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A new species of *Seira* (Collembola: Entomobryidae: Seirini) from the Northeastern Brazilian coastal region

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ABSTRACT. *Seira* Lubbock, 1869 is the most speciose genus of Collembola in Brazil. Herein, we describe and illustrate a new species of *Seira*, *Seira ritae* **sp. nov.**, collected in João Pessoa, state of Paraíba, Brazil, in an urban seaside area. The new species shows many similarities with *S. mendoncea* Bellini & Zeppelini, 2009 especially in what concerns the dorsal distribution of the macrochaetae of the head, the metathorax, and the first three abdominal segments. However, the two species can be distinguished by the chaetotaxy of the mesothorax and abdominal segment IV. The type locality of the species probably indicates some level of natural resistance to the impacts associated with human activities.

KEY WORDS. Brazilian collembolan diversity; chaetotaxy patterns; Entomobryomorpha; Seirinae; systematics.

Entomobryidae is the largest family of Collembola (Hopkin 1997, Soto-Adames *et al*. 2008, Bellinger *et al*. 1996-2011). *Seira* Lubbock, 1869 is a predominantly tropical genus of Entomobryidae, with almost 200 described species worldwide (Barra 2010, Bellinger *et al*. 1996-2011). In Brazil, *Seira* is the most speciose genus of Collembola, with 25 described species (Abrantes *et al*. 2010, Bellini *et al*. 2010). Specimens of *Seira* spp. are very common in this country in practically all kinds of environments (Abrantes *et al*. 2010). This condition is especially true in Northeastern Brazil, where at least 15 species were reported and eight of them were described within the last five years (Zeppelini & Bellini 2006, Bellini & Zeppelini 2008a,b, 2009a,b, Bellini *et al*. 2009, 2010).

The morphology of species of *Seira* is quite similar to species of other derived genera of Entomobryidae, such as *Entomobrya* Rondani, 1861 and *Lepidocyrtus* Bourlet, 1839. However, species of *Seira* can be distinguished from them by the presence of a falcate mucro, eight or seven lenses on each eyepatch, and yellow or brown round scales covering the dorsum of the head, body, and the first segments of antennae, legs, and furca (Christiansen & Bellinger 2000, Barra 2004a,b).

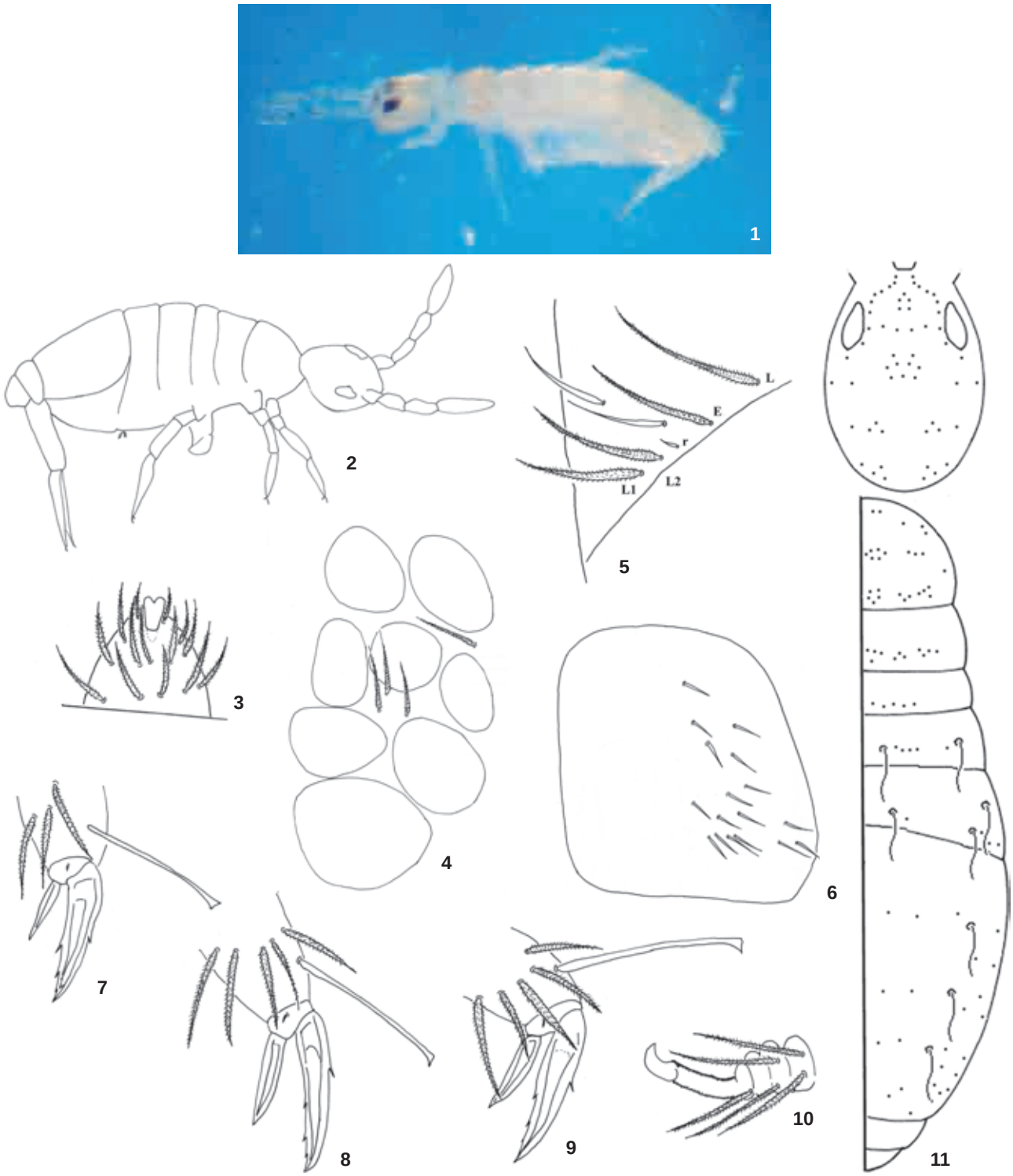
Herein, we describe a new species of *Seira* from the Northeastern Brazilian coastal area. The specimens were found associated to sand dunes and collected using Berlese-Tullgren funnels. The chaetotaxic system used to describe the disposition of dorsal macrochaetae follows that of Christiansen & Bellinger (2000), which was modified from Jacquemart (1974). Type material is deposited in the Museu Nacional, Universidade Federal do Rio de Janeiro (CM/MNRJ).

TAXONOMY

Seira ritae sp. nov.

Figs 1-11

Description. Habitus typically entomobryid (Figs 1 and 2). Measurements of the holotype: antennae length 0.23 mm; head length 0.2 mm; body length 0.81 mm; furca length 0.24 mm. Total body length of holotype (head + body) 1.01 mm. Rate between antennal length and cephalic diagonal 1.21. Color of fixed specimens pale white, with light blue pigment covering antennae and dark blue pigment covering front head and eyepatches (Fig. 1). Color of mounted specimens pale white to pale yellow with light blue pigment covering antennae and sometimes the legs and dark blue pigment covering eyespatches and front head. Brown apically rounded scales covering antennae I and II, basal half of antennae III, basal third of antennae IV, head, thorax, abdomen, all leg segments, manubrium and dens. Collophore without scales. Fourth antennal segment not annulated, with single apical bulb, without pin setae (Fig. 3). Eyepatches oval, with largest lens being G and smallest lens being E, with four interocular feathered setae (Fig. 4). Pre-labral setae feathered and labral setae smooth. Labial triangle seta **r** reduced and M1, M2, E and L feathered (Fig. 5). Trochanteral organ V-shaped with approximately 17



Figures 1-11. *Seira ritae* **sp. nov.**: (1) habitus of a fixed specimen showing body pigmentation; (2) habitus; (3) apical bulb of the 4th antennal segment; (4) lenses of the right eyepatch; (5) setae of the labial triangle; (6) trochanteral organ; (7) first foot complex; (8) second foot complex; (9) third foot complex; (10) distal dens and mucro; (11) dorsal macrochaetae distribution.

spine-like setae (Fig. 6). Pro-, meso- and metaungues with four inner teeth, one major pair at base and two minor unpaired teeth at apex (Figs 7-9). Unguiculi acuminate with smooth edges (Figs 7-9). Tenent hair slightly serrate and capitate. Venter of manubrium with 4+4 subapical setae. No spine-like setae on manubrium. Mucro typically falcate (Fig. 10). Dorsal macrochaetae distribution on head and body as in figure 11.

Type material (MNRJ). Holotype female, Brazil, Paraíba, João Pessoa, Praia do Bessa. 03-III-2009. Melo, C.F. *leg*. Paratypes: 3 females, 1 male and 2 juveniles, same data as holotype.

Etymology. *Seira ritae* **sp. nov.** was named after Dr. Rita Mascarenhas, who develops her research in the type locality of the species.

Remarks. The closest species to *S. ritae* **sp. nov.** appears to be *S. mendoncea* Bellini & Zeppelini, a taxon also reported from the state of Paraíba (Bellini & Zeppelini 2008b). These taxa share similar patterns of dorsal macrochaetae distribution on all cephalic regions (except posterior region 6), metathorax, and abdominal segments I, II and III (in this last one, there are extra setae on region B in *S. ritae* **sp. nov.**). Both species also have similar feet complexes, labial triangle chaetotaxy, and same number of interocular setae (even though they are in different positions in the two species). However, these last three morphological conditions are recurrent among many species of *Seira* (Christiansen & Bellinger 2000).

Seira ritae **sp. nov.** can be distinguished from *S. mendoncea* and other species of *Seira* by an unique combination of the dorsal chaetotaxy of mesothorax and abdominal segment IV. In these two segments, almost all regions have different numbers and positions of macrochaetae in *S. ritae* **sp. nov.** and *S. mendoncea*. *Seira ritae* **sp. nov.** also has 4+4 subapical setae on the manubrium, whereas *S. mendoncea* has 5+5. Finally, while *S. ritae* **sp. nov.** was only found next to the seashore, *S. mendoncea* was reported solely from the Caatinga biome (Bellini & Zeppelini 2008b).

Seira ritae **sp. nov.** was collected over sand dunes of "Praia do Bessa", an urban shore area in João Pessoa, capital of the state of Paraíba. This area is located in the Good's biogeographic zone 27 (Good 1974). The specimens were collected near the upper vegetation of sand dunes, during the wet season. The climate of the type locality is 'As', according to Koeppen's system (Kottek *et al*. 2006), which means that the main climate of the area is equatorial and the precipitation levels indicate a dry summer. The survival of the species in an urban, highly impacted area possibly indicates some level of resistance to major environmental issues, such as air, ground and water pollution, reduction of original vegetation cover, introduction of exotic plants and animals and other ecological harms related to constant human presence.

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