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NEW SPECIES OF LACHESILLA (PSOCOPTERA: LACHESILLIDAE) IN THE FORCEPETA GROUP, FROM BARRO COLORADO ISLAND, PANAMA

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RESUMEN. Tres especies de Lachesilla en el grupo forcepeta, endémicas de la isla Barro Colorado, en la zona del Canal de Panamá, son aquí descritas e ilustradas. La localización de los tipos se indica en cada descripción.
PALABRAS CLAVE: Lachesilla, nuevas especies, grupo forcepeta, Isla Barro Colorado, Panamá.


ABSTRACT. Three species of Lachesilla in the species group forcepeta, endemic from Barro Colorado Island, Canal Zone, Panama, are here described and illustrated. The location of the types is indicated in each description.
KEY WORDS: Lachesilla, new species, group forcepeta, Barro Colorado Island, Canal Zone, Panama.

Lachesilla Westwood is one of the most species genera in the order Psocoptera; to the end of the year 2002, 247 species had been described, representing 4.5% of the total number of valid species recognized to the end of that year (Lienhard, 2003). The genus is particularly rich in the neotropics, the data on hand indicates that there are 19 species in Los Tuxtlas, Veracruz, México; ten species in Chamela, Jalisco, México, 32 species in the Tambopata Reserved Zone, Puerto Maldonado, Perú and 39 species in the Waorani Ethnic Reserve, Napo, Ecuador (García Aldrete et al., 1997, García Aldrete 2004 and unpublished data. For numbers of species in each country see Lienhard and Smithers 2002). The forcepeta group is one of 14 species groups recognized in Lachesilla, it was diagnosed by García Aldrete (1974) and to this date, it includes 67 species, distributed from Canada to Brazil, with four African species, being particularly rich in the neotropics. On the whole, the alpha taxonomy of Lachesilla is far from being complete.

To this date, nine species of Lachesilla have been recorded in Panama (Lienhard and Smithers 2002) (L. bimaculata Garcia Aldrete, L. convexa García Aldrete, L. cuala García Aldrete, L. cuna García Aldrete, L. denticulata García Aldrete, L. nevermanni (Navas), L. nubilis (Aarón), L. tectorum Badonnel and L. truncata García Aldrete), six of them in the group forcepeta and one each in the groups andra, pedicularia and riegeli (L. nubilis, L. tectorum and L. cuna respectively). Broadhead and Wolda (1985) published a list of the psocid species captured in the canopy and the
near ground light traps on Barro Colorado Island over a one year period; the list includes ten Lachesilla species, identified by a capital letter (Lachesilla spp. C, D, E, G, H, K, M, N, O and P) that have not been studied in detail.

In this paper I present descriptions of three species of Lachesilla captured in Barro Colorado Island in 1953 and 1967; it is possible that they are represented in the Broadhead and Wolda collection. The specimens studied were dissected in 80% alcohol and their parts (head, legs, wings and genitalia) were mounted in Canada Balsam on slides. Color was recorded by placing the whole specimen in 80% alcohol under the dissecting microscope at 50X, illuminated with white cold light. The following measurements (lengths given in μm) were taken on the parts mounted on slides, with a filar micrometer whose measuring unit is 1.36 μm for wings and 0.53 μm for other parts: FW: forewing, HW: hindwing, F: femur of hind leg, T: tibia of hind leg, t1 and t2: tarsomeres 1 and 2 of hind leg, ctt1: number of ctenidia on t1, Mx4: fourth maxillary palpomere, f1…fn: flagellomeres 1…n, IO: minimum distance between compound eyes, D: antero-posterior diameter of right compound eye, d: transverse diameter of right compound eye, PO: D/D. The location of the types is indicated in each description. This paper is dedicated, in memoriam, to Alicia Rodríguez Palafox (5.II.1963-14.VII.2003), in desolation at her untimely departure.

Lachesilla aliciae sp. nov.
(Figs. 1-6)


Morphology. Forewings with pterostigma wider posteriorly, Rs and M diverging from a point; areola postica tall, almost triangular; hindwings with Rs and M fused basally for a short length. Subgenital plate (Fig. 4) broad, with a mesal, triangular setal field, sides and posterior margin glabrous. Gonapophyses stout, setose, wide based, bullet-shaped; spermapore small, almost centered on the ninth sternum, surrounded by a wide pigmented ring (Fig. 2). Paraprocts elliptic, with setae as illustrated (Fig. 6), sensory fields with 11-12 trichobothria, all but a peripheral one issuing from basal rosettes. Epiproct almost semicircular, with setal field on posterior half as illustrated (Fig. 6).


MALE. Color. Same as the female.

Morphology. Wings as described for the female (Fig. 1). Hypandrium broad, anteriorly straight, obtusely concave posteriorly, with setae as illustrated; claspers stout, on sides of hypandrium, curved outward, distally acuminate, each with a mesal, trapezoidal protuberance on outer edge, with a field of five to seven macrosetae; phallosome apodemes fused to form a long baculum, posteriorly divided to form two large, broadly triangular membranous extensions (Fig. 3). Paraprocts elliptic, with a small, mesal, sclerotized conical marginal projection; setae as illustrated, sensory fields with 11-12 trichobothria, all but a peripheral one issuing from basal rosettes (Fig. 5). Epiproct straight anteriorly, rounded posteriorly, almost completely pigmented, except for a semicircular, hyaline area on anterior margin, setal field on distal third, as illustrated (Fig. 5).

Measurements. FW: 1936, HW: 1466, F: 422,
Scales in mm. Figures 3-6 to scale of Figure 2.

Type locality. PANAMA. Canal Zone. Barro Colorado Island. 13.IV. 1953, Aaron M. Nadler. Holotype ♀. Same locality and collector, 18.IV. 1953, allotype ♂, one paratype ♀. The types will be deposited in the American Museum of Natural History, New York City, U. S. A.

Etymology. This species is dedicated, in memoriam, to Alicia Rodriguez Palafox (1963–2003), a dear friend and colleague, who did much to advance the study of the Vespidae of Chamela and, through her collecting efforts, facilitated also the study of many other groups of insects.

Lachesilla biannulata sp. nov. (Figs. 7-11)

Morphology. Forewings with pterostigma elongate, almost rectangular, Rs and M fused basally for a length; areola postica tall, apically rounded; hindwings with Rs and M fused basally for a length (Fig. 7). Subgenital plate broad, setose, posteriorly straight; next to posterior border, mesally with one pair of distinct concentric rings, of cuticular pigmentation, one on each side of longitudinal midline, each formed by a small ring surrounded by a large one, the pair partially enclosed by two distinct, curved bands, also of cuticular pigmentation (Fig. 8). Gonapophyses widest in proximal third, narrowing distally, setose as illustrated; spermapore almost in the center of the ninth sternum, surrounded by an elliptic pigmented area, with the longer axis longitudinal to ninth sternum (Fig. 10). Paraprocts semi-elliptic, setose, sensory fields with 11-12 trichobothria, all but a peripheral one issuing from basal rosettes (Fig. 11). Epiproct straight anteriorly, rounded posteriorly, with setal field on distal half, as illustrated (Fig. 9).


Etymology. From the Latin annulata = ringed; biannulata = with two rings, in reference to the ringed marks in the subgenital plate.

Lachesilla delicata sp. nov. (Figs. 12-17)
FEMALE. Color. Body pale brown yellowish. Head without distinct pigmented pattern. Compound eyes black, ocelli hyaline, without pigmented centripetal crescents. Tergal lobes of meso- and metathorax slightly more pigmented than rest of the thorax. Wings almost hyaline, with a slight orange hue. Abdomen with transverse, reddish brown subcuticular rings, less conspicuous ventrally.

Morphology. Forewing pterostigma almost rectangular, slightly wider distally; Rs and M fused basally for a short length, areola postica low, almost triangular, with apex rounded; hindwings with Rs and M fused basally for a length (Fig. 12). Subgenital plate broad, with mesal setal field broadly triangular as illustrated; slightly concave posteriorly, with a hyaline band along posterior edge (Fig. 16). Gonapophyses short, stout, widest in the middle, blunt ended, setose; spermapore large, in the center of the ninth sternum, surrounded by an elliptic pigmented area (Fig. 15). Paraprocts elliptic, setose, sensory fields with 11-
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12 trichobothria, all but a peripheral one issuing from basal rosettes; epiproct almost semi-circular, with setal field on posterior half (Fig. 17).


**MALE. Color.** Same as the female.

**Morphology.** Hypandrium slender, transversely elongate, concave anteriorly and convex posteriorly, with setae as illustrated; claspers on sides of hypandrium, slender, wider anteriorly, slightly curved, distally knobbed, with two macrosetae on anterior third; phallosome apodemes fused to form a short baculum, divided distally to form two broadly triangular, membranous extensions (Fig. 14). Paraprocts elliptic, with setae as illustrated, mesally with a short, sclerotized marginal cone between two setae, sensory fields with 10-11 trichobothria issuing, all but a peripheral one, from basal rosettes; epiproct trapeziform, with setal field on distal half as illustrated (Fig. 13).


**Type locality.** PANAMA. Canal Zone. Barro Colorado Island. 16.IV.1953. Aaron M. Nadler. Holotype ♀, allotype ♂, one paratype ♀. Same locality and collector, 8.IV.1953, one paratype ♀. 10.IV.1953, one paratype ♀. 18.IV.1953, one paratype ♀. The holotype, allotype and two paratypes ♀ will be deposited in the American Museum of Natural History, New York City, U. S. A. One paratype of each sex deposited in the National Insect Collection (CNIN), Instituto de Biología, Universidad Nacional Autónoma de México, Mexico City.

**Etymology.** From the Latin *delicata* = delicate, in reference to the slender form of the hypandrium and claspers.

**Comments.** The three species here described belong in species group *forcepeta*, as diagnosed by García Aldrete (1974). *L. aliciae* can be discriminated from the other species in the group by the unique shape of the claspers and disposition of the setal fields in them; the female is very reminiscent of *L. cuala* García Aldrete, that occurs from Mexico to Argentina (with records in the Panama Canal Zone), but differs from it in the shorter gonapophyses and in the wider pigmented ring surrounding the spermapore. *L. biannulata* is unique by the peculiar pigmented marks of the subgenital plate. *L. delicata* is also unique by the shape of the hypandrium, the slender claspers and the short phallosome baculum. *L. maculata* Garcia Aldrete from Mexico and Belize has similarly shaped claspers, but hypandrium and phallosome are distinct. The subgenital plate of *L. acuminiformes* Garcia Aldrete, from southern Florida, southern Mexico, Hispaniola and Puerto Rico has broadly the same shape as that of *L. delicata*, and also presents a hyaline band along the posterior border, but other genital details of males and females make the two species clearly different.

So far as it is presently known, the three species here described are endemic to Barro Colorado Island, Panama.

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**LITERATURE CITED**


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