New South American Lachesilla (Psocoptera: Lachesillidae)

Alfonso Neri García Aldrete


Abstract: Seven South American species of the psocid genus Lachesilla are here described and illustrated: L. brasiliensis n.sp. and L. carioca n.sp. (from Brazil, pedicularia group), are closely related, differing in the pattern of pigmentation of the ninth sternum, shape of the subgenital plate, and fore wing venation: shape of pterostigma and areola postica, and Rs-M connected by a crossovein in the former, and fused for a length in the latter; L. guayaquilensis n.sp. (from Ecuador, riegeli group) is close to L. castroi Thornton & Woo, from which it differs in genital details of both sexes; L. matogrossensis n.sp. (from Brazil, is tentatively placed in the riegeli group, differing from all other described species in the group by the subgenital plate, the large gonapophyses and the anterior projections of the ninth sternum; L. picticepsoides n.sp. (from Ecuador, corona group) is close to the Mexican L. picticeps Mockford, from which it differs in the distal apophyses of the claspers, the mesal projections of the epiproct (absent in L. picticeps), the anterior margin of the ninth sternum, and in the shape of the flap of the subgenital plate (triangular in L. picticepsoides and rectangular in L. picticeps); L. teresiana n.sp. (from Brazil, pedicularia group) is close to L. nuptialis Badonnel & Garcia Aldrete, from which it differs in the shape of the subgenital plate and gonapophyses; L. veneper n.sp. (from Venezuela and Perú, pedicularia group), is close to the Venezuelan L. trujillense García Aldrete, from which it differs in fore wing venation and pigmentation, and in the length of the epiproct extensions, stouter, shorter and without distal teeth in L. veneper. The types are deposited in the American Museum of Natural History, New York City.

Key words: Lachesilla, South America, new species, taxonomy, distribution.

The South American subcontinent is rich in species of Lachesilla, one of the largest psocid genera, with 350 recognized species in the world, including some 160 undescribed ones. 294 species of Lachesilla (84%), occur in the American Continent, and of these, 96 species (32.6%), have been collected in South America. Of the 15 species groups identifiable in Lachesilla, eight are represented in South America, most of the species belonging in groups Forcepeta and Pedicularia (with 50 and 28 species, respectively); the other groups represented are Andra, Corona and Riegeli, with four species each, Patzunensis, with two species, and Fusicipalus and Rufa, with one species each (García Aldrete 1992, 1996 (in press), unpublished data; Thornton 1985). The number of Lachesilla species in countries and islands of the American Continent is presented in Fig. 1. These data indicate that the distribution of Lachesilla species in South America is heterogeneous, pointing towards differences in richness among countries, and probably also reflecting differences in collecting effort in the different countries. It is perhaps pertinent to point out that 35 of the 38 species known in Peru, were taken at a single locality in the Peruvian Amazonia (Río Tambopata Reserved Zone, in Madre de Dios).

The purpose of this paper is to describe seven new species of Lachesilla, from Brazil (four species), Ecuador (two species), and from Perú and Venezuela (one species), that belong in groups Pedicularia (four species), Riegeli (two species), and Corona (one species). Fifty three South American species of Lachesilla, in the groups Forcepeta (36 species), Pedicularia (16 species) and Patzunensis (one species), still remain to be described.
Fig. 1. Number of species of *Lachesilla* in countries and islands of the American Continent.
MATERIAL AND METHODS

The specimens for microscopic study were dissected and parts mounted in Euparal. Standard measurements (FW= Fore wing, HW= Hind wing, F= Femur, T= Tibia, t1, t2= Tarsomeres 1 and 2, cttl= No. of ctenidia on t1, P4= Fourth segment of maxillary palp, f1...f11= Flagellomeres 1...11, IO= Minimum distance between compound eyes, D= Antero-posterior diameter of compound eye, PO= Transverse diameter of compound eye, PO= d/D) are given in microns, and were taken on the parts mounted, utilizing a filar micrometer whose measuring unit is 1.36 microns for wings, and 0.53 microns for other parts. The types of the species here described are deposited in the American Museum of Natural History, New York City (AMNH), other specimens are deposited in the California Academy of Sciences (CAS), Illinois State University (ISU), and at the Instituto de Biología, UNAM (IBUNAM).

Lachesilla brasiliensis n. sp. (F) (Figs. 2-5)

Female. COLOR (in 80% alcohol). Ground color brown reddish. Compound eyes black, ocelli clear, without pigmented centripetal crescents. Scape and pedicel (flagellae missing), maxillary palps and legs, pale brown. Wings opaque, reddish brown (Fig. 2). Thorax brown, with tergal lobes of meso- and metathorax distinct; pleural sulci dark brown.

Morphology. Pterostigma short, wide, rounded posteriorly; R and M fused basally for a short length; areola postica wide, apically rounded (Fig. 6). Subgenital plate extended posteriorly, margin slightly concave; pigmented area broadly concave, setae as illustrated (Fig. 8). Gonapophyses short, stout, apically blunt, directed posteriorly (Fig. 7). Ninth sternum (Fig. 7), limited anteriorly by a distinct, slightly pigmented band; spermapore small, located on anterior half; pigmented area on posterior half as illustrated (Fig. 7). Epiproct anteriorly straight, rounded posteriorly, with most setae towards posterior margin, and four setae in the middle. Paraproct almost elliptical, sensory fields with nine trichobothria (one without basal rosette); setae as illustrated (Fig. 9).

Measurements. FW: 1814; HW: 1581; F: 344; T: 636; t1: 212; t2: 92; cttl: 15; P4: 91; IO: 292; D: 155; d: 96; IOD: 1.88; PO: 0.61


Comments. This species belongs in group Pedicularia (García Aldrete 1974a).

Lachesilla carioca n. sp. (F) (Figs. 6-9)

Female. COLOR (in 80% alcohol). Ground color pale brown. Fore wings hyaline, veins pale brown.

Morphology. Pterostigma slender, elongate. R and M fused basally for a short length; areola postica wide, apically rounded (Fig. 6). Gonapophyses short, stout, apically blunt, directed posteriorly (Fig. 7). Ninth sternum (Fig. 7), limited anteriorly by a distinct, slightly pigmented band; spermapore small, located on anterior half; pigmented area on posterior half as illustrated (Fig. 7). Epiproct anteriorly straight, rounded posteriorly, with most setae towards posterior margin, and four setae in the middle. Paraproct almost elliptical, sensory fields with nine trichobothria (one without basal rosette); setae as illustrated (Fig. 9).


Comments. In spite of the heavy mutilation of the holotype (without head, legs and hind wings), the genitalia allows its separation from similar species. L. carioca also belongs in group Pedicularia, and it is obviously related to L. brasiliensis, in the general plan of the genitalia; both species differ in details of the fore wings, and in details of the subgenital plates, gonapophyses and ninth sterna.
Figs. 2-5. *Lachesilla brasiliensis* n. sp. Fig. 2. Fore and hind wings. Fig. 3. Gonapophyses and ninth sternum. Fig. 4. Epiproct and left paraproct. Fig. 5. Subgenital plate. Scales in mm. Figs 4-5 to scale of Fig. 3.
Fig. 6. Fore wing. Fig. 7. Gonapophyses and ninth sternum. Fig. 8. Subgenital plate. Fig. 9. Right paraproct and epiproct. Scales in mm. Figs. 7-8 to scale of Fig. 9.
Lachesilla guayaquilensis n. sp.  
(Figs. 10-16)

Female. COLOR (in 80% alcohol). Ground color pale brown. Compound eyes black, ocelli clear, without pigmented centripetal crescents. Antenna, maxillary palp and legs brown; a slender brown band running the length of each thoracic pleurae, next to coxae. Wings (Fig. 10), hyaline, veins brown; R1, stigmasac and brown subcuticular rings.

Abdomen pale brown, with slender, dark brown subcuticular rings.

Morphology. Subgenital plate (Fig. 13), rounded posteriorly, wide, setose anteriorly, with four distinct mesal macrosetae; distal half glabrous, next to posterior edge, a transverse, slender, pigmented band, with a distinct, broad concavity anteriorly. Gonapophyses (Fig. 14) stout, ninth sternum narrow, limited anteriorly by a slender, pigmented band, with two median apophyses anteriorly. Spermapore surrounded by a pigmented ring, close to anterior edge of ninth sternum. Epiproct (Fig. 11) obtusely concave anteriorly; both species also differ in the shape and thickness of the pigmented transverse band of the subgenital plate. The males of both species differ in the shape and length of the distal halves of the claspers (stouter and shorter in L. guayaquilensis), and in the apophysis of the epiproct (stouter and shorter in L. castroi).


Type Locality. Ecuador. Guayaquil Farm.

Comments. L. guayaquilensis belongs in group Riegeti (García Aldrete 1974a). It is very close to L. castroi Thornton & Woo (1973), from the Galapagos Archipelago, and has also been recorded from Chongonito, in continental Ecuador (New & Thornton 1975). In the latter, the subgenital plate is more pointed apically; both species also differ in the shape and thickness of the pigmented transverse band of the subgenital plate. The males of both species differ in the shape and length of the distal halves of the claspers (stouter and shorter in L. guayaquilensis), and in the apophysis of the epiproct (stouter and shorter in L. castroi).

Lachesilla mattogrossensis n. sp. (F)  
(Figs. 17-20)


Morphology. Fore and hind wings with R and M fused proximally for a short length; areola postica almost triangular (Fig. 17). Subgenital plate (Fig. 18) broad, setose, rounded posteriorly, with a pale, transverse area apically; pigmented area cleft anteriorly. Gonapophyses (Fig. 20), stout, apically blunt. Ninth sternum limited anteriorly by a pigmented band concave posteriorly in the middle, and widely concave anteriorly, with a slender projection on each side of longitudinal midline. Spermapore small, surrounded by a pigmented ring. Epiproct trapezal (Fig. 19), with setal field on distal half. Paraprocts (Fig. 19) semi-elliptical, sensory fields with 10-11 trichobothria, one without basal rosette, setae as illustrated.
Figs. 10-16. *Lachesilla guayaquilensis* n. sp. Fig. 10. Fore and hind wings, F. Fig. 11. Epiproct, F. Fig. 12. Right paraproct, F. Fig. 13. Subgenital plate, F. Fig. 14. Gonapophyses and ninth sternum, F. Fig. 15. Clunium, paraprocts and epiproct, M. Fig. 16. Phallosome apodemes, hypandrium and claspers, M. Scales in mm. Figs. 11-14 to scale of Fig. 15.
Figs. 17-19. *Lachesilla mattogrossensis* n.sp. Fig. 17. Fore and hind wings. Fig. 18. Subgenital plate. Fig. 19. Clunium, right paraproct and epiproct. Scales in mm. Fig. 19 to scale of Fig. 18.


**Type Locality.** Brazil. Mato Grosso. Campo Grande, 9-10.I.1959, A.M.Nadler, holotype F.

**Comments.** On genital characters, particularly in the shape of the gonapophyses and in the anterior projections of the ninth sternum, I am tentatively placing this species in group *Riegeli* of García Aldrete (1974a).

*Lachesilla picticepsoides* n. sp.

(Figs. 21-28)

**Female.** COLOR (in 80% alcohol). Ground color pale orange brown. Compound eyes black, ocelli clear, without pigmented centripetal crescents; two slender, dark brown
bands from each compound eye to epistomal sulcus, enclosing the antennal fossae. Antenna and maxillary palp brown. Thorax brown, with tergal lobes of meso and metathorax only slightly protuberant, tergal and pleural sulci distinct. Legs brown; wings hyaline, veins brown; distal border of pterostigma ochre. A slender dark brown band running on each side from cervix to posterior end of metathorax, next to coxae.

Abdomen creamy white, with ochre subcuticular rings, less conspicuous ventrally.

**Morphology.** Pterostigma wider and rounded posteriorly (Fig. 21). Areola postica wide, apically rounded (Fig. 21). Subgenital plate broad, setose (Fig. 28); posterior border rounded, glabrous. Mesal flap small, triangular, not reaching posterior border of the subgenital plate. Gonapophyses (Fig. 26), distally blunt.
with a sclerotized band along outer edge. Ninth stemum (Fig. 26), with anterior border obtusely convex, spermapore almost in the center. Epiproct (Fig. 22), anteriorly straight, rounded posteriorly, with setal field on posterior half.


Male. COLOR (in 80 % alcohol). Same as the female.

Morphology. Fore wing pterostigma and areola postica as described for the female. Hypandrium (Fig. 24), broad, setose, divided along intersegmental line 8-9; terminating distally in robust, inwardly curved, distally pointed claspers, each bearing a slender, acuminate apophysis on outer edge. Phallic apodemes slightly joined basally, each arm distally dilated, with a terminal acuminate apophysis, and a field of spines at the base of it (Figs. 24-25). Epiproct bilobed, setose (Fig. 23), each lobe bearing mesally a slender, pointed projection. Paraprocts (Fig. 23), rounded, with a slender, acuminate, small mesal prong; sensory fields with 11-12 trichobothria, one without basal rosette. Measurements. FW: 2721, HW: 2063, F: 492, T: 964, t1: 339, t2: 109, ctt1: 22, P4: 117, f1: 311, f2: 286, f3: 233, f4: 182, f5: 118, f6: 98, f7: 90, f8: 85, f9: 82, f10: 80, f11: 87, IO: 321, D: 162, d: 100, IO/D: 2.04, PO: 0.61.


Comments. L. picticepsoides belongs in group Corona, as defined by García Aldrete (1974a), in a complex that includes L. dividents, Garcia Aldrete (1974b), L. dispariformes Mockford (1986), L. picticeps Mockford (1986), and several undescribed Mexican species. The tips of the phallic apodemes of L. picticepsoides, are essentially as described for L. picticeps. The species in this group differ in details of the claspers, phallic apodemes, male epiproct and paraprocts, flap of the subgenital plate, and in the shape of the ninth sternum.

Lachesilla teresiana n. sp. (Figs. 29-35)


Morphology. Subgenital plate (Fig. 34) broad, setose, with pigmented area deeply concave anteriorly and with a small trapezoidal extension posteriorly. Ninth sternum (Fig. 35), deeply concave anteriorly, with two slender extensions; spermapore small and in the middle of the plate. Gonapophyses (Fig. 35), stout, setose, distally blunt, slightly curved posteriorly. Epiproct tall, rounded posteriorly, with field of setae along posterior border (Fig. 33). Paraprocts (Fig. 33), broad, elongate, with setae as illustrated; sensory fields with 11-12 trichobothria, one without basal rosette.


Male. COLOR (in 80% alcohol). Same as the female.

Morphology. Fore wing (Fig. 29), with short R-M fusion. Claspers fused laterally to hypandrium (Fig. 32). Phallosome apodemes
Figs. 21-28. *Lachesilla picticepsoides* n. sp. Fig. 21. Fore and hind wings, F. Fig. 22. Epiproct, F. Fig. 23. Epiproct and left paraproct, M. Fig. 24. Phallosome apodemes, hypandrium, claspers and adjoining abdominal sternite, M. Fig. 25. Apex of left phallosome apodeme, M. Fig. 26. Gonapophyses and ninth sternum, F. Fig. 27. Right paraproct, F. Fig. 28. Subgenital plate, F. Scale in mm. Figs. 23, 24, and 26-28 to scale of Fig. 22.
Figs. 29-35. *Lachesilla teresiana* n. sp.
Fig. 29. Fore and hind wings, M., Fig. 30. Epiproct, M., Fig. 31. Right paraproct, M., Fig. 32. Phallosome apodemes, hypandrium and claspers, M., Fig. 33. Right paraproct and epiproct, F. Fig. 34. Subgenital plate, F., Fig. 35. Left gonapophysis and ninth sternum, F. Scales in mm. Figs. 30, 31, and 33-35 to scale of Fig. 32.
forming a long, slender baculum, widened and divided posteriorly, each arm ending in an elongate, membranous area. Epiproct (Fig. 30), straight anteriorly, with field of setae mesally, and a posterior extension, obtusely concave. Paraprocts (Fig. 31), with basal piece elongate, bearing the sensory field, this with nine-ten trichobothria, one without basal rosette, distal piece with a slender, elongate prong; setae as illustrated.


Type Locality. Brazil. Santa Teresa, E.S., 26.1.1959, A.M. Nadler, holotype M, allotype F, two paratypes M.

Comments. This species belongs in group Pedicularia. The female ninth sternum is unique for this species group, although it is reminiscent to those of Lachesilla species in groups Riegel and Rufa (García Aldrete 1982, 1990). The males of several Lachesilla species in the Pedicularia group, also present apophyses in the epiproct, similar to that in L. teresiana.

Lachesilla veneper n. sp.
(Figs. 36-41)

Female. COLOR (in 80% alcohol). Ground color brown. Compound eyes black, ocelli clear, without pigmented centripetal crescents. Antenna, maxillary palp and legs pale brown. Thorax brown, with tergal lobes of meso and metathorax slightly prominent; pleural sulci dark brown. Wings hyaline, veins brown. Abdomen pale brown, with dark brown subcircular rings, less pigmented ventrally.

Morphology. Pterostigma stout, R and M fused basally for a very short length; areola postica low, almost triangular. Hind wing with R and M fused basally for a length (Fig. 36). Subgenital plate broad, extended posteriorly, margin slightly concave, sides of the projection almost parallel, pigmented area broadly concave anteriorly, setae as illustrated (Fig. 38). Gonapophyses (Fig. 39) short, stout, directed posteriorly; ninth sternum straight anteriorly, broad, with relatively large spermapore in the middle; pigmented area on posterior half as illustrated (Fig. 39). Epiproct straight anteriorly, rounded posteriorly, with setae mesally and towards posterior margin. Paraprocts almost elliptical; sensory fields with ten trichobothria, one without basal rosette; setae as illustrated (Fig. 40).


Male. COLOR (in 80% alcohol). Same as the female.

Morphology. Claspers slender, setose (Fig. 41), each limited anteriorly by a pigmented band; distal projection of each clasper slender, apically truncate. Phallosome apodemes fused to form a slender baculum that divides posteriorly in two short arms, each terminating in a small, round, membranous area (Fig. 41). Epiproct divided longitudinally in two halves, each projected posteriorly into a long, acuminate extension. Paraprocts each with a basal, strongly sclerotized half with the sensory field; these with ten trichobothria, one without basal rosette. The distal half of each paraproct is also strongly sclerotized and is extended laterally into a long, slender prong (Fig. 37).


Comments. This species belongs in group Pedicularia, and it is related to L. trujillense García Aldrete 1995 (in press) and to several undescribed species from Brazil and Venezuela with which it shares the long epiproctal extensions, and the general shape of gonapophyses and subgenital plate.
Figs. 36-41. *Lachesilla veneper* n. sp., Fig. 36. Fore and hind wings, F., Fig. 37. Paraprocts and epiproct, M., Fig. 38. Subgenital plate, F., Fig. 39. Gonapophyses and ninth sternum, F., Fig. 40. Right paraproct and epiproct, F., Fig. 41. Phallosome apodemes, hypandrium and claspers, M. Scales in mm., Figs. 37, and 39-40, to scale of Fig. 38.
I thank Randall T. Schuh, American Museum of Natural History, New York City, for the loan of most of the specimens on which this paper is based.

RESUMEN

Se describen e ilustran en este trabajo a siete especies sudamericanas del género Lachesilla (Psocoptera): L. brasiliensis n.sp., y L. carioca n. sp. (de Brasil, grupo pedicularia) son cercanas una a otra, y difieren en el patrón de pigmentación de la placa subgenital y en la venación del ala anterior: forma del pterostigma y de la areola postica; Rs-M conectadas por una vena transversal en L. brasiliensis y fusionadas en un tramo en L. carioca; L. guayaquilensis n.sp. (de Ecuador, grupo riegeli) es cercana a L. castroi Thornton & Woo, de la que se distingue por detalles genitales de ambos sexos; L. matogrossensis n.sp. (de Brasil) es tentativamente situada en el grupo riegeli, separándose de todas las especies descritas en el grupo por la forma de la placa subgenital, las grandes gonapófises y las proyecciones anteriores del noveno estemitéo; L. picticepsoides n. sp. (de Ecuador, grupo corona) es cercana a L. picticeps Mockford, de México, de la que difiere en la apófisis distales de los clápres, las proyecciones mesiales y la forma de la placa subgenital, las gonapófises y la forma de la placa subgenital, las gonapófises, las proyecciones mesiales del noveno estemitéo, las gonapófises, las proyecciones mesiales y la forma de la placa subgenital de los alvéolos distales del epiprocto. Los tipos están depositados en el American Museum of Natural History, ciudad de Nueva York.

REFERENCES


