



The *Lachesilla asperiforceps* species complex of the *L. forcepeta* species group (Psocodea: Psocoptera: Lachesillidae)

El complejo de especies *Lachesilla asperiforceps* del grupo de especies *L. forcepeta* (Psocodea: Psocoptera: Lachesillidae)

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Abstract. Four species of *Lachesilla*, from Mexico and Guatemala, are here described and illustrated. Together with *L. asperiforceps* García Aldrete, from Mexico, Guatemala and Nicaragua, they constitute the *L. asperiforceps* species complex, a diagnosis of which is provided, as well as identification keys to the males and females of the species in the complex. The types and other material studied are deposited in the National Insect Collection, within the Instituto de Biología, UNAM, México City (CNIN).

Key words: taxonomy, Mexico, Guatemala, Nicaragua, new species, identification keys, species complex diagnosis.

Resumen. Se describen e ilustran 4 especies de *Lachesilla* de México y de Guatemala, que junto con *L. asperiforceps* García Aldrete, de México, Guatemala y Nicaragua, constituyen el complejo de especies *L. asperiforceps*, del cual se incluye aquí una diagnosis; asimismo, se incluyen claves de identificación de machos y hembras del complejo de especies. Los tipos y otro material estudiado están depositados en la Colección Nacional de Insectos del Instituto de Biología de la UNAM, en México, D. F. (CNIN).

Palabras clave: taxonomía, México, Guatemala, Nicaragua, nuevas especies, claves de identificación, diagnóstico del complejo de especies.

Introduction

Four species of *Lachesilla* in the *L. forcepeta* species group (García Aldrete 1974, Mockford 1993) are described in this paper. They are closely related to *L. asperiforceps* García Aldrete (2001), from Mexico, Guatemala and Nicaragua, together constituting a species complex diagnosed herein.

Materials and methods

Eighty specimens were studied; 33 of them were dissected in 80% ethyl alcohol and their parts (head, wings and legs and genitalia) were mounted on slides in Canada Balsam. Measurements, in μm , of parts mounted, were taken with a filar micrometer of which the measuring unit is 136 μm for wings, and 53 μm for other parts. Color was recorded by placing whole specimens in 80% ethyl alcohol under the dissecting microscope, illuminated with white cold light at 80X. Abbreviation of parts measured

are as follows: FW, HW: lengths of fore- and hind- wings, F, T, t1, and t2: lengths of femur, tibia and tarsomeres of right hind leg, ctt1: number of ctenidobothria on t1, Mx4: length of fourth segment of right maxillary palp, fl...fn: length of flagellomeres 1...n of right antenna, IO, D, and d respectively: minimum distance between compound eyes, antero-posterior diameter of right compound eye and transverse diameter of right compound eye in dorsal view of head, PO: d/D. The types and other specimens of the species described, other than the second one, are deposited in the National Insect Collection (CNIN), Instituto de Biología, Universidad Nacional Autónoma de México, México, D. F., Mexico. The types of the second species here described are deposited in the collection of Edward L. Mockford, housed in the Department of Biological Sciences, Illinois State University, Normal, Illinois, USA (ISU).

Results

Lachesilla asperiforceps species complex

Females. Subgenital plate with field of setae on surface and sides converging to straight or slightly rounded

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posterior border; 3 to 6 slender, curved, pigmented lines mesally next to each side (Figs. 7, 13, 19, 25 and 33), occasionally with underlying pigmented area; gonapophyses long, wide at base, sides almost parallel, narrowing distally, blunt ended; ninth sternum almost unpigmented, with spermapore towards anterior border; females of the 4 species in the complex quite similar.

Males. Hypandrium trapeziform, with posterior margin straight or projected posteriorly in the middle; claspers with proximal halves short, rounded or elongate, bearing

distally 2 or 3 setae; distal halves curved outwards, acuminate, bearing distally a field of microspines; paraprocts with a mesal, sclerotized cone; epiproct with a sclerotized projection in the middle next to posterior margin; males of the 4 species in the complex quite variable.

The 5 species in the complex extend from María Madre Island, off the coast of Nayarit, Mexico, southeast to Volcán Mombacho, near the northwestern end of Lake Nicaragua (Fig. 35).

Key to males of the *Lachesilla asperiforceps* complex

1. Posterior margin of hypandrium decidedly projected in the middle.....2
- Posterior margin of hypandrium not projected in the middle.....4
2. Proximal halves of claspers elongate, with an acute projection posteriorly on outer edge; distal halves of claspers curved outward, straight, acuminate, without basal prominences on outer edge.....3
- Proximal halves of claspers short, without an acute projection as above; distal halves of claspers acuminate, curved, the ends pointing outward, each with a conical protuberance basally on outer edge; epiproct with a stout, blunt ended projection in the middle*L. asperiforceps* García Aldrete
3. Epiproct with a slender, conical projection in the middle. Acapulco, Guerrero, Mexico.....*L. acapulcana* n. sp.
- Epiproct with a broad, stout projection in the middle. Chiapas, Oaxaca, Mexico.....*L. acapulcanoides* n. sp.
4. Distal processes of claspers with a basal conical protuberance on outer edge. Epiproct with a long, slender, pointed posterior projection in the middle*L. latiforceps* n. sp.
- Distal halves of claspers with a band of striae on outer edge. Epiproct with a short, conical posterior projection in the middle.....*L. striatiforceps* n. sp.

Key to females of the *L. asperiforceps* complex

1. Subgenital plate mesally with 3 curved, pigmented lines next to each side; spermapore enclosed by U-shaped, V-shaped or tear shaped unpigmented marks on ninth sternum.....2
- Subgenital plate mesally with 4-6 curved, pigmented lines next to each side; spermapore at least partially enclosed by a pigmented area.....4
2. Spermapore inscribed within a U or V-shaped mark on ninth sternum.....3
- Spermapore inscribed within a tear-shaped mark on ninth sternum.....*L. asperiforceps* García Aldrete
3. Spermapore inscribed within a V-shaped mark on ninth sternum.....*L. acapulcana* n. sp.
- Spermapore inscribed within a U-shaped mark on ninth sternum.....*L. acapulcanoides* n. sp.
4. Spermapore with an elongate, pigmented area posteriorly.....*L. latiforceps* n. sp.
- Spermapore surrounded by a rhomboid, slightly pigmented area.....*L. striatiforceps* n. sp.

Lachesilla acapulcana n. sp. (Figs. 1-7)

Diagnosis. Males: Hypandrium almost rectangular, posterior border straight, with large, obtusely convex, pointed projection in the middle; claspers basally with sides almost parallel, with an acute projection distally on outer edge; distal process stout, narrowing to blunt apex; posterior projection of epiproct of medium length, slender, distally pointed; females: subgenital plate posteriorly straight, postero-lateral corners rounded; 3

pigmented lines mesally on each side; and a V-shaped pigmented mark on ninth sternum, with spermapore inscribed in it.

Female. Color (after 40 years in 80% ethyl alcohol). Body light brown. Compound eyes black, ocelli hyaline, without pigmented centripetal crescents. Tergal lobes of meso- and metathorax slightly more pigmented than rest of the thorax. Wings hyaline, veins pale brown. Abdomen whitish, with pale brown subcuticular rings, more conspicuous along sides.

Morphology. Forewing pterostigma elongate, almost rectangular, widest distal to middle. Areola postica wide, approximately triangular. Rs-M fused for a short length (Fig. 1). Subgenital plate broad, with setal field as illustrated, postero-lateral corners rounded; 3 mesal, curved sclerotized lines near each side (Fig. 7). Gonapophyses slender, elongate, blunt ended; ninth sternum with spermapore enclosed partially by a V-shaped mark, and surrounded by a narrow pigmented rim (Fig. 6). Paraprocts semi-elliptic, setose, sensory fields with 11 trichobothria on basal rosettes and a marginal trichobothrium without basal rosette. Epiproct almost semi-circular, with field of setae on posterior half (Fig. 3).

Measurements. FW: 1558, HW: 1200, F: 318, T: 583, t1: 199, t2: 72, ctt1: 17, Mx4: 79, f1: 207, f2: 190, f3: 155, f4: 117, IO: 240, D: 111, d: 162, IO/d: 1.48, PO: 1.45.

Male. *Color* (after 40 years in 80% ethyl alcohol). Same as the female.

Morphology. Compound eyes larger than the female's. Hypandrium almost trapeziform, setose, with a sharp, wide based, pointed projection in the middle; claspers with proximal halves elongate, bearing mesally 2 setae, posterior outer corner acute; distal halves curved outward, distally acuminate, with inner edge serrate, bearing a field of microspines distally (Fig. 5). Phallosome apodeme slender, elongate, ending distally in a broad, trapeziform membranous area (Fig. 5). Paraprocts almost elliptic, setose, with a small, mesal sclerotized prong; sensory fields circular, with 10-11 trichobothria on basal rosettes and a marginal trichobothrium without basal rosette (Fig. 4). Epiproct (Fig. 2) almost semi-circular, with a field of setae on posterior half and a slender sclerotized projection in the middle.

Measurements. FW: 1569, HW: 1214, F: 324, T: 603, t1: 214, t2: 84, ctt1: 17, Mx4: 69, f1: 278, f2: 225, f3: 192, f4: 132, IO: 205, D: 192, d: 152, IO/d: 1.34, PO: 0.79.

Taxonomic summary

Holotype ♂, allotype ♀, 3 paratypes ♀. Mexico. Guerrero. Acapulco. 24.VII.1969, beating branches of mango tree with dead leaves, Alfonso N. García Aldrete.

Etymology. The specific name is a toponym that refers to the type locality.

Lachesilla acapulcanoides n. sp. (Figs. 8-13)

Diagnosis. Males: Hypandrium trapeziform, posterior border slightly convex, with small, pointed projection in the middle; claspers basally wider in the middle; distal process slender, distally acuminate; posterior projection of epiproct broad, stout, obtusely convex distally; females: subgenital plate slightly projected and rounded posteriorly;

and a wide, U-shaped mark on ninth sternum, inscribing spermapore.

Female. *Color* (after 47 years in 80% ethyl alcohol). Body pale orange brown. Compound eyes black, ocelli hyaline, without pigmented centripetal crescents. Tergal lobes of meso- and metathorax slightly more pigmented than rest of the thorax. Wings hyaline, with a slight orange hue, veins pale brown. Abdomen whitish, with pale brown subcuticular rings, less pigmented ventrally.

Morphology. Forewing pterostigma elongate, almost rectangular, widest distally; areola postica rounded apically; veins Rs-M fused for a distance or diverging from a point (Fig. 8). Subgenital plate broad, setose and pigmented as illustrated, with 4 distinct mesal macrosetae and 3 pigmented lines near each side (Fig. 13). Gonapophyses as in diagnosis of the complex (Fig. 11). Ninth sternum (Fig. 11) with spermapore small, close to anterior margin, enclosed partially by a U-shaped mark and surrounded by a narrow pigmented rim. Paraprocts as in diagnosis of the complex, sensory fields with 10 trichobothria in basal rosettes and a marginal trichobothrium without basal rosette (Fig. 9). Epiproct (Fig. 9) trapeziform, slightly concave anteriorly, with setal field on posterior half.

Measurements. FW: 1716, HW: 1304, F: 338, T: 617, t1: 196, t2: 71, ctt1: 17, Mx4: 86, f1: 263, f2: 213, f3: 183, f4: 129, IO: 263, D: 172, d: 101, IO/d: 2.60, PO: 0.58.

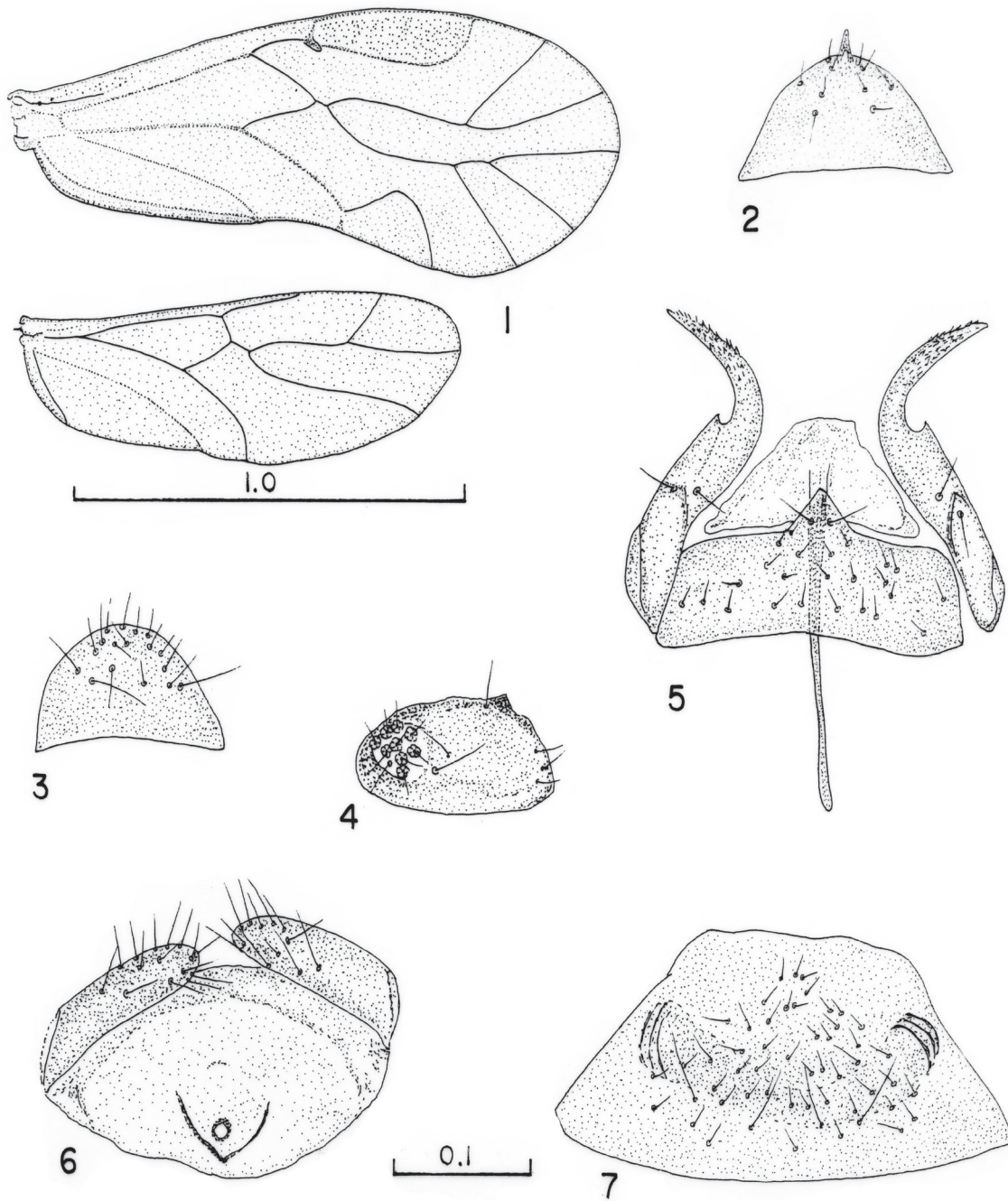
Male. *Color* (after 47 years in 80% ethyl alcohol). Same as the female.

Morphology. Compound eyes larger than the female's. Hypandrium (Fig. 10) broad, trapeziform, with a pointed projection in the middle of posterior border. Claspers with proximal halves elongate, approximately rhomboid, with 2 long mesal setae, 1 in the lower edge of distal half; posterior outer corner acute. Distal process stout, curved outward, distally straight, acuminate, with the inner edge bearing along a field of microspines (Fig. 10). Phallosome apodeme long, slender, widened distally to end in a broad membranous area (Fig. 10). Paraprocts as in diagnosis of the species complex, sensory fields with 10 trichobothria in basal rosettes and a marginal trichobothrium without basal rosette (Fig. 12). Epiproct straight anteriorly, rounded posteriorly, with a field of setae on posterior half and a stout, broad sclerotized projection in the middle (Fig. 12).

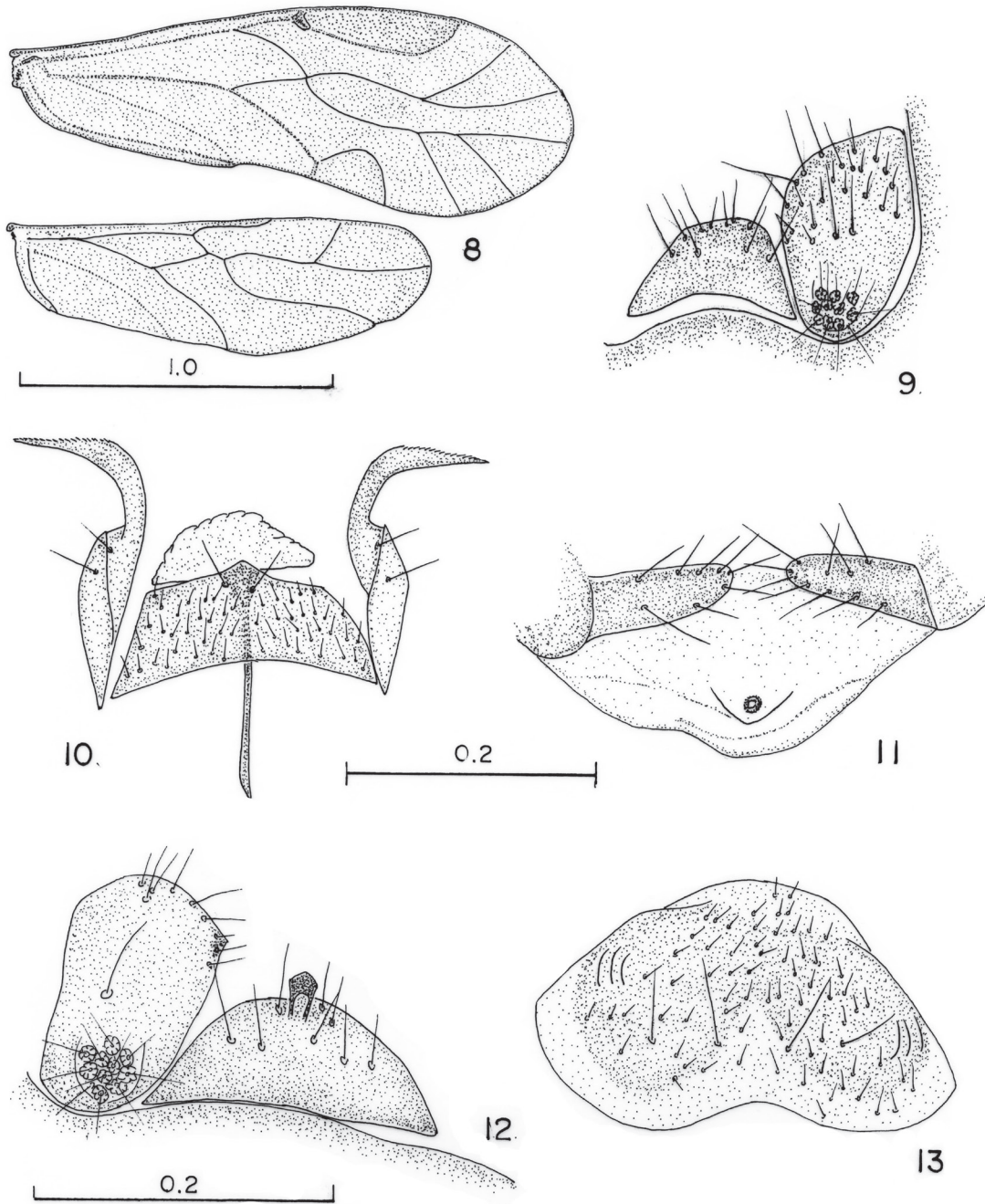
Measurements. FW: 1602, HW: 1226, F: 331, T: 606, t1: 188, t2: 156, ctt1: 18, Mx4: 75, f1: 289, f2: 231, f3: 199, f4: 144, IO: 55, D: 156, d: 102, IO/d: 0.35, PO: 0.64.

Taxonomic summary

Holotype ♂, allotype ♀, and 2 paratypes of each sex. Mexico. Chiapas. 26 km E Tapanatepec, Oaxaca, Hwy. 190, 13.VII.1962. Beating broad leaved trees and dry



Figures 1-7. *Lachesilla acapulcana* n. sp. 1. Fore- and hind-wings. ♀. 2. Epiproct. ♂. 3. Epiproct. ♀. 4. Left paraproct. ♂. 5. Hypandrium, claspers and phallosome apodeme. ♂. 6. Gonapophyses and ninth sternum. ♀. 7. Subgenital plate. ♀. Scales in mm. Figures 2-7 to common scale.



Figures 8-13. *Lachesilla acapulcanoides* n. sp. 8. Fore- and hind- wings. ♀. 9. Epiproct and left paraproct. ♀. 10. Hypandrium, claspers and phallosome apodeme. ♂. 11. Gonapophyses and ninth sternum. ♀. 12. Right paraproct and epiproct. ♂. 13. Subgenital plate. ♀. Scales in mm. Figures 9 and 13 to scale of Figures 10-11.

branches. E. L. Mockford, F. Hill and J. M. Campbell (ISU).

Etymology. The specific name means “similar to *acapulcana*”, in reference to the closeness of both species.
Records. Mexico. Chiapas. 35 km SW Cintalapa, Hwy. 190, 900 m., 20.VIII.1975, beating shrubs with dead leaves, 1♂, A. N. García Aldrete. Oaxaca. 33 km S. Matías Romero, Hwy. 185, 12.VII.1962, beating vegetation in scrubby forest, 1♂, 1♀, E. L. Mockford and F. Hill.

***Lachesilla asperiforceps* García Aldrete (Figs. 14-20)**

L. asperiforceps García Aldrete 2001, p. 181.

In the original description of the female of this species, I omitted to mention the 3 curved, pigmented lines, mesally next to each side of the subgenital plate.

***Lachesilla latiforceps* n. sp. (Figs. 21-27)**

Diagnosis. Males: Hypandrium trapeziform, only slightly projected posteriorly in the middle; claspers basally semi-elliptic; distal process broad, distally acuminate, with a small, conical protuberance basally on outer edge; posterior projection of epiproct slender, short, acuminate; females: subgenital plate broad, with posterior border slightly convex; with 4-6 pigmented lines mesally on each side; and spermapore with an elongate, pigmented area posterior to it, and 2 curved, slender lines anterior to it.

Female. Color (after 41 years in 80% ethyl alcohol). Body light brown. Compound eyes black, ocelli hyaline, without pigmented centripetal crescents. Tergal lobes of meso- and metathorax slightly more pigmented than rest of the thorax. Wings hyaline, veins pale brown. Abdomen whitish, with faint, transverse, unpigmented rings.

Morphology. Forewing pterostigma elongate, almost rectangular, wider posteriorly; veins Rs-M diverging from a point; areola postica wide, low, almost triangular (Fig. 21). Hindwing with Rs-M fused for a distance (Fig. 21). Subgenital plate (Fig. 25) broad, setose as illustrated, with 4-6 curved, longitudinal pigmented lines near each side. Gonapophyses long, setose, blunt ended; ninth sternum unpigmented, with spermapore inscribed in an area limited by irregular wrinkles (Fig. 23). Paraprocts semi-elliptic, setose; sensory fields with 11 trichobothria on basal rosettes, and a marginal trichobothrium without basal rosette. Epiproct (Fig. 24) almost semicircular, with field of setae on posterior half.
Measurements. FW: 1972, HW: 1538, F: 409, T: 759, t1: 245, t2: 95, ctt1: 19, Mx4: 99, f1: 318, f2: 262, f3: 202, f4: 138, IO: 271, D: 184, d: 137, IO/d: 1.97, PO: 0.74.

Male. Color (after 41 years in 80% ethyl alcohol). Same as the female.

Morphology. Hypandrium trapeziform, setose, with posterior margin slightly projected in the middle; claspers stout, proximal halves with 3 macrosetae posteriorly, distal halves curved outward, basally on outer edge with a small, conical prominence; a field of microspines on surface (Fig. 22). Phallosome apodeme long, slender, ending distally in a trapeziform membranous area (Fig. 22). Paraprocts (Fig. 27) semi-elliptic, setose, with a small, mesal sclerotized prong; sensory fields circular, with 10 trichobothria on basal rosettes and a marginal trichobothrium without basal rosette. Epiproct (Fig. 26) trapeziform, with a field of setae on posterior half, and with a slender acuminate projection in the middle near posterior margin.

Measurements. FW: 1914, HW: 1384, F: 370, T: 676, t1: 229, t2: 88, ctt1: 15, IO: 244, D: 169, d: 122, IO/d: 2.0, PO: 0.72.

Taxonomic summary

Holotype ♂, allotype ♀, 5 paratypes ♀, 6 paratypes ♂. Guatemala. 17.6 km N El Rancho, road to Cobán, 28.VIII.1968, beating branches with dead leaves in forest, E. L. Mockford and A. N. García Aldrete.

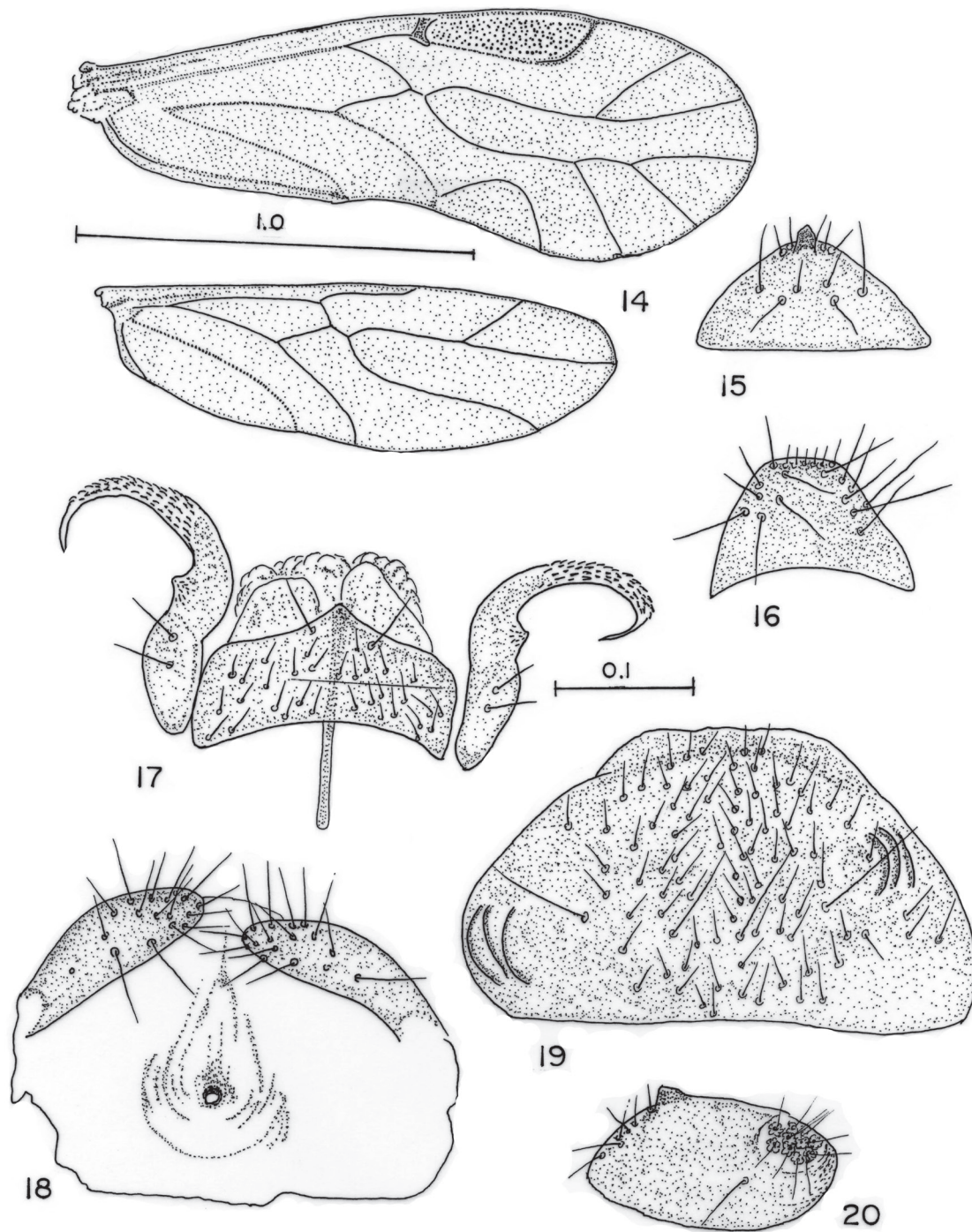
Records. Mexico. Campeche. Calakmul Biosphere Reserve, Archaeological zone, 18°06'35.4"N: 89°48'17.4"W, 265 m., 15.II.1998, beating shrubs with dead leaves, J. A. Casasola, 3♀♀, 1♂. Chiapas. Apicpac, southern edge of Malpas Reservoir, 53 km N Ocozocoautla, 1.VII.1981, A. N. García Aldrete and L. B. Menchaca López, 8♀♀, 2♂♂.

Etymology. The specific name, a noun in apposition, means “wide forceps”, and refers to the structure of the claspers.

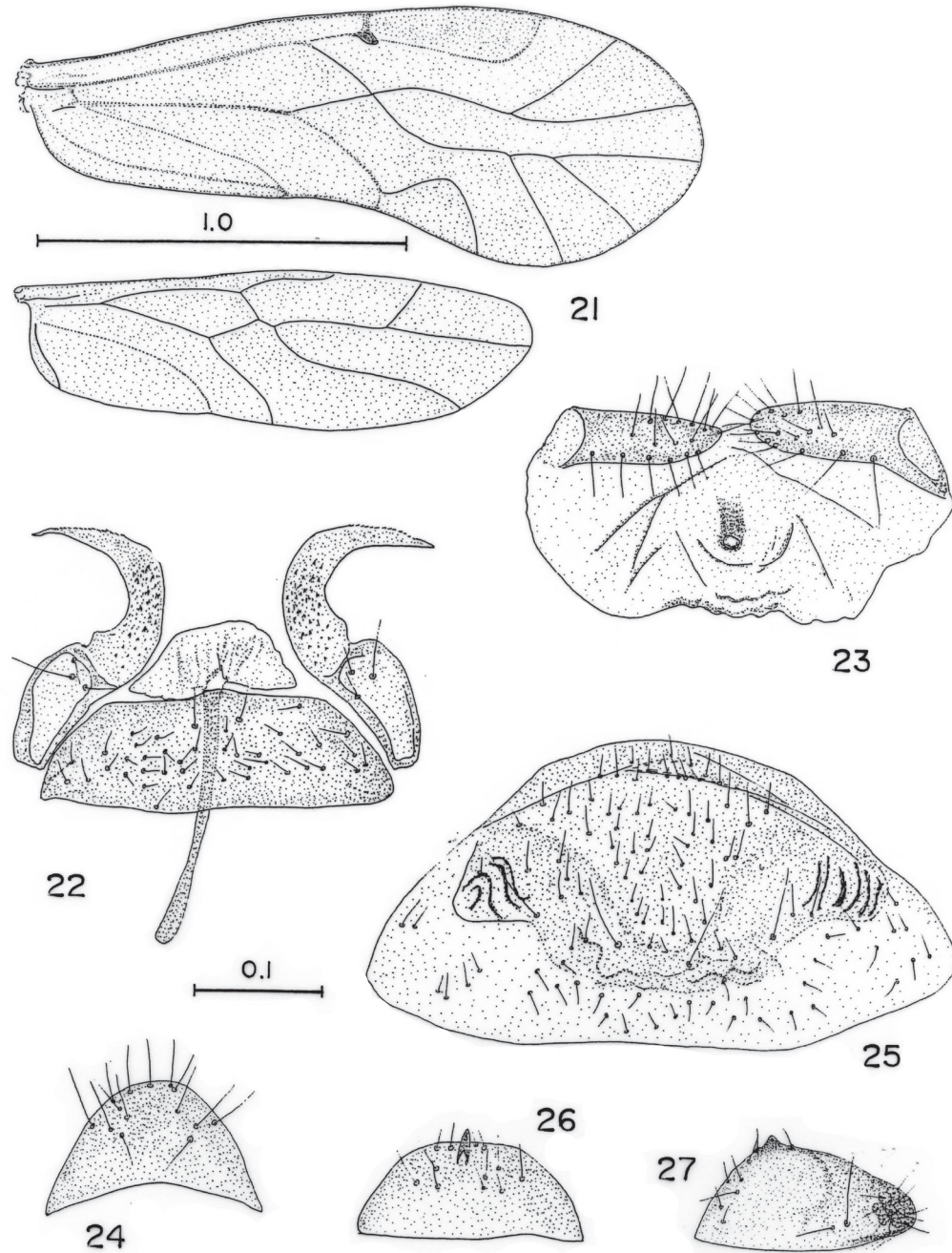
***Lachesilla striatiforceps* n. sp. (Figs. 28-34)**

Diagnosis. Males: Hypandrium trapeziform, posterior border straight; claspers with a band of striae basally on outer edge of distal process; posterior projection of epiproct very small, wide based, pointed distally; females: subgenital plate straight posteriorly, mesally with 4 pigmented lines near each side; and spermapore surrounded by a rhomboid, slightly pigmented area.

Female. Color (after 34 years in 80% ethyl alcohol). Body pale brown yellowish. Compound eyes black, ocelli hyaline, without pigmented centripetal crescents. Tergal lobes of meso- and metathorax slightly more pigmented than rest of the thorax. Wings hyaline, veins pale brown.



Figures 14-20. *Lachesilla asperiforceps* García Aldrete. 14. Fore- and hind- wings. ♀. 15. Epiproct. ♂. 16. Epiproct. ♀. 17. Hypanthium, claspers and phallosome apodeme. ♂. 18. Gonapophyses and ninth sternum. ♀. 19. Subgenital plate. ♀. 20. Right paraproct. ♂. Scales in mm. Figs. 15-20 to common scale.



Figures 21-27. *Lachesilla latiforceps* n. sp. 21. Fore- and hind- wings. ♀. 22. Hypandrium, claspers and phallosome apodeme. ♂. 23. Gonapophyses and ninth sternum. ♀. 24. Epiproct. ♀. 25. Subgenital plate. ♀. 26. Epiproct. ♂. 27. Right paraproct. ♂. Scales in mm. Figures 22-27 to common scale.

Abdomen whitish, with faint indication of transverse subcuticular rings.

Morphology. Forewing pterostigma elongate, almost rectangular, wider posteriorly; some specimens with Rs-M joined by a short crossvein (Fig. 28), others with Rs-M diverging from a point. Areola postica broad, apically rounded (Fig. 28). Hindwing with Rs-M fused for a distance (Fig. 28). Subgenital plate (Fig. 33), broad, setose, straight posteriorly, with 4 curved, pigmented lines near each side. Gonapophyses widest basally, blunt ended, setose; ninth sternum almost unpigmented, with spermapore surrounded by a broadly rhomboid, slightly pigmented area (Fig. 34). Paraprocts (Fig. 31), broad, setose, almost elliptic; sensory fields circular, with 12-13 trichobothria on basal rosettes and a marginal trichobothrium without basal rosette. Epiproct (Fig. 31) slightly concave anteriorly, rounded posteriorly, with setal field on distal half as illustrated.

Measurements. FW: 2048, HW: 1550, F: 412, T: 747, t1: 245, t2: 82, ctt1: 18, Mx4: 92, f1: 305, f2: 254, f3: 195, f4: 146, IO: 277, D: 181, d: 124, IO/D: 1.54, PO: 0.68.

Male. Color (after 34 years in 80% ethyl alcohol). Same as the female.

Morphology. Hypandrium trapeziform, with posterior margin straight; claspers robust, proximal halves narrow anteriorly, wide posteriorly, bearing 2 setae on outer edge; distal processes curved outwards, acuminate, without a basal protuberance on outer edge; a field of microspines distally on outer surface (Fig. 30), and a band of short striae on the outer edge of each clasper, covering the distal end of the proximal half and the proximal end of the distal process (Fig. 30). Phallosome apodeme long, slender, ending in a single, broad membranous area (Fig. 30). Paraprocts (Fig. 32) elliptic, setose, bearing a small sclerotized cone mesally; sensory fields circular, with 10-11 trichobothria on basal rosettes, and a marginal trichobothrium without basal rosette. Epiproct (Fig. 29) trapeziform, with setal field on distal third, and a small, sclerotized process in the middle, near posterior margin.

Measurements. FW: 2001, HW: 1530, F: 383, T: 719, t1: 222, t2: 69, ctt1: 16, Mx4: 83, f1: 305, f2: 260, f3: 214, f4: 161, IO: 254, D: 168, d: 113, IO/d: 2.24, PO: 0.67.

Taxonomic summary

Holotype ♂, allotype ♀, paratypes: 11 ♀♀, 17♂♂. Mexico. Chiapas. 46 km SW San Cristóbal de las Casas, Hwy. 190, 1 100 m., 10.VIII.1975, beating branches of mango tree with dead leaves, A. N. García Aldrete.

Records. Chiapas. 20 km N Hwy. 190, road to Pueblo Nuevo, 17.VII.1962, E. L. Mockford, 1♀. 2 km S. Ixtapa, Hwy. 196, 1 100 m., 12.VIII.1975, on dead hanging

leaves of banana tree, A. N. García Aldrete and B. García González, 1♀, 2 ♂♂. 35 km SW Cintalapa, Hwy. 190, 900 m., 20.VIII.1975, beating shrubs with dead leaves, A. N. García Aldrete and B. García González, 1♂. Oaxaca. Benito Juárez, San Miguel Chimalapa, 16°42.812'N: 94°08.923'W, 895 m., 16.X.2003, on dead hanging leaves of banana tree, A. Casasola, 1♂, 1♀.

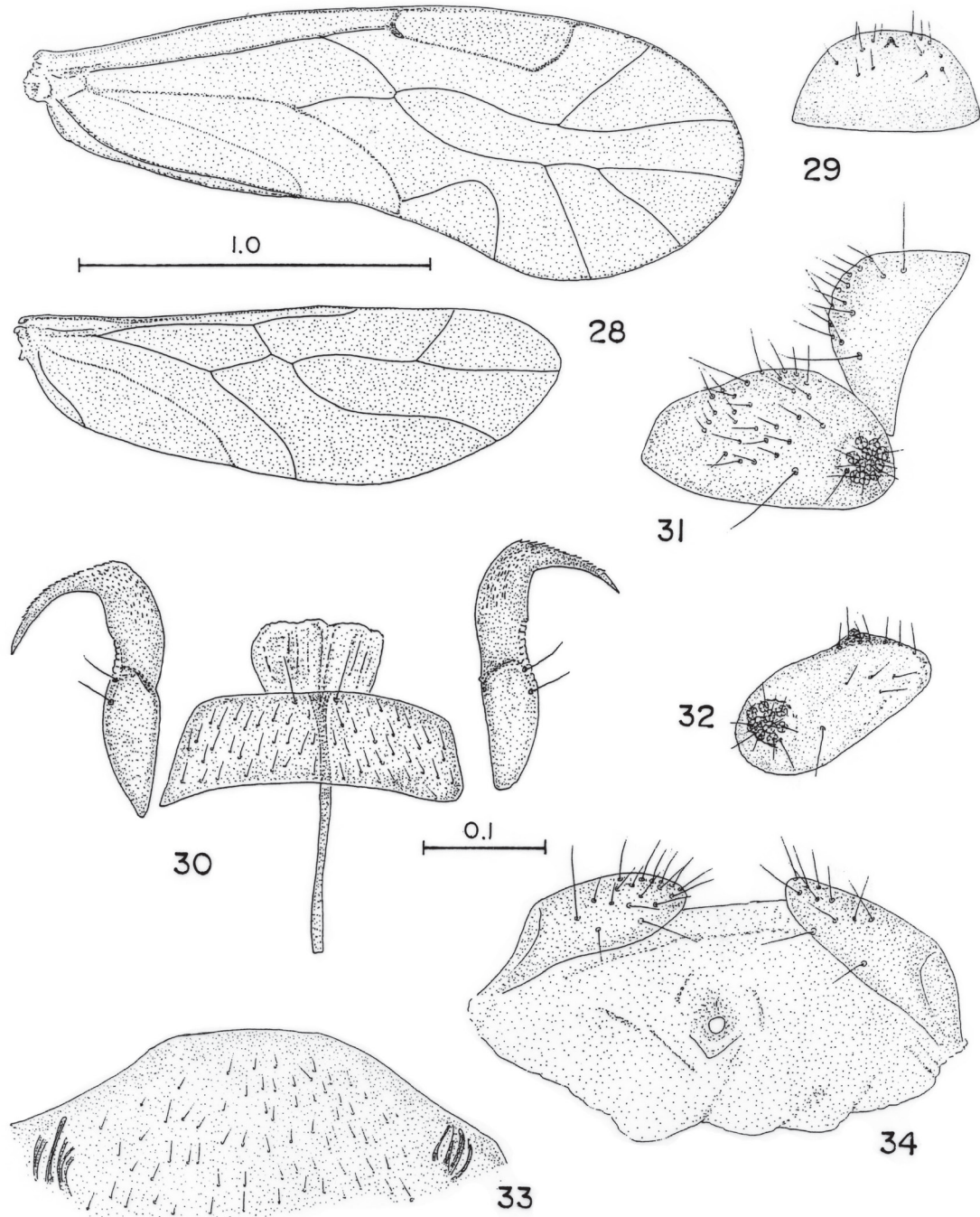
Etymology. The specific name, a noun in apposition, refers to the band of short striae on the outer edge of each clasper.

Discussion

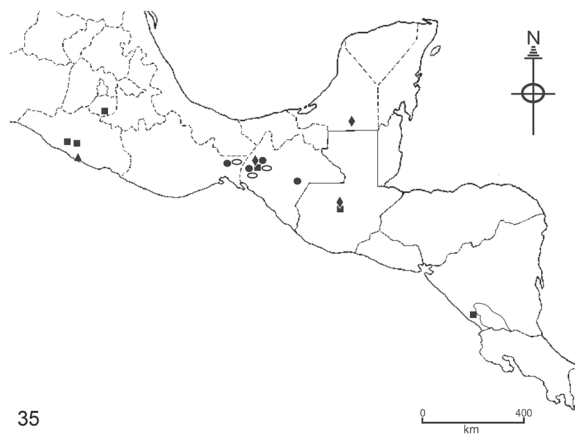
The species of the *L. asperiforceps* complex are found at the southern end of the Mexican Transition Zone (Halffter, 1976; Morrone, 2005). *L. asperiforceps* García Aldrete is the most widely distributed, from María Madre Island in Mexico, to Volcán Mombacho, at the northwestern end of lake Nicaragua. *Lachesilla latiforceps* n. sp. occurs in Guatemala and in the Mexican states of Campeche and Chiapas; and *L. striatiforceps* n. sp., *L. acapulcana* n. sp., and *L. acapulcanoides* n. sp. are Mexican endemics, distributed in Chiapas and Oaxaca, and in Acapulco, Guerrero area (Fig. 35).

Lachesilla acapulcana and *L. acapulcanoides*, and *L. asperiforceps* and *L. latiforceps* constitute pairs of sister species, and *L. striatiforceps* stands apart from the 2 pairs by having the posterior border of the hypandrium straight, and a band of striae basally on the outer edge of the distal half of each clasper; it seems closer to the second pair, on account of having similar basal halves of the claspers. The pair *L. acapulcana*-*L. acapulcanoides* share the hypandrium projected posteriorly in the middle and similar basal halves of the claspers. The pair *L. asperiforceps*-*L. latiforceps* also have the hypandrium posteriorly projected in the middle, distinctly less so in the second species, and share a distinct conical protuberance on the outer edge at the base of the distal halves of the claspers; also, the basal halves of the claspers are distinctly different than in the first pair of sister species.

Species group *forcepeta* (diagnosis in García Aldrete 1974, Mockford 1993) is one of 18 species groups recognized in the large genus *Lachesilla*, with 280 described species and one hundred additional awaiting description. The *L. forcepeta* species group includes 95 described species, an indication that the structural plan, particularly of the genitalia of both sexes has been successful. Of the above species, 79 are Neotropical, and in 9 of these (*L. aculeata* García Aldrete from Mexico, *L. sp. a* from Colombia, *L. gracilis* García Aldrete from Mexico, Guatemala and Belize, *L. sp. p* from Brazil, *L. rugosa* García Aldrete from Peru, Brazil and Trinidad,



Figures 28-34. *Lachesilla striatiforceps* n. sp. 28. Fore- and hind- wings. ♀. 29. Epiproct. ♂. 30. Hypandrium, claspers and phallosome apodeme. ♂. 31. Right paraproct and epiproct. ♀. 32. Right paraproct. ♂. 33. Subgenital plate. ♀. 34. Gonapophyses and ninth sternum. ♀. Scales in mm. Figures 29-34 to common scale.



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Figure 35. Distribution of the *Lachesilla asperiforceps* species complex. Simbology: ▲. *L. acapulcana*. ○. *L. acapulcanoides*. ■. *L. asperiforceps*. ◆. *L. latiforceps*. ●. *L. striatiforceps*. The record of *L. asperiforceps* from María Madre Island, off the coast of Nayarit, is not shown in the map.

L. spiniforceps García Aldrete from Peru, *L. sp. s* from Colombia, *L. yanomami* Mockford from Brazil, and *L. yanomamioides* García Aldrete from Mexico, Guatemala and Trinidad), plus the 3 here described, the male claspers

are ornamented either with fields of microspines, setae, fine setae or rows of small denticles, which presumably play a role in close range species recognition. These characters add to the enormous variation found around the theme of the structural plan of the male genitalia of the group.

Literature cited

- García Aldrete, A. N. 1974. A classification above species level of the genus *Lachesilla* Westwood (Psocoptera: Lachesillidae). *Folia Entomológica Mexicana* 27:1-88.
- García Aldrete, A. N. 2001. The Lachesillidae (Insecta: Psocoptera) of Nicaragua. *Anales del Instituto de Biología, Universidad Nacional Autónoma de México, Serie Zoología* 72:177-197.
- Halfpiter, G. 1976. Distribución de los insectos en la Zona de Transición Mexicana: Relaciones con la entomofauna de Norteamérica. *Folia Entomológica Mexicana* 35:1-64.
- Mockford, E. L. 1993. North American Psocoptera (Insecta). *Flora & Fauna Handbook No. 10*. Sandhill Crane Press, Gainesville. 455 p.
- Morrone, J. J. 2005. Hacia una síntesis biogeográfica de México. *Revista Mexicana de Biodiversidad* 76:207-252.