of *Loneuroides*. The pattern of head pigmentation of the *L. baianus* is similar to *L. tamaensis*, but differing in details (compare Fig. 2 in this paper with fig. 32 in García Aldrete *et al.*, 2016). *Loneuroides baianus* can not be assigned to any of the *Loneuroides* species with known males, because it is unique in having the vein M of the forewing six-branched, and by having the hindwing M two-branched.



**Figures 1-4.** *Loneuroides baianus* sp. nov. Female (Holotype). (1) Lateral view. Scale in mm. (2) Front view of head. (3) Right forewing with zoom in crossvein between A2 and wing margin. (4) Hindwing. Scales in mm.



**Figures 5-8.** *Loneuroides baianus* sp. nov. Female (Holotype). (5) Lacinial tip. (6) Subgenital plate. (7) Ninth sternum and Gonapophyses. (8) Clunium, right paraproct and epiproct. Scales in mm.



**Figure 9.** Distribution of the *Loneuroides* species.

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