

## A new genus of Lachesillidae (Psocoptera: Eolachesillinae: Graphocaeciliini) from Colombia

### Un nuevo género de Lachesillidae (Psocoptera: Eolachesillinae: Graphocaeciliini) de Colombia

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#### ABSTRACT

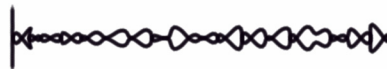
A new Colombian genus of Lachesillidae is here described and illustrated. It belongs in the tribe Graphocaeciliini (Eolachesillinae) and presently includes one species each, from the Departments of Caldas and Valle del Cauca. This new genus is close to *Prolachesilla* in genital characters and lack of ocelli, but the forewing has the areola postica fused to M, as in *Anomopsocus*. The types are deposited in the Entomological Museum of the Universidad del Valle (MUSENUV), in Santiago de Cali, Colombia.

**Key words:** Taxonomy, neotropics, Caldas, Valle del Cauca.

#### RESUMEN

Un nuevo género colombiano de Lachesillidae (Eolachesillinae: Graphocaeciliini), es aquí descrito e ilustrado; incluye actualmente a sendas especies de los Departamentos de Caldas y Valle del Cauca. Este nuevo género es cercano a *Prolachesilla* en caracteres genitales y carencia de ocelos, pero las alas anteriores tienen la areola postica fusionada con la vena M, como en *Anomopsocus*. Los tipos están depositados en el Museo Entomológico de la Universidad del Valle (MUSENUV), en Santiago de Cali, Colombia.

**Palabras clave:** Taxonomía, neotrópico, Caldas, Valle del Cauca.



#### INTRODUCTION

The tribe Graphocaeciliini, of the lachesillid subfamily Eolachesillinae, presently includes ten genera (Mockford & Sullivan, 1986; García Aldrete & Mockford, 2011; García Aldrete, 2012); a first dicotomy of those genera separates a group of three with ocelli: *Graphocaecilius* Enderlein, *Anomopsocus* Roesler, and *Mesolachesilla* Mockford & Sullivan; a second group includes seven genera that lack ocelli: *Antilachesilla*, *Prolachesilla*, *Nanolachesilla*, *Tricholachesilla*, *Notolachesilla*, all erected by Mockford & Sullivan, plus *Amazolachesilla* García Aldrete & Mockford, and *Cuzcolachesilla* García Aldrete. In this group, all but *Cuzcolachesilla* present the male phallosome closed anteriorly.

All the genera in the tribe, with the exception of *Anomopsocus*, present the forewing veins Rs-M fused, and the areola postica is free from M; in all of these, there is considerable variation in the structural plan of the male phallosome, male hypandrial projections, and in the female gonapophyses + IX sternum, that give ground for further groupings. *Anomopsocus* differs from all the graphocaeciliine genera in having the forewing areola postica fused for a distance with M (other differences in Mockford & Sullivan, 1986).

Recently, within the frame of a project to survey the psocid fauna of Valle del Cauca, Colombia, financed by the Universidad del Valle, Santiago de Cali, we found several specimens of a species that present characters of the two groups outlined above, namely with forewing venation of the type shown by *Anomopsocus*, but without ocelli, and with male phallosome quite similar to that of *Prolachesilla*; the females have gonapophyses of the type

presented by *Anomopsocus*, but with a subgenital plate decidedly projected posteriorly in the middle.

Due to the above combination of characters, that species can not be assigned to any of the known graphocaeciliine genera, and thus represent an undescribed genus of Graphocaeciliini; the purpose of this paper is to describe and illustrate it. A second species of this new genus, represented by two females, was found in Río Blanco, near Manizales, Caldas, Colombia; its description is here also included.

#### MATERIAL AND METHODS

Ten specimens, five males and five females were available for study; two males and four females were dissected in 80% ethyl alcohol, and their parts (head, right wings and legs, and genitals), were mounted on slides in Canada Balsam. Color was recorded by placing whole specimens, before dissection, under a microscope illuminated with cold white light, at 80X. Parts on the slides were measured, following standard procedures, and the illustrations were made from digital photographs, taken with a Canon T3i camera and Helicon Focus program, processed in a vector graphics editor CorelDraw.

Abbreviations of parts measured are as follows: FW and HW: lengths of right fore- and hind- wings, F, T, t1 and t2: lengths of femur, tibia and tarsomeres 1 and 2 of right hind leg, respectively, ctt1: number of ctenidobothria on t1, Mx4: length of fourth palpomere of right maxillary palpus, f1...fn: lengths of flagellomeres 1..n of right antenna, IO, D and d: minimum distance between compound eyes, antero-posterior diameter and transverse

diameter of right compound eye, respectively, on dorsal view of head, PO: d/D.

The specimens studied are deposited in the Entomological Museum, Universidad del Valle, Santiago de Cali, Colombia (MUSENUV).

## RESULTS

### *Anomolachesilla* new genus (♀)

**Diagnosis.** Belonging in the tribe Graphocaeciliini (Lachesillidae: Eolachesillinae). Ocelli absent, lacinial tip bicuspid, with outer cusp bifid and much larger than inner one. Rs stem of forewing sigmoid. Forewing with setae on margin; surface of pterostigma with or without setae; setae in all veins (Cu2 with or without a row of setae). Vein Cu1a fused with M for a distance. Hindwing unciliated. Microvestiture of anterior margin of forewing type 1 (cf. Mockford & Sullivan, 1986). Phallosome anteriorly closed, flat; endophallus compact, with minute denticles. Female subgenital plate projected posteriorly in the middle, to form a pointed extension; gonapophyses with V1 elongate, slender; V2+3 broad at base, curved, narrowing distally, acuminate, with a row of setae on outer edge.

**Type species:** *Anomolachesilla palaciosi* n. sp.

*Anomolachesilla caldasiana* García Aldrete, González & Carrejo  
n. sp.  
(Figs. 1-5)

**Diagnosis.** Forewing Cu2 without setae; surface of pterostigma glabrous; membrane dark brown almost throughout; areola postica narrow, joined to M for a short length (Fig. 1). Subgenital plate (Fig. 5), posteriorly pointed in the middle. Gonapophyses (Fig. 4): V1 slender, strongly pigmented, V2+3 rounded proximally, narrowing distally, with a field of long setae along outer edge and small setae terminally; paraprocts broad, with a row of strong setae along inner border, pigmented as illustrated (Fig. 3).

**Description.** As in diagnosis, plus the following: **Color.** Tawny brown, compound eyes black, hindwing distinctly less pigmented than the forewing. Pigmented area of subgenital plate deeply concave anteriorly, pointed posteriorly, as illustrated (Fig. 5).

**Morphology.** Forewing pterostigma long, wider posteriorly, about four times as long as wide; forewing about 2.6 times as long as wide (Fig. 1). Outer cusp of lacinial tip clearly bifid. Setae of V2+3 as illustrated (Fig. 4). IX sternum sinuous anteriorly (Fig. 4). Paraprocts broad, with setae as illustrated, sensory fields with 16-17 trichobothria in basal rosettes (Fig. 3). Epiproct slightly convex anteriorly, rounded posteriorly, with field of setae as illustrated (Fig. 3).

**Measurements** (in microns). FW: 2883, HW: 2236, F: 633, T: 1097, t1: 378, t2: 133, Mx4: 148, f1: 479, f2: 390, f3: 298, f4: 224, IO: 357, D: 184, d: 131, IO/d: 2.72, PO: 0.71.

**Type locality.** COLOMBIA. Caldas. Río Blanco (05° 03' 56.8" N: 75° 26' 52.5" W, 2339 m), ca. Manizales. 15.I.2011. Beating shrub branches with dead leaves, A. N. García Aldrete & R. González. Holotype female, 1 paratype female (MUSENUV).

**Etymology.** The generic name is an artificial, compound word, formed with the root of *Anomopsocus*, and *Lachesilla*, on account of the shared characters between the genera *Anomopsocus*

and *Prolachesilla*; the specific name refers to the Department of Caldas, where this species was collected.

*Anomolachesilla palaciosi* García Aldrete, González & Carrejo  
n. sp.  
(Figs. 6-17)

**Diagnosis.** Forewing Cu2 with a row of setae; surface of pterostigma with setae. Forewing with a longitudinal, pigmented brown stripe as illustrated (Figs. 6, 11). Male clunium with a conic projection over the area of each paraproct, and a large, trapeziform projection, with postero-lateral corners rounded and prominent, over the area of the epiproct (Fig. 13). Posterior margin of hypandrium thickened, each lateral half with a setae much longer than the others (Fig. 14). Aedeagal arch terminating in a long, slender process, each arm attaching below and laterally to external parameres, these basally broad, narrowing distally to a stout process, apically blunt, bearing a row of minute setae on outer edge (Fig. 15). Female subgenital plate (Fig. 10), with a short, blunt posterior projection in the middle; IX sternum mostly unpigmented, gonapophyses broad anteriorly, narrowing distally, with an irregular row of setae along outer border (Fig. 9).

**Description.** As in diagnosis, plus the following. **Male. Color.** Body tawny brown. Compound eyes black. Forewings with a longitudinal brown band as illustrated, covering cells R, Cu, Cu1, parts of cells R1 and R2+3, and almost the totality of the cell between Rs-R4+5 and M (Fig. 11). Hindwings hyaline, with a tawny brown wash. Abdominal segments each with a ring of reddish brown subcuticular pigment, less conspicuous ventrally.

**Morphology.** Forewing about 2.7 times as long as wide, hindwing almost three times as long as wide; forewing pterostigma about 3.4 times as long as wide. Compound eyes prominent, with setae between the ommatidia. Forewing pterostigma elongate, narrow anteriorly, much wider posteriorly. Paraprocts (Fig. 13), broad, elliptic, setose, sensory fields with 15-16 trichobothria in basal rosettes. Epiproct (Fig. 13), broad, trapeziform, with fields of setae mesally and along posterior margin.

**Measurements** (in microns). FW: 2525, HW: 1937, F: 620, T: 990, t1: 360, t2: 115, ctt1: 17, Mx4: 170, f1: 480, f2: 285, f3: 250, f4: 142, f5: 139, f6: 125, f7: 128, f9: 100, f10: 100, f11: 121, IO: 225, D: 195, d: 263, IO/d: 0.86, PO: 1.34.

**Female. Color** (in 80% ethyl alcohol). Same as the male.

**Morphology.** Forewing about 2.8 times as long as wide; hindwing about three times as long as wide; forewing pterostigma about 3.7 times as long as wide. Compound eyes slightly below the level of the vertex, not as prominent as in the males. Subgenital plate broad, setose, with two setae distinctly longer than the others, near the posterior border (Fig. 10), decidedly projected posteriorly in the middle. Paraprocts almost semicircular, setose as illustrated, sensory fields slightly elliptic, with 13 trichobothria issuing from basal rosettes (Fig. 8). Epiproct trapeziform, with a field of setae mesally, and long setae along sides and on posterior border (Fig. 8).

**Measurements** (in microns). FW: 2525, HW: 1987, F: 550, T: 940, t1: 330, t2: 120, ctt1: 16, Mx4: 170, f1: 430, f2: 320, f3: 235, f4: 200, f5: 117, f6: 120, f7: 105, f8: 100, f9: 100, f10: 100, f11: 100, IO: 200, D: 325, d: 140, IO/d: 1.6, PO: 0.43.

**Type locality.** Colombia. Valle del Cauca. Santiago de Cali,

San Antonio Forest, 03° 29' 23.5" N: 76° 37' 39.4" W, 2140 m, 23.V.2012, Beating shrub branches with dead leaves and lichens. MUSENUV slide code 24094, R. González O. Holotype male. Paratypes: 1 female, Santiago de Cali, Km. 18, ca. Zingara, 03° 30' 38.3" N: 76° 37' 13.8" W, 1990 m, 15.VI.2012, beating shrub branches and ferns with dead leaves and lichens. MUSENUV slide code 24095, R. González O. 1 male, Km. 18, 25.VI.2010, beating ferns with dead, hanging fronds on road side, A. N. García Aldrete, R. González O. & F. Sarria S. 1 female, same locality as the holotype, 9.VI.2012, Beating shrub branches with dead leaves. MUSENUV slide code 24096, R. González O. 2 males, same locality as the holotype, 23.V.2012, Beating shrub branches with dead leaves, R. González O. & J. Mendivil. 1 male, 1 female, same locality as the holotype, 2.VI.2012, Beating shrub branches with dead leaves. MUSENUV slide code 24097, R. González O & N. S. Carrejo.

**Etymology.** The specific name honors Dr. José Guadalupe Palacios Vargas (Facultad de Ciencias, Universidad Nacional Autónoma de México) in recognition to his many, important contributions, on the taxonomy of Collembola and Acari.

**Remarks.** *Anomolachesilla* presents a combination of characters, shared with *Anomopsocus* and with *Prolachesilla*. It stands apart from the cluster *Graphocaecilius*-*Anomopsocus*-*Mesolachesilla* in lacking ocelli, but sharing with the second one having the forewing areola postica joined to M for a distance (other differences with the genera in this cluster in Mockford & Sullivan, 1986).

With respect to the graphocaecilline genera lacking ocelli (*Antilachesilla*, *Prolachesilla*, *Nanolachesilla*, *Tricholachesilla*,

*Notolachesilla*, *Amazolachesilla*, and *Cuzcolachesilla*), *Anomolachesilla* is closest to *Prolachesilla* in the genital plan of both sexes (see Mockford & Sullivan, 1986); were it not for the forewing venation, the species here dealt with would be assignable to *Prolachesilla*.

#### ACKNOWLEDGMENTS

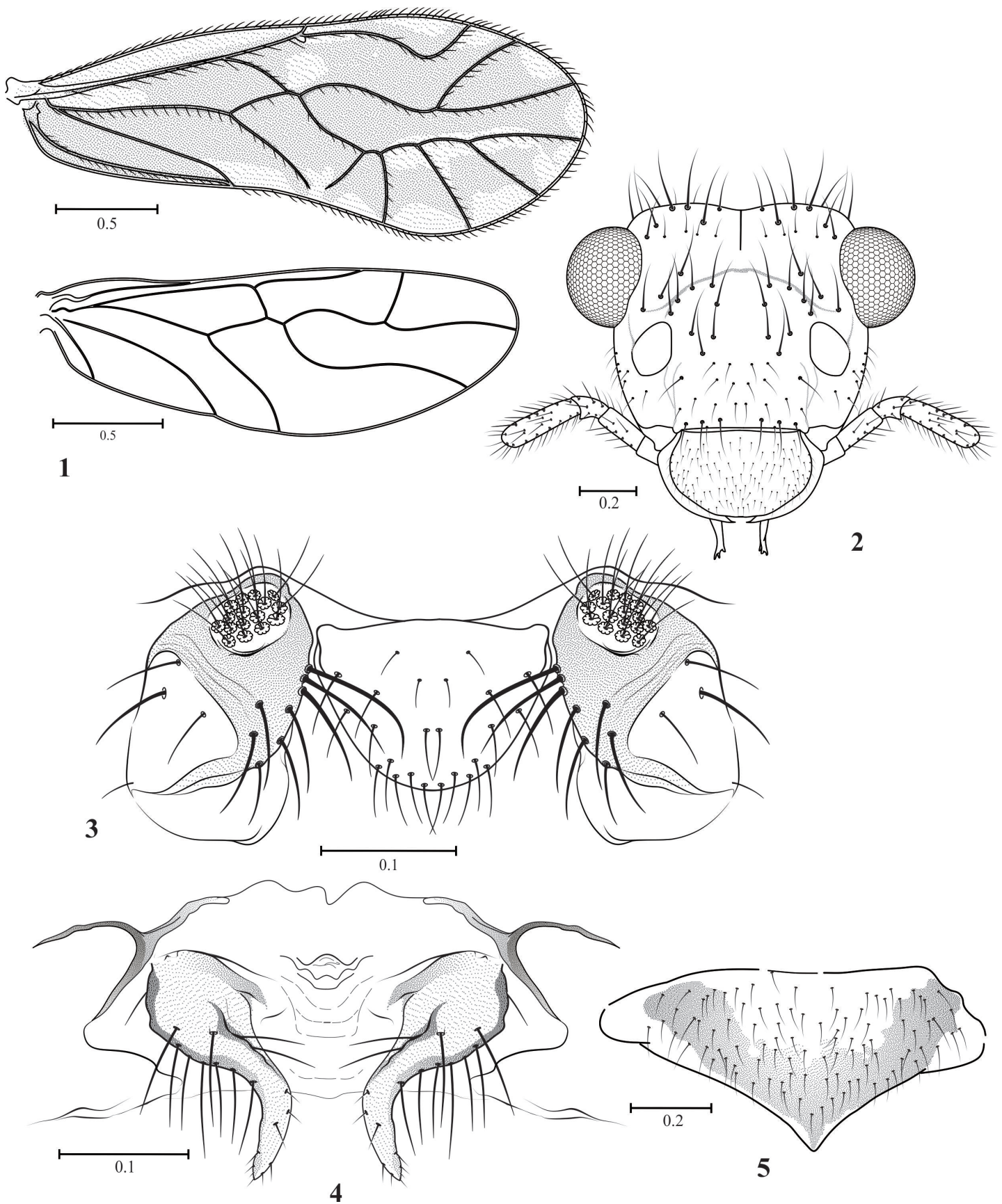
ANGA thanks Instituto de Biología, Universidad Nacional Autónoma de México, México City, México, for research support. RGO and NSC thank Universidad del Valle, Santiago de Cali, Colombia, for research support. This work was financed by a grant to the authors (Project CI 7874), from the second institution, to survey the psocid fauna of Valle del Cauca, Colombia.

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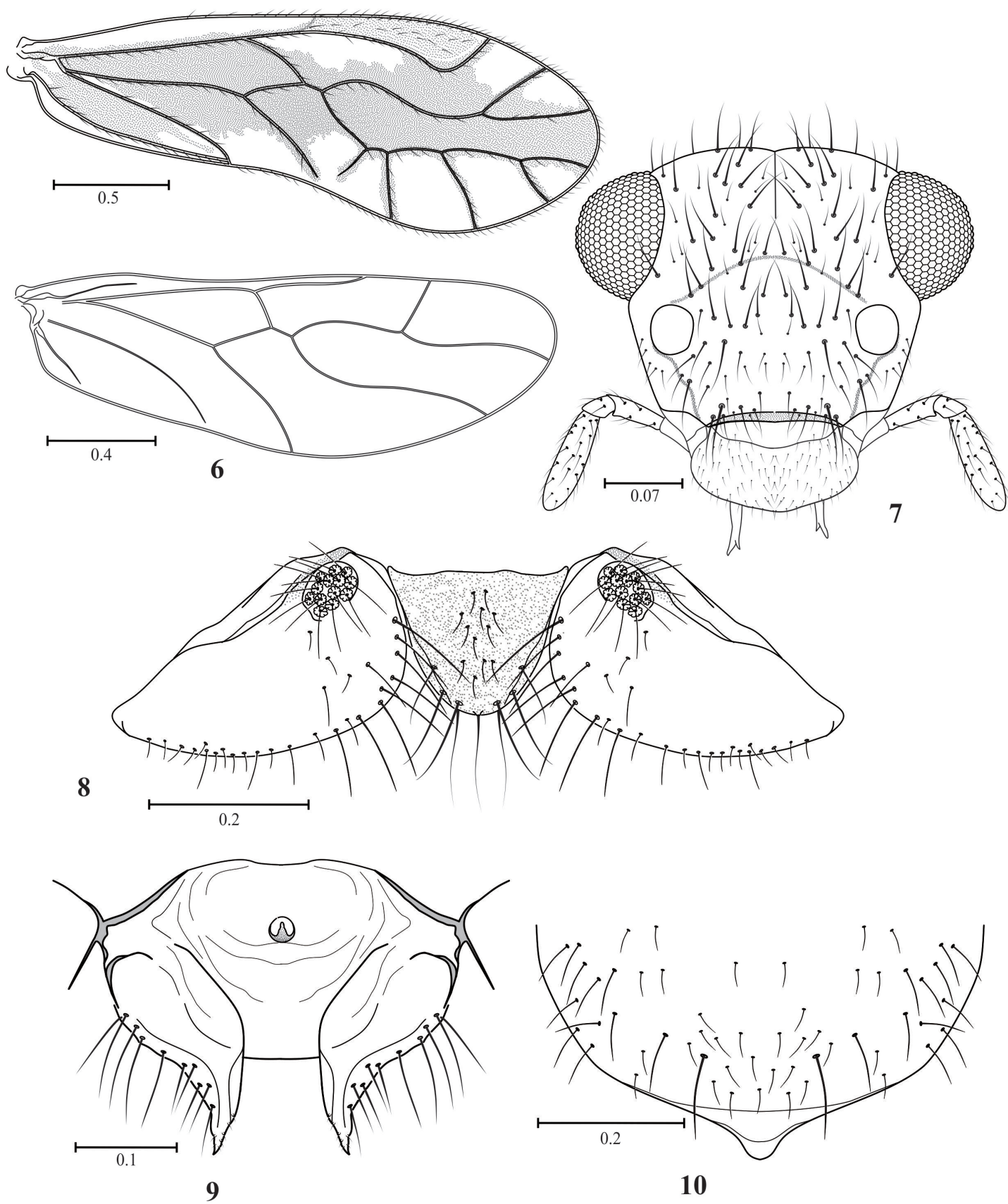
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- García Aldrete, A. N. & E. L. Mockford (2011) *Amazolachesilla*, a new genus of Eolachesillinae (Insecta: Psocodea: "Psocoptera": Lachesillidae) from Amazonas, Brazil. *Acta Amazonica*, 41(4): 553-556.
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Recibido: 6 de noviembre 2012

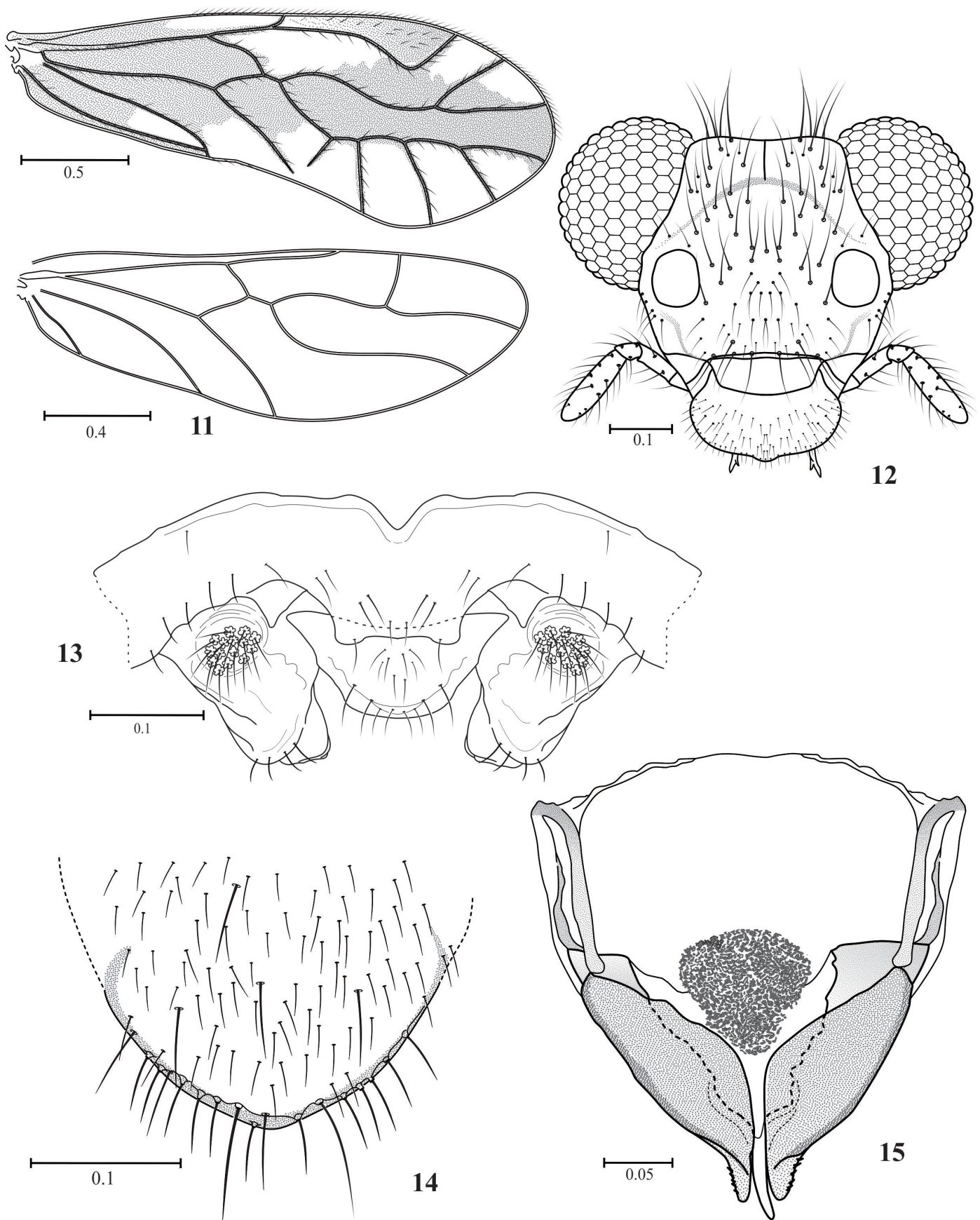
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Figures 1-5. *Anomolachesilla caldasiana* García Aldrete, González & Carrejo (Female). 1. Fore- and hind- wings. 2. Front view of head. 3. Posterior border of clunium, paraprocts and epiproct. 4. Gonapophyses and ninth sternum. 5. Subgenital plate. Scales in mm.



Figures 6-10. *Anomolachesilla palaciosi* García Aldrete, González & Carrejo (Female). 6. Fore- and hind- wings. 7. Front view of head. 8. Paraprocts and epiproct. 9. Gonapophyses and ninth sternum. 10. Subgenital plate. Scales in mm.



Figures 11-15. *Anomolachesilla palaciosi* García Aldrete, González & Carrejo (Male). 11. Fore- and hind- wings. 12. Front view of head. 13. Clunium, paraprocts and epiproct. 14. Hypandrium. 15. Phallosome. Scales in mm.



Figure 16. *Anomolachesilla palaciosi* García Aldrete, González & Carrejo (Female).



Figure 17. *Anomolachesilla palaciosi* García Aldrete, González & Carrejo (Male).