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PARASITIFORMES, LAELAPIDAE) FROM  
THE MARSUPIAL *MONODELPHIS*  
*AMERICANA*

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## A NEW SPECIES OF NEOTROPICAL LAELAPINE MITE (ACARI: PARASITIFORMES, LAELAPIDAE) FROM THE MARSUPIAL *MONODELPHIS AMERICANA*

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**ABSTRACT:** *Androlaelaps ilhacardosoi*, a new species of Laelapinae, is described from the pelage of a 3-lined marsupial, *Monodelphis americana*, collected on Ilha Cardoso, São Paulo State, Brazil. The description is based on the female, and the systematics of laelapine mites associated with neotropical marsupials is discussed.

*Monodelphis* spp. are small, terrestrial marsupials that are common components of many neotropical mammal communities, but they are very poorly known taxonomically. In 1997, the senior author described a new species of mite from *M. rubida*, collected in the gallery forests of central Brazil (Gettinger, 1997). This mite, *Androlaelaps cuicensis* Gettinger, is distinctive, with many characteristics new to neotropical mammal-associated laelapine mites. The proximal seta of Coxa I is inserted on the tip of a large chitinous spur, the first and third sternal setae are inflated basally, and the unarmed opisthogaster has long terminal setae. Recently, we have encountered another new mite species, from a different “3-lined marsupial,” *M. americana*, collected on Ilha Cardoso off the mainland of the state of São Paulo. The new mite is morphologically similar to *A. cuicensis* but clearly divergent in many characteristics. The presence of these 2 morphologically similar laelapine mites from closely related marsupial hosts is strong evidence that they have diverged by the processes of cospeciation.

### MATERIALS AND METHODS

Ectoparasites were sampled in the field by brushing small mammals, and the arthropod specimens were stored in 70% ethyl alcohol. On reaching the laboratory, representative specimens were mounted individually in Hoyer medium, ringed with Glyptal, and measured with a stage-calibrated ocular micrometer. All measurements are in micrometers ( $\mu\text{m}$ ); when referring to more than 1 specimen, measurements are given as the mean, followed by the range in parentheses. We use the system of mite setal nomenclature developed by Lindquist and Evans (1965) and follow Wilson and Reeder (1993) for mammalian taxonomy and nomenclature.

### DESCRIPTION

#### *Androlaelaps ilhacardosoi* n. sp.

(Fig. 1A, B)

**Female:** Dorsal shield (Fig. 1A) entire, broadest at midline, highly sclerotized and reticulated, with 40 consistent pairs of strong, simple setae; j-J and z-Z series complete; supernumerary px1–3 series complete; central podonotal setae strong, j5 reaching well posterior to base of z5; J5 long, more than half the length of Z5; glands and pores as illustrated. Unarmed dorsolateral idiosoma (Fig. 1A) with 22–23 pairs of simple setae.

Sternal shield (Fig. 1B) slightly wider than long, broadest at

posterolateral angles; anterior margin slightly convex with a distinct medial notch; surface sculpturing reticulate–lineate extending into presternal region; posterior margin deeply concave; first and third sternal setae short with swollen bases and acuminate tips; second setae strong setiforms, much longer than the other sternal setae; posterior lyriform sternal pores distinctly longer than anteriors; third pair of tiny pores on unarmed integument medial to metasternal shields that bear strong fourth pair of sternal setae. Epigynial shield (Fig. 1B) rounded posteriorly and expanded laterally, posterior to long setiform epigynial setae; posterolateral margins closely subtended by 3 pairs of strong opisthogastric setae. Anal shield (Fig. 1B) subtriangular, wider than long, surface reticulate with lateral angles punctuate; cribrum with 3 rows of denticles, extending laterally to a point slightly anterior to insertion of postanal seta; paranal setae much shorter than postanal seta. Unarmed opisthogaster (Fig. 1B) with 11 pairs of strong simple setae; metapodal shields small, oval, lightly sclerotized and granular; peritreme extends to a point just anterior to Coxa II; peritrematic shield extending posterior to stigma.

**Gnathosoma:** Epistome simple, membranous. Chelicerae thick and chelate–dentate; arthrodistal processes well developed; movable digit with three strong teeth and a hooked tip; fixed digit with 3 large teeth, 2 knobs just basal to tip, and a long, sickle-shaped pilus dentilis. Ventrally (Fig. 1B), tritosternum typically laelapine; gnathosomatic chaetotaxy normal; inner pair of hypostomal setae longest, reaching to insertion of gnathosomal (palpcoxal) setae; anterior hypostomatic setae long, reaching almost to the tip of corniculae; outer hypostomal setae shorter than gnathosomal setae. Deutosternum with 6 transverse rows of denticles; corniculi strongly sclerotized and hornlike; internal malae with long dorsolateral fringe; labrum extends anterior to corniculi. Pedipalps with 6 segments (chaetotaxy 1, 2, 5, 6, 11, —); palpal femur with most basal dorsal setae (d2, d3) minute (much longer in *A. cuicensis*); palpal claw 2-tined.

**Legs:** All of moderate length and thickness; legs I and II subequal in length, but leg II is much thicker; leg II shortest; leg IV longest. Ambulacrum of leg I with smaller claws than other legs; all empodiae are small, extending barely beyond tips of claws. Proximal seta of Coxa I strongly spiniform, inflated basally with long acuminate tip. Posterior seta of Coxa II spiniform and slightly swollen basally. Apical dorsal setae of femurs I and II (ad1, pd1) long; tarsus I with short setae, but tarsi II, III, IV with increasingly longer setation. I = 2, 6, 13, 13, 13, —; II = 2, 5, 11, 11, 10, 17; III = 2, 5, 6, 9, 9, 17; and IV = 1, 5, 6, 10, 10, 18.

**Measurements:** Ten specimens—dorsal shield length, 722 (704–740); dorsal shield width, 513 (490–525); j5, 111 (102–125); z5, 105 (97–111); J5, 90 (85–98); Z5, 114 (105–119);

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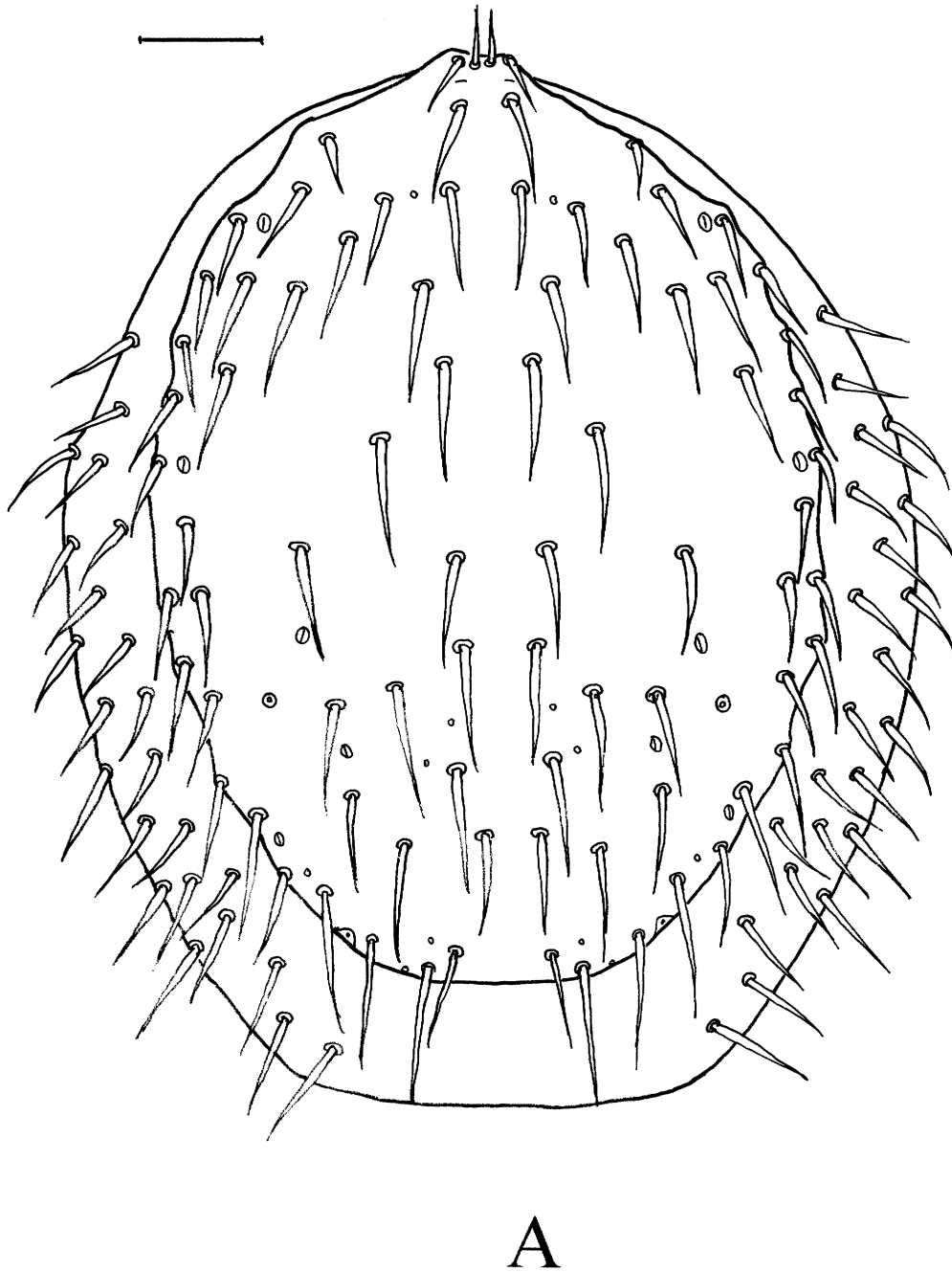
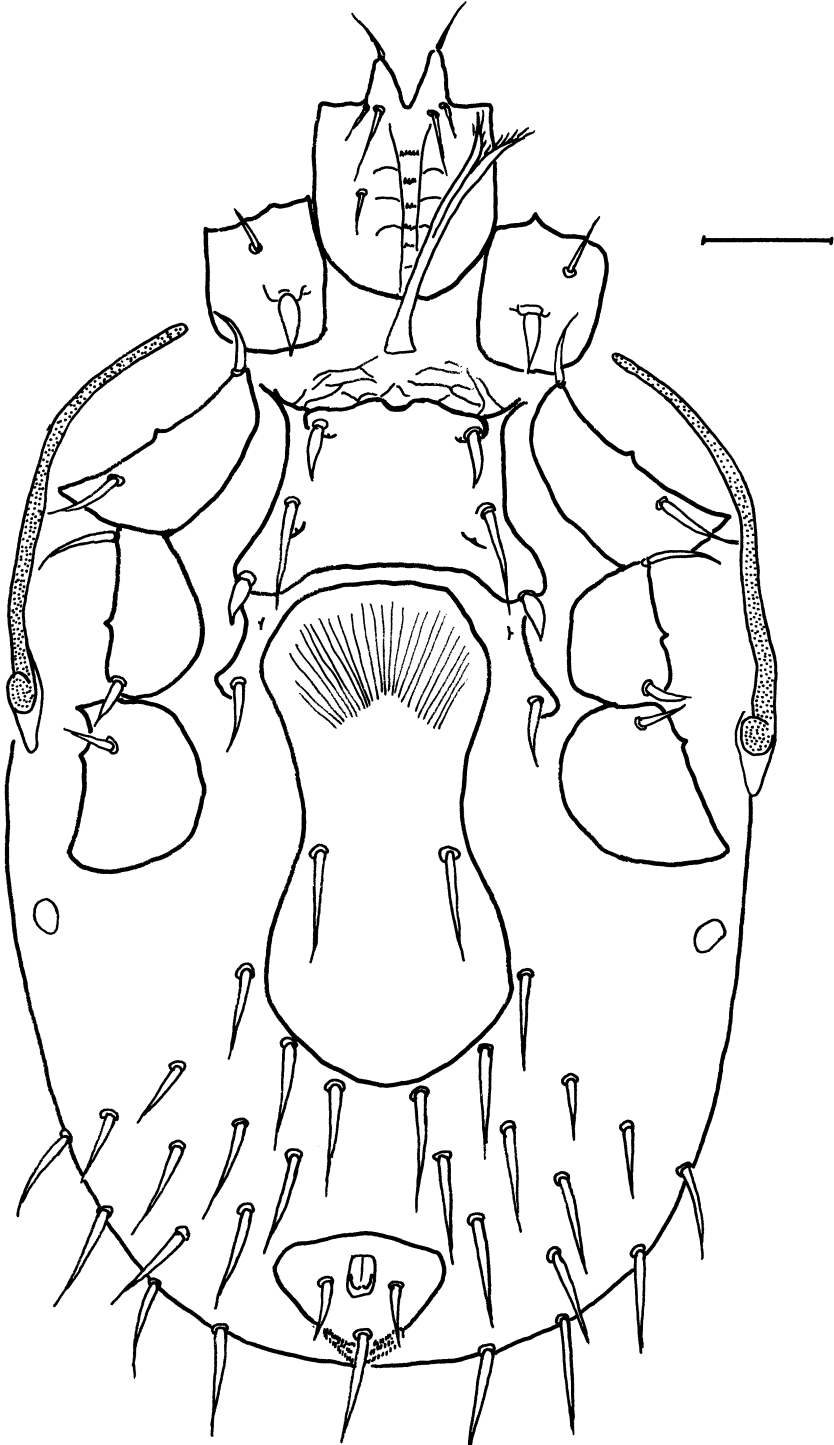


FIGURE 1. *Androlaelaps ilhacardosoi*, female. **A.** Dorsum, **B.** venter. Bar = 100  $\mu$ m.

gnathosomal seta, 35 (32–37); inner hypostomal seta, 67 (62–70); sternal shield length, 125 (119–133); sternal shield width, 177 (170–182); sternal seta 1, 42 (40–45); sternal seta 2, 79 (74–83); sternal seta 3, 39 (37–44); sternal seta 4, 55 (52–59); epigynial seta, 86 (82–88); paranal seta, 47 (40–52); postanal seta, 78 (75–80); greatest width of anal shield, 117 (108–125); proximal seta coxa I, 44 (42–47); posterior seta coxa II, 72 (68–75); longest apical dorsal seta femur I, 69 (65–72).

**Diagnosis:** The 2 known species of *Androlaelaps* associated with the 3-lined *Monodelphis* are very similar but can be distinguished easily from other mites of the genus by the combi-

nation of strong dorsal setation and the highly specialized ventral shields; the first and third sternal setae are inflated basally with long acuminate tips; the second sternal setae are much longer than the other sternal setae. The new species described here, *A. ilhacardosoi*, can be distinguished from *A. cuicensis* Gettinger by the following set of characters: (1) proximal seta on Coxa I is spiniform (setiform and inserted on a large spur in *A. cuicensis*) and (2) paranal setae just reaching the base of postanal seta (extending to posterior cribrum in *A. cuicensis*). Another potential character to separate these very similar species is the medial notch on the anterior margin of the sternal



**B**

FIGURE 1. Continued.

shield of *A. ilhacardosoi*, but we have some doubt regarding this character because of the small number of specimens examined.

#### Taxonomic summary

*Type host:* *Monodelphis americana*, specimen BDP2887, located in the Vertebrate Division, Field Museum of Natural History, Chicago, Illinois.

*Locality:* Ilha Cardoso, São Paulo, Brazil, an island of 22,500 hectares, just off the mainland of the states of São Paulo and Paraná; vegetation predominantly Atlantic Forest.

*Specimens deposited:* Holotype and 2 paratypes at the Instituto Butantan, São Paulo, Brazil, and 2 paratypes at the Museu Zoologia, Universidade de São Paulo, Brazil; a series of 3 paratypes at the Field Museum of Natural History, Chicago, Illinois; a series of 2 paratypes at the Harold W. Manter Laboratory of Parasitology, University of Nebraska, Lincoln, Nebraska.

*Material examined:* Ten females were examined and measured, all from the type host individual and type locality.

*Etymology:* The specific epithet of *A. ilhacardosoi* was taken from the name of the type locality, Ilha Cardoso, an island off the mainland of the state of São Paulo, Brazil.

*Biology:* The type series of 10 females comprised 3 reproductive females carrying larvae, 4 females with eggs, 1 female of undetermined status, and 2 teneral females.

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