

ISSN 1405-4094 (edición impresa)
ISSN 2007-9133 (edición online)

DUGESIANA



Diciembre 2015

Volumen 22

Número 2

DEPARTAMENTO
DE BOTÁNICA Y
ZOOLOGÍA

Disponible en línea
<http://www.revistascientificas.udg.mx/index.php/DUG/index>
<http://dugesiana.cucba.udg.mx>

Dugesiana, Año 22, No. 2, Julio-Diciembre 2015, es una publicación Semestral, editada por la Universidad de Guadalajara, a través del Centro de Estudios en Zoología, por el Centro Universitario de Ciencias Biológicas y Agropecuarias. Camino Ramón Padilla Sánchez # 2100, Nextipac, Zapopan, Jalisco, Tel. 37771150 ext. 33218, <http://dugesiana.cucba.udg.mx>, glenus-mx@gmail.com. Editor responsable: José Luis Navarrete Heredia. Reserva de Derechos al Uso Exclusivo 04-2009-062310115100-203, ISSN: 2007-9133, otorgados por el Instituto Nacional del Derecho de Autor. Responsable de la última actualización de este número: Coordinación de Tecnologías para el Aprendizaje, Unidad Multimedia Instruccional, M.B.A. Oscar Carbajal Mariscal y José Luis Navarrete Heredia. Fecha de la última modificación 14 de diciembre 2015, con un tiraje de un ejemplar.

Las opiniones expresadas por los autores no necesariamente reflejan la postura del editor de la publicación. Queda estrictamente prohibida la reproducción total o parcial de los contenidos e imágenes de la publicación sin previa autorización de la Universidad de Guadalajara.

Five new species of Mexican *Lachesilla* (Psocodea: Psocomorpha: Lachesillidae), in species group *Corona* Cinco nuevas especies de *Lachesilla* mexicanas (Psocodea: Psocomorpha: Lachesillidae) en el grupo de especies *Corona*

Alfonso N. García Aldrete

Departamento de Zoología, Instituto de Biología, Universidad Nacional Autónoma de México, Apartado Postal 70-153, 04510, México, D. F. MÉXICO. E-mail: anga@ib.unam.mx

ABSTRACT

Five Mexican species of *Lachesilla* in species group *Corona* are here described and illustrated. The types are deposited in the National Insect Collection, Instituto de Biología, Universidad Nacional Autónoma de México (CNIN), in México City.

Key words: Taxonomy, Nearctic, Neotropics, 'Psocoptera'.

RESUMEN

Se describen e ilustran cinco nuevas especies mexicanas de *Lachesilla*, del grupo de especies *Corona*. Los tipos están depositados en la Colección Nacional de Insectos (CNIN), en el Instituto de Biología, Universidad Nacional Autónoma de México, en México, D. F.

Palabras clave: Taxonomía, Neártico, Neotrópico, 'Psocoptera'.

The females of the species of *Lachesilla* in species group *Corona*, are characterized mostly by having a mesal flap or a projection on the subgenital plate; occasionally, the subgenital plate is projected posteriorly in the middle. The males of the species in this group have the hypandrium projected posteriorly on each side, with a concavity in between. The phallosome apodemes are generally V shaped, the epiproct is generally distinctly bilobed, and the paraprocts have a mesal sclerotized prong. For more diagnostic details of this species group, see García Aldrete (1974), and Mockford (1993).

Species group *Corona* is very species rich with 24 described species and 52 undescribed species deposited in the National Insect Collection.

Figure 19 shows the distribution of species of this group in the Americas: two species each in Canada (*L. albertina* García Aldrete, and *L. corona* Chapman) and the US (*Lachesilla corona* Chapman, and *L. michiliensis* García Aldrete), 68 species in Mexico, 46 undescribed; 14 species in Central America, 13 undescribed; 5 species in Colombia, 3 undescribed, 2 species in Ecuador (*L. lingua* New & Thornton and *L. picticepsoides* García Aldrete), and 1 species in Brazil (*L. breviforceps* García Aldrete).

In this paper, I describe 5 species of *Lachesilla* in this group, selected at random from the 46 undescribed species occurring in Mexico. The types are deposited in the National Insect Collection (CNIN, acronym of Colección Nacional de Insectos), Instituto de Biología, Universidad Nacional Autónoma de México.

MATERIAL AND METHODS

Five specimens were studied, each representing one

species. To record color, the whole specimens, before dissection, were placed in 80% ethanol under a stereoscopic microscope illuminated with cold white light at 50X. The specimens were dissected in 80% ethanol, and their parts (head, right wings and legs, and genitals), were mounted on slides in Canada balsam, following standard procedures. The illustrations were made utilizing a drawing tube; parts on the slides were measured utilizing a filar micrometer, with a measuring unit of 1.36 μm for wings, and 0.53 μm for other parts. Abbreviations of parts measured are as follows: FW and HW: right fore- and hind- wing lengths, F, T, t1 and t2: lengths of femur, tibia, and tarsomeres 1 and 2 of right hind leg, ctt1: number of ctenidia on t1, Mx4: length of fourth segment of right maxillary palp, fl...fn: length of antennal flagellomeres 1...n of right antenna, IO, D and d: respectively, minimum distance between compound eyes, antero-posterior diameter, and transverse diameter of right compound eye, all in dorsal view of head mounted on the slide, PO: d/D.

RESULTS

Lachesilla gomezariasensis n. sp. Female
(Figs 1-4)

Color (in 80% ethanol). Body pale brown. Compound eyes black, ocelli hyaline, without pigmented centripetal crescents. Maxillary palps brown. Wings hyaline, with a faint orange hue. An ochre spot on upper part of propleura, behind compound eyes. A slender ochre band on thoracic pleura, above the level of the coxae. Abdomen whitish, with ochre subcuticular rings, faded ventrally. Stigmasac and R1 ochre, veins pale brown.

Morphology. Upper ends of compound eyes not

reaching the level of the vertex. Forewing Rs-M fused for a short length. Pterostigma elongate, wider posteriorly. Areola postica broadly triangular, apex rounded, slightly slanted posteriorly (Fig. 1). Subgenital plate (Fig. 2) broad, setose as illustrated, rounded posteriorly, distal third glabrous; mesal flap triangular, minuscule, anteriorly concave. Gonapophyses (Fig. 3) proximally wide, narrowing posteriorly to a blunt apex; a sclerotized slender band along outer border and proximal end, with an apophysis extended from outer border; setal field on surface, as illustrated. Ninth sternum (Fig. 3) almost rectangular, pigmented on anterior half, with antero-lateral corners rounded, slightly protuberant. Spermapore posteriorly, small, with a pigmented rim. Paraprocts (Fig. 4) semi-elliptic, setose, sensory fields with 9-10 trichobothria on basal rosettes, and one marginal trichobothrium without basal rosette. Epiproct trapeziform, with field of setae on distal half.

Measurements (in μm). FW: 1725, HW: 1360, F: 371, T: 711, t1: 256, t2: 93, ctt1: 16, f1: 210, f2: 195, Mx4: 97, IO: 281, D: 159, d: 106, IO/d: 2.65, PO: 0.66.

Type locality. MEXICO. Tamaulipas. 8 km W Gómez Farías, 15 June, 1962. Beating vegetation, E. L. Mockford. Holotype female. CNIN.

Etymology. The specific epithet refers to the type locality, Gómez Farías, Tamaulipas, where the only specimen of this species was found.

Lachesilla jacalaensis n. sp. Female
(Figs 5-8)

Color (in 80% ethanol). Body tawny brown. Compound eyes black, ocelli hyaline, without pigmented centripetal crescents. Mx4 dark brown, more pigmented than Mx 1-3. Wings hyaline, veins pale brown. Abdomen whitish, with pale brown subcuticular rings, less pigmented ventrally.

Morphology. Forewing Rs-M fused for a short distance. Pterostigma elongate, rounded and wider distally. Areola postica wide, triangular, apically rounded (Fig. 5). A vein stub proximally on Rs (not shown in the figure). Subgenital plate (Fig. 7) broad, setose, projected posteriorly in the middle, distal third glabrous. Mesal flap long, slender, with sides parallel, distally blunt. Gonapophyses (Fig. 6), with sides almost parallel, with sclerotized band proximally on outer border and along proximal end, and with a small rounded projection distally, extended from outer border; setal field on surface, with about 16 setae. Ninth sternum (Fig. 6) broad, anteriorly straight, with a distinct, narrow, pigmented band anteriorly; distal two thirds unpigmented; spermapore in the center of the sclerite, small, with a pigmented rim. Paraprocts (Fig. 8) almost elliptic, setae as illustrated, sensory fields with 11 trichobothria on basal rosettes, and one marginal trichobothrium without basal rosette. Epiproct (Fig. 8) almost trapeziform, with setal field on distal third, along sides and posterior border.

Measurements (in μm). FW: 2357, HW: 1890, F: 365, T: 784, t1: 212, t2: 85, ctt1: 16, f1: 222, f2: 176, f3: 139, f4: 111, Mx4: 97, IO: 347, D: 172, d: 93, IO/d: 3.73, PO: 0.54.

Type locality. MEXICO. Hidalgo. 32 km N Jacala, Hwy. 85. 16 April, 1964. Beating *Liquidambar* sp. E. L. Mockford. Holotype female. CNIN.

Etymology. The specific epithet refers to the type locality, Jacala, Hidalgo, where the only specimen of this species was found.

Lachesilla lacustrina n. sp. Male.
(Figs 9-11)

Color (in 80% ethanol). Body pale brown. Compound eyes black, ocelli hyaline, without pigmented centripetal crescents. Maxillary palps, antennae and legs pale brown. Thoracic pleura uniformly pale brown. Wings almost hyaline, slightly opaque, veins brown.

Morphology. Forewing (Fig. 9), with Rs-M fused for a short distance. Pterostigma elongate, wider distally. Areola postica triangular, with apex rounded (Fig. 9). Hypandrium (Fig. 10) broad, setose, with a field of short, strong spines on each side of the median concavity. Posterior processes robust, wide based, narrowing distally to rounded end, which bears a small, rounded protuberance. Phallosome apodemes (Fig. 10), closed anteriorly, each arm proximally slender, distally broad, acuminate, with a row of short spines distally along outer border. Paraprocts (Fig. 11) broad, rounded, with mesal prong curved, distally truncate; sensory fields with 12 trichobothria on basal rosettes, and one marginal trichobothrium without basal rosette. Epiproct (Fig. 11) broadly trapeziform, bilobed, each lobe bearing a setal field on side and posterior border.

Measurements (in μm). FW: 2144, HW: 1609, F: 394, T: 759, t1: 220, t2: 102, ctt1: 16, f1: 254, f2: 216, f3: 196, f4: 166, Mx4: 102, IO: 336, D: 163, d: 98, IO/d: 3.42, PO: 0.6.

Type locality. MEXICO. Chiapas. Lagunas de Montebello, 60 km SE Comitán, 1580m. 11 August, 1975. Beating vegetation, A. N. García Aldrete. Holotype male. CNIN.

Etymology. The specific epithet refers to the lacustrine nature of the type locality.

Lachesilla moroni n. sp. Male.
(Figs 12-14)

Color (in 80% ethanol). Body reddish brown, compound eyes black, ocelli hyaline, without pigmented centripetal crescents. Maxillary palps brown. Wings almost hyaline, with a pale orange hue, veins pale brown, forewing R1 bordering pterostigma ochre. Abdomen whitish, with ochre, transverse, subcuticular rings, faded ventrally.

Morphology. Forewing pterostigma elongate, wider distally; Rs-M meeting at a point, areola postica wide, broadly triangular (Fig. 12). Hypandrium (Fig. 13) wide, with a setal field on each side; posterior processes narrowing distally, slightly pointed at apex; phallosome apodemes (Fig. 13) V shaped, each arm proximally slender, distal half dilated, acuminate, with a short row of spines on inner border, antepically. Paraprocts (Fig. 14),

robust, mesal prong curved, distally pointed, sensory fields with 11 trichobothria on basal rosettes, and one marginal trichobothrium (not figured), without basal rosette. Epiproct (Fig. 14) broad, bilobed, each lobe with a setal field along sides and posterior margin.

Measurements (in μm). FW: 1908, HW: 1434, F: 376, T: 700, t1: 219, t2: 94, ctt1: 15, f1: 216, f2: 177, f3: 159, f4: 130, Mx4: 94, IO: 317, D: 166, d: 89, IO/d: 3.56, PO: 0.54.

Type locality. MEXICO. Puebla. La Unión, ca. Xicotepec de Juárez, 1,000 m. 16 October, 1982, beating dead, hanging banana fronds in coffee plantation, A. N. García Aldrete. Holotype male. CNIN.

Etymology. This species honors the Mexican coleopterist Miguel Ángel Morón Ríos, of the Instituto de Ecología, A. C., in Xalapa, Veracruz, in recognition to his many and important contributions to the taxonomy of Scarabeoidea.

Lachesilla omitlanensis n. sp. Female
(Figs 15-18)

Color (in 80% ethanol). Body tawny brown. Compound eyes black, ocelli hyaline, without pigmented centripetal crescents. Mx4 dark brown, Mx 1-3 pale brown. Wings hyaline, veins pale brown. Abdomen whitish, with pale brown subcuticular rings, faded ventrally.

Morphology. Forewing (Fig. 15), pterostigma long, wider posteriorly, Rs-M meeting at a point, areola postica broadly triangular. Subgenital plate (Fig. 17) broad, setose as illustrated, mesal flap large, club shaped. Gonapophyses (Fig. 16) with sides almost parallel, outer border proximally with a short pigmented band, slightly extended anteriorly, distal end with a short protuberance, extended from the outer border, setal field on surface, as illustrated. Ninth sternum (Fig. 16) wide, with pigmented area enclosing the spermapore, this small, located posteriorly, surrounded by a pigmented rim. Paraprocts (Fig. 17), robust, setose, sensory fields with 11 trichobothria on basal rosettes, and one marginal trichobothrium without basal rosette.

Measurements (in μm). FW: 1983, HW: 1501, F: 329, T: 648, t1: 186, t2: 91, ctt1: 14, f1: 174, f2: 145, f3: 126, f4: 105, Mx4: 96, IO: 367, D: 155, d: 86, IO/d: 4.26, PO: 0.55

Type locality. MEXICO. Hidalgo. Omitlán, ca. Real del Monte. 21 August, 1980, beating branches of *Quercus* sp. A. N. García Aldrete. Holotype female. CNIN.

Etymology. The specific epithet refers to the type locality of this species.

REMARKS

It is risky to describe a new taxon on basis of one specimen, particularly in groups where most of the species are sexual, as in the case of *Lachesilla*, but it is not always possible to have reliable male-female associations, and then one has to depend on detailed morphological comparisons, to maintain at a minimum the possibility of creating eventual synonymies. In *Lachesilla*, the interspecific differences are in general quite large in both sexes, resulting in entities

distinct morphologically, but one has to run the risk that one species described from one male and one species described from one female may eventually prove to be the same species.

Table 1 shows the described Mexican species of *Lachesilla* in species group *Corona*, and the distribution of each; they have been collected in 19 of the 32 Mexican states (including the Federal District), with some states being richer than others, e. g., Hidalgo (11 species), Puebla (eight species), Oaxaca (seven species), Veracruz (six species), and on the other hand, several states with only one species, which could well be a collecting bias. Since 41 Mexican species in the group remain undescribed, it is quite premature at this time to attempt to write an identification key to the Mexican species in the group.

Lachesilla gomezfariasensis belongs in an assemblage of related species that includes *L. dispariforceps* Mockford, *L. dividiforceps* García Aldrete, *L. lingua* New & Thornton, *L. picticeps* Mockford, and *L. picticepsoides* García Aldrete. It shares with the latter having somewhat similar gonapophyses, and having the flap of the subgenital plate triangular; the two species differ in that, in the former, the flap of the subgenital plate is very small, and the gonapophyses are longer and more pointed than in the latter.

Lachesilla jacalaensis seems related to *L. hermosa* García Aldrete, in having the subgenital plate posteriorly projected in the middle, in having an elongate mesal projection on the subgenital plate, and in having the gonapophyses with sides almost parallel, with a small apical projection.

Lachesilla omitlanensis is unique among the species of *Lachesilla* in the *Corona* species group, in having the flap of the subgenital plate proximally narrow and widely dilated and rounded posteriorly, very different from the other species in the group.

The hypandrium and phallosome in *L. lacustrina* and *L. moroni* are built on the same general plan as in other species in the group; they differ in details of these structures, mostly on the hypandrium processes. Both species have stout hypandrium processes, in the former the processes are more robust, with a small apical protuberance, and there is a field of stout spines next to each border of the concavity, absent in the latter. In *L. moroni* the phallosome apodemes are more V shaped, with the arms posteriorly directed, not crossed and directed outwards as in *L. lacustrina*.

ACKNOWLEDGMENTS

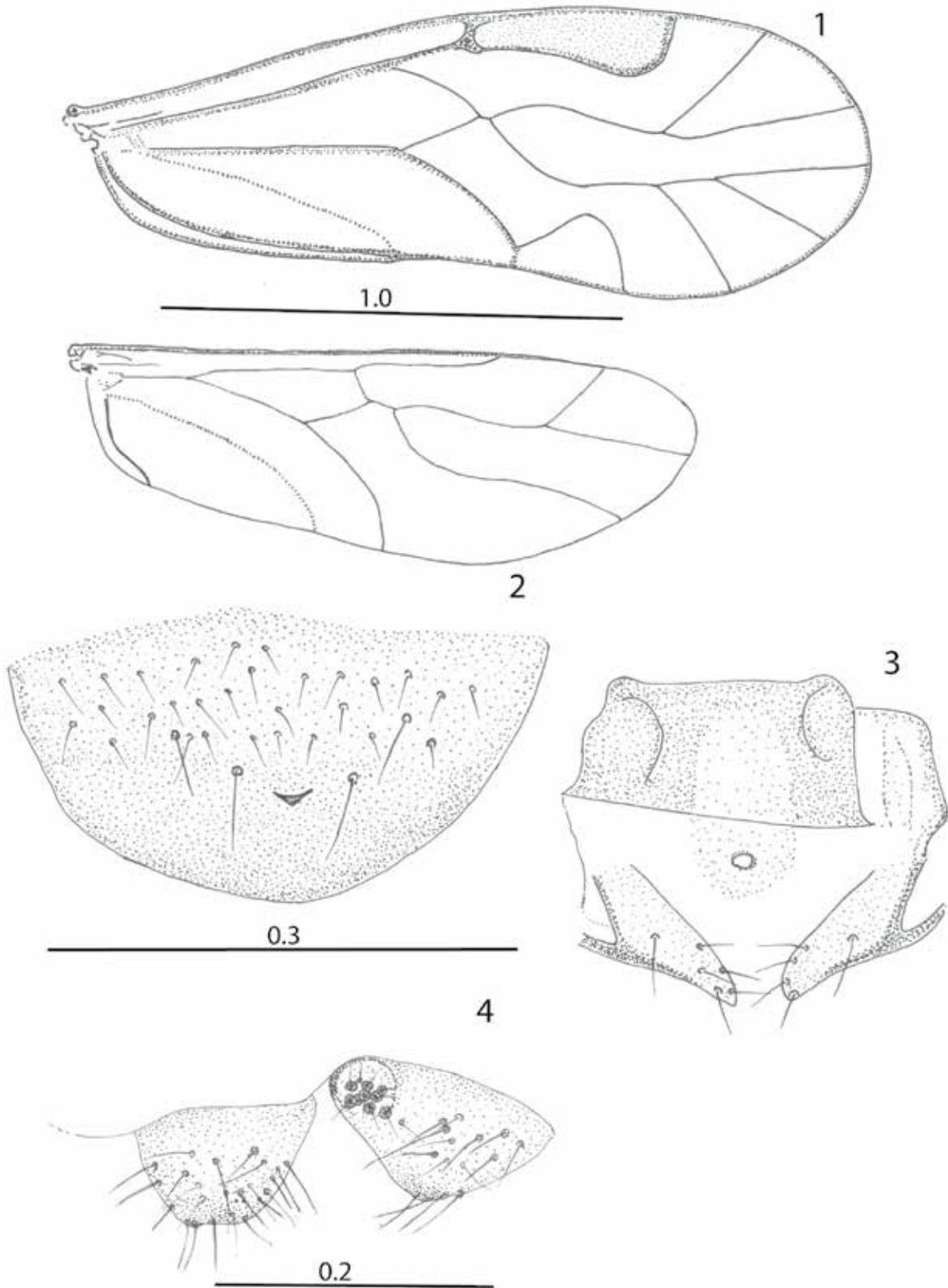
I thank Alberto Moreira da Silva Neto for the map of species distribution, and Alyne Pérez, for support with the illustrations of the species here treated. I also thank Instituto de Biología, Universidad Nacional Autónoma de México, for continuous research support.

LITERATURE CITED

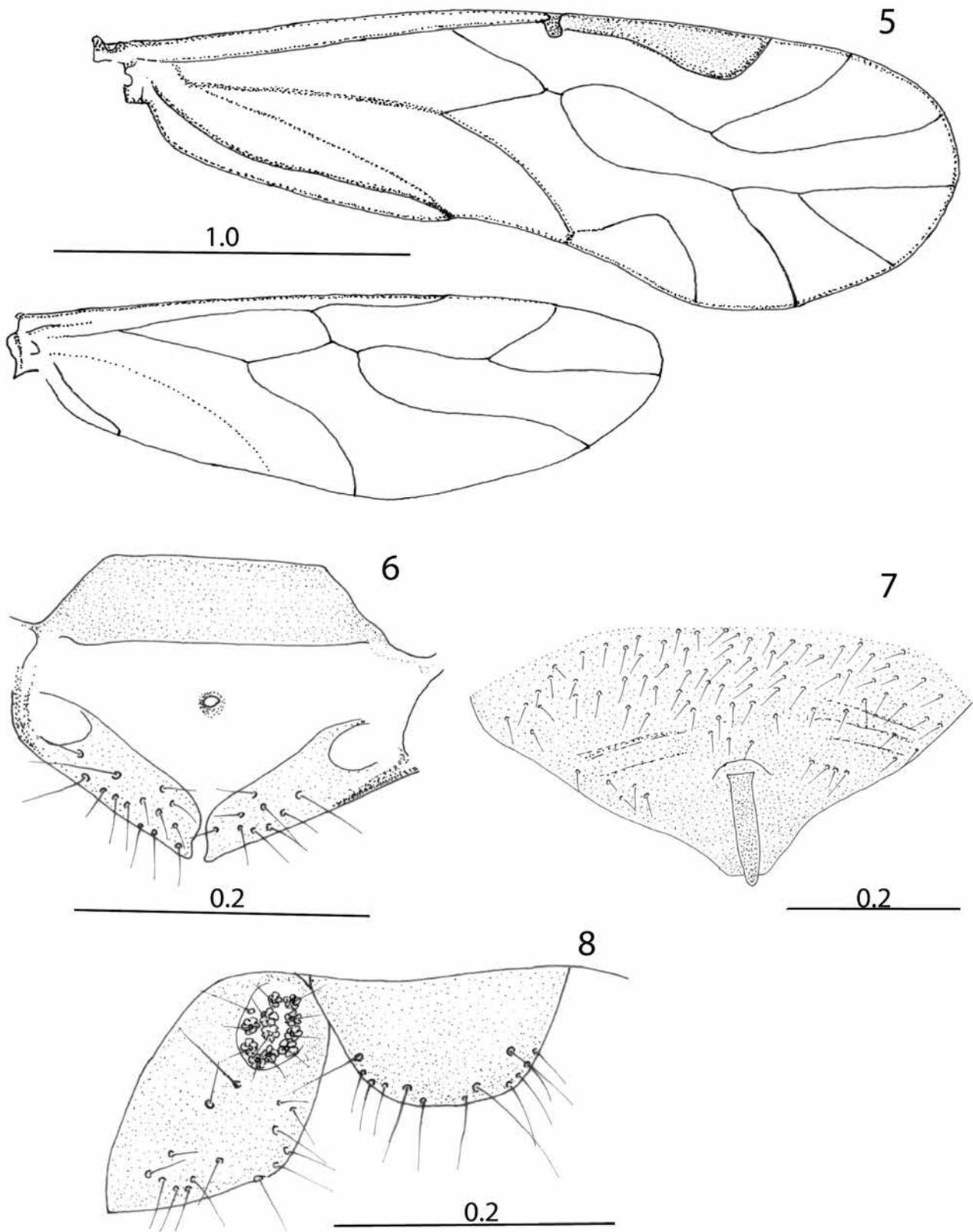
- García Aldrete, A. N. 1973. A new species of *Lachesilla* (Insecta: Psocoptera) from Northeast Mexico. *Anales del Instituto de Biología, Universidad Nacional Autónoma de México* 44, Ser. Zoología (1): 55-60.
- García Aldrete, A. N. 1974a. A classification above species level of the genus *Lachesilla* Westwood (Psocoptera: Lachesillidae). *Folia Entomológica Mexicana* (27): 1-88.
- García Aldrete, A. N. 1974b. *Lachesilla curviforceps* sp. nov., un nuevo psocóptero de México (Psocoptera: Lachesillidae). *Anales del Instituto de Biología, Universidad Nacional Autónoma de México* 45, Ser. Zoología (1): 65-70.
- García Aldrete, A. N. 1974c. *Lachesilla dividiforceps* n. sp., un nuevo psocóptero mexicano (Psocoptera: Lachesillidae). *Publicaciones Biológicas. Instituto de Investigaciones Científicas. U.A.N.L.* 1 (6): 79-85.
- García Aldrete, A. N. 1974d. Una nueva especie de *Lachesilla* (Psocoptera: Lachesillidae), en el grupo *Corona*. *Folia Entomológica Mexicana* (28): 37-42.
- García Aldrete, A. N. 1982. Descriptions of new *Lachesilla* species and description of the female *L. magnifica* García Aldrete (Psocoptera, Lachesillidae) *Folia Entomológica Mexicana* (53): 43-65.
- Mockford, E. L. 1986. A key to species of psocids of the *Lachesilla corona* group (Psocoptera: Lachesillidae) in Eastern Mexico, with descriptions of two new species. *Entomological News* 97(4): 133-140.
- Mockford, E. L. 1993. *North American Psocoptera (Insecta)*. Flora and Fauna Handbook 10. Sandhill Crane Press, Gainesville, Florida.
- Recibido: 22 de junio 2015
Aceptado: 16 de septiembre 2015

Table 1. Species of described Mexican *Lachesilla* in species group *Corona* and distribution

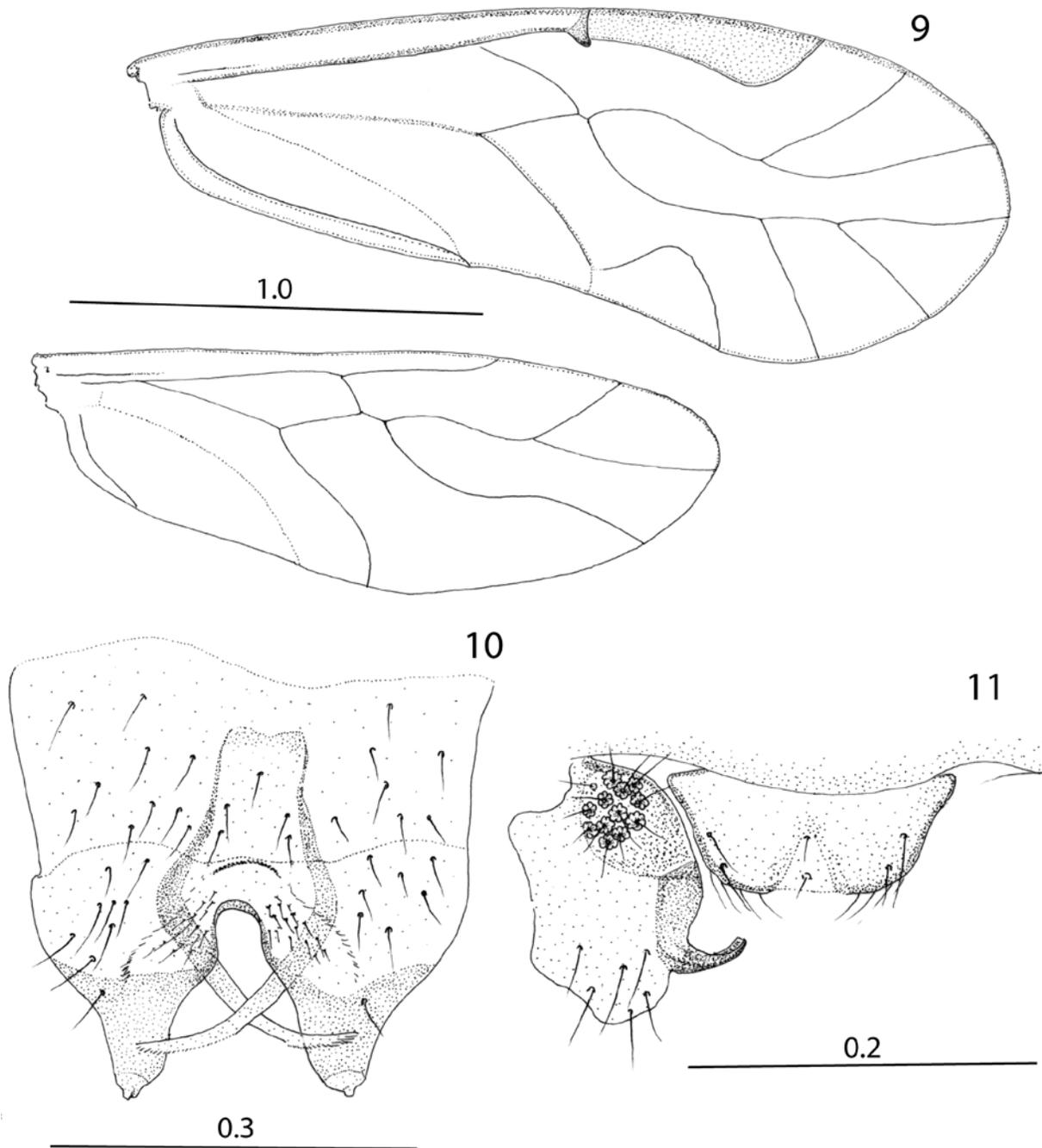
<i>L. chamula</i> García Aldrete, 1982, p. 51.	Chiapas.
<i>L. contrerasi</i> García Aldrete, 2015, p. 10.	Hidalgo.
<i>L. curviforceps</i> García Aldrete, 1974 a, p. 65.	Puebla, San Luis Potosí, Tamaulipas, Veracruz.
<i>L. dispariforceps</i> Mockford, 1986, p. 136.	Hidalgo, México, Oaxaca, Puebla, Veracruz,
	GUATEMALA.
<i>L. dividiforceps</i> García Aldrete, 1974 b, p. 80.	Coahuila, Hidalgo, Nuevo León, Puebla, Querétaro,
	Tamaulipas,, Veracruz.
<i>L. gomezfariasisensis</i> n. sp.	Tamaulipas.
<i>L. hermosa</i> García Aldrete, 1982, p. 53.	Chiapas, Hidalgo, Jalisco, Nuevo León, Oaxaca,
	Puebla, Veracruz.
<i>L. ixtlanensis</i> García Aldrete & Casasola, 2012, p. 137.	Oaxaca.
<i>L. jacalaensis</i> n. sp.	Hidalgo.
<i>L. lachataoensis</i> García Aldrete & Casasola, 2012,p. 137.	Oaxaca.
<i>L. lacustrina</i> n. sp.	Chiapas.
<i>L. michiliensis</i> García Aldrete, 1991, p. 168.	Durango. USA, Texas.
<i>L. moroni</i> n. sp.	Puebla.
<i>L. neoleonensis</i> García Aldrete, 1974 c, p. 40.	Nuevo León.
<i>L. omitlanensis</i> n. sp.	Hidalgo.
<i>L. picticeps</i> Mockford, 1986, p. 134.	Chiapas, Distrito Federal, Guanajuato, Guerrero,
	Hidalgo, México, Nuevo León, Puebla, Querétaro.
<i>L. picticepsoides</i> García Aldrete, 1997, p. 216.	Puebla. COLOMBIA. ECUADOR.
<i>L. querpina</i> García Aldrete, 1991, p. 171.	Chihuahua, Durango, Guerrero, Hidalgo, Morelos,
	Nuevo León, Oaxaca.
<i>L. regiomontana</i> García Aldrete, 1973, p. 55.	Nuevo León.
<i>L. reyesi</i> García Aldrete, 1991, p. 174.	Durango, Hidalgo, México, Michoacán.
<i>L. silvatica</i> García Aldrete, 1988, p. 53.	Jalisco, Veracruz.
<i>L. tuita</i> García Aldrete, 1988, p. 56.	Jalisco.
<i>L. unsijensis</i> García Aldrete & Casasola, 2012, p.136.	Oaxaca.
<i>L. zuninoi</i> García Aldrete, 2014, p. 151.	Hidalgo, Veracruz.
<i>L. zuninooides</i> García Aldrete, 2014, p. 152.	Guerrero, Hidalgo, Michoacán, Oaxaca.



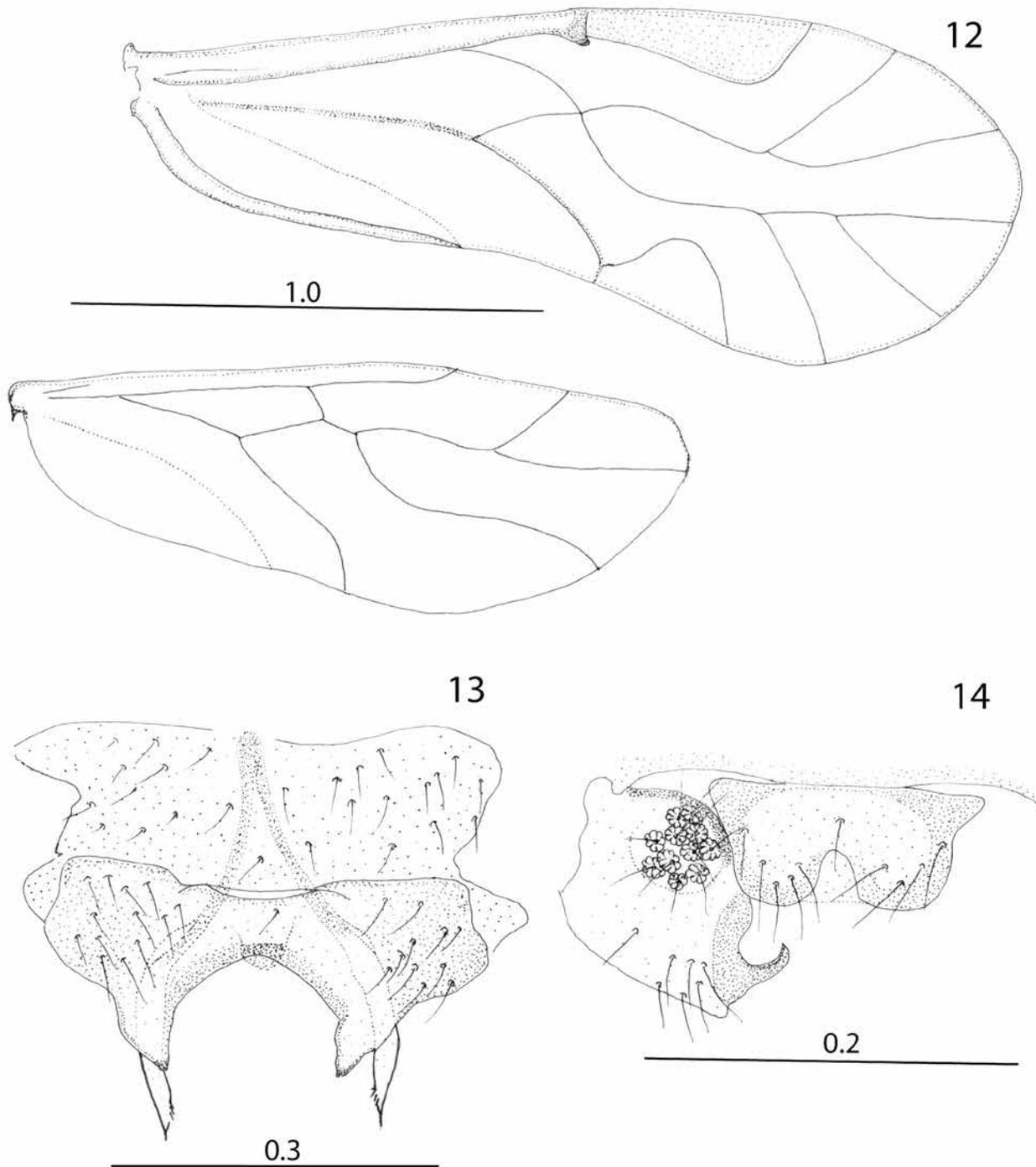
Figures 1-4. *Lachesilla gomezfariasensis* n. sp. Female. 1. Fore- and hind- wings. 2. Subgenital plate. 3. Gonapophyses and ninth sternum. 4. Epiproct and right paraproct. Scales in mm.



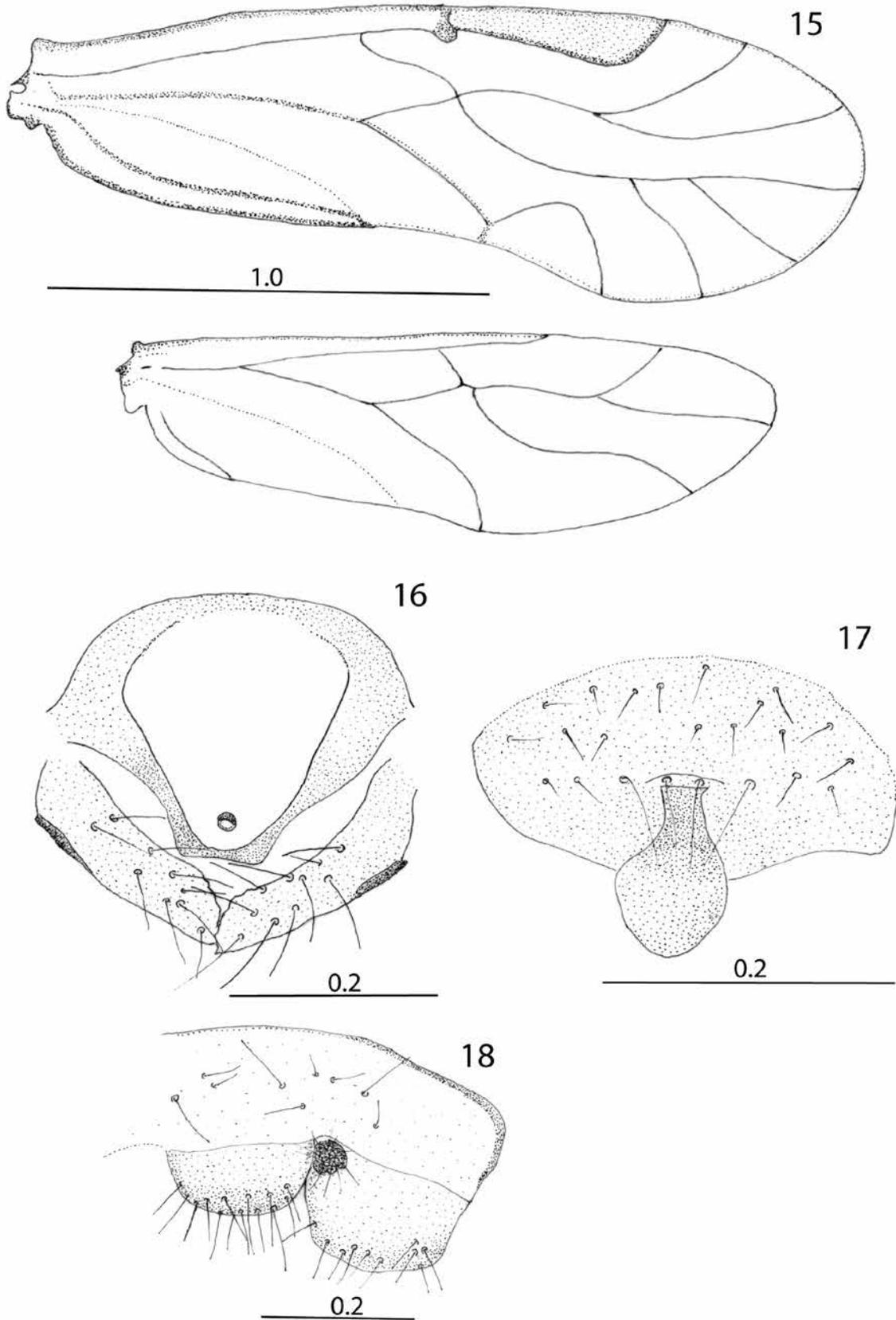
Figures 5-8. *Lachesilla jacalaensis* n. sp. Female. 5. Fore- and hind- wings. 6. Gonapophyses and ninth sternum. 7. Subgenital plate. 8. Epipect and left paraproct. Scales in mm.



Figures 9-11. *Lachesilla lacustrina* n. sp. Male. 9. Fore- and hind- wings. 10. Hypandrium and phallosome apodemes. 11. Epiproct and left paraproct. Scales in mm.



Figures 12-14. *Lachesilla moroni* n. sp. Male. 12. Fore- and hind- wings. 13. Hypandrium and phallosome apodemes. 14. Epiproct and left paraproct. Scales in mm.



Figures 15-18. *Lachesilla omitlanensis* n. sp. Female. 15. Fore- and hind- wings. 16. Gonapophyses and ninth sternum. 17. Subgenital plate. 18. Epiproct and right paraproct. Scales in mm.

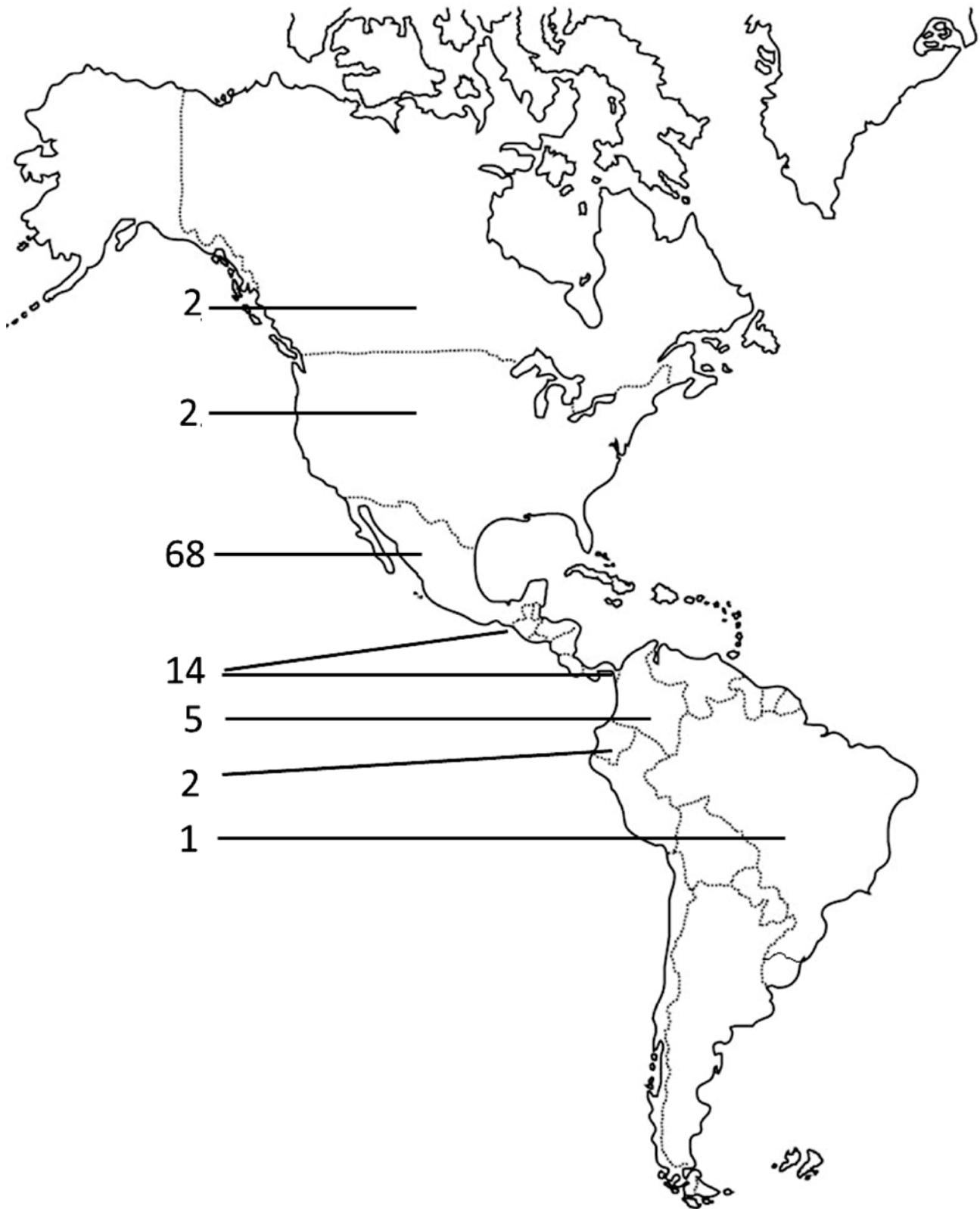


Figure 19. Distribution of species of *Lachesilla* in species group *Corona* in the Americas.