Notes on the Phlebotomine Sand Flies from the Peruvian Southeast - I. Description of *Lutzomyia (Helcocyrtomyia) adamsi* n. sp. (Diptera: Psychodidae)

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A new species of phlebotomine sand fly, Lutzomyia adamsi *n. sp., is described and illustrated from specimens collected during August 1994, in Sandia, Department of Puno-Peru. According to the Oficina Nacional de Evaluacion de Recursos Naturales(ONERN 1976), this locality is situated in the life zone known as humid, mountain, low tropical forest (bh-MBT). Many areas in the northern part of Puno, mainly in the Inambari and Tambopata basins, are endemic to leishmaniasis. These areas are the continuation of others, largely known as "leishmaniasic" in the departments of Cusco and Madre de Dios. The morphological characteristics indicated that this species belongs to the genus* Lutzomyia, *subgenus* Helcocyrtomyia *Barretto, 1962.*

Key words: *Lutzomyia adamsi* n. sp. - sand fly - Diptera - Psychodidae - taxonomy - Peru

The taxonomy of phlebotomine sand flies in the Department of Puno, Peru, is not well-known. The only species recorded from this locality include *Lutzomyia auraensis*, *L. barrettoi*, *L. intermedia*, and *L. migonei* (Llanos 1981). However, according to Young and Duncan (1994), *L. auraensis* and *L. intermedia* may have been incorrectly identified. During our studies, aimed at defining the biology and ecology of phlebotomine sand flies, six species were collected. These were *Lutzomyia (Helcocyrtomyia) castanea* Galati & Cáceres 1994, and two other species belonging to the subgenus *Helcocyrtomyia* Barretto, 1962; two species belonging to the *verrucarum* Group; and, one belonging to the genus *Warileya*. In this report, we describe a new species of sand fly with morphological characteristics consistent with those of the subgenus *Helcocyrtomyia*, as defined by Young and Duncan (1994).

Lutzomyia (Helcocyrtomyia) adamsi sp. n.

All measurements are in mm.

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HOLOTYPE MALE (Fig. 1)

Overall large size, with a dark brown general appearance, and strongly infuscated head, mesonotum, metanotum, coxae, sternite and tergite. Measurements of the following are given in mm. Head (Fig. 1A): 0.52 from the vertex to the apex of the clypeus and 0.22 wide. Very large eyes, 0.29 high, separated by a maximum distance of 0.32 at the top margin of the eyes and a minimum of 0.07 at the interocular suture level. Length of flagellomeres, I=0.55, II=0.22, III=0.22, IV= 0.20; ascoids are simple reaching beyond the middle of flagellomere. Palpal formula 1:4:2:3:5; length of palpomeres, 1=0.07, 2=0.19, 3=0.25, 4=0.11, 5=0.35. Cibarium has a small false teeth appearance with an incomplete cibarial arch and conspicuous pigment patch. Labrum, length 0.41; pharynx, length 0.23 and with fake spines. Thorax: pleura with 17 upper and 6 lower episternal setae. Wings: (Fig. 1B) large and wide, length 2.87, width 1.04. Length of wing vein sections, *alpha* 1.06, *beta* 0.28, *gamma* 0.35, and *delta* 0.62. Legs: length of femora, tibiae and basitarsi: foreleg, 1.19, 2.02, 1.43; midleg, 1.08, 2.17, 1.53; hindleg, 1.27, 2.53, 1.71, respectively.
Male genitalia (Fig. 1C): genitalia with coxite, length 0.43 and without a basal setae tuft or persistent setae. Style 0.25 long, with five strong spines; two apical spines inserted nearby at same level, two basal or proximal spines inserted at same level and reaching beyond the middle part of the structure and a "median spine" between the apical and proximal pairs. Paramere long and simple, with thinner and

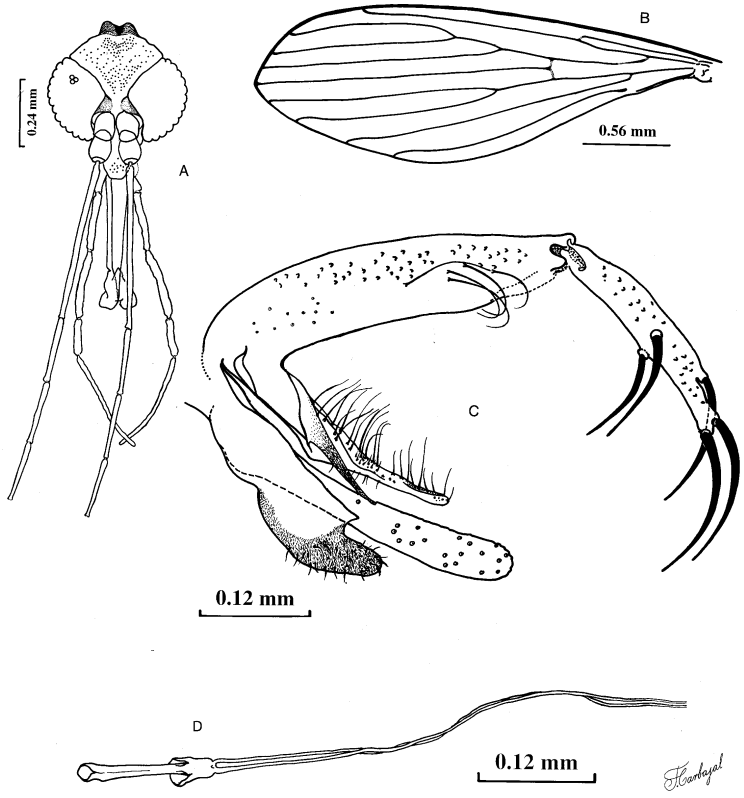

Fig. 1: *Lutzomyia adamsi* n. sp., male. A: head; B: wing; C: genitalia; D: genital pump and filaments.

longer setae on dorsum. Genital pump 0.12 long, thin filaments, each 0.45 long (about 3.75x length of pump) (Fig. 1D). Aedeagus triangular with an acute tip and pigmented. Lateral lobe 0.37.

ALLOTYPE FEMALE (Fig. 2)

Coloration as in male, slightly larger than male.

Head: (Fig. 2A, head was broken upon mounting) height 0.62 from the vertex to the apex of clypeus; large eyes, separated by a minimum distance of 0.13 at the interocular suture. Clypeus, length 0.22; labrum, 0.62; maxilla with two rows of external teeth. Palpal formula 1:4:2:3:5. Length of palpomeres, 1=0.08, 2=0.29, 3=0.31, 4=0.13, 5=0.34. Newstead spines are present throughout the apical region of palpomere 3. Lengths of flagellomeres, I=0.55, II=0.23, III=0.20, IV=0.20; papilla are present in flagellomeres III-V; ascoids are simple, reaching beyond the middle of the segment (Fig. 2C). Cibarium with four pointed horizontal teeth; a wide row of vertical teeth with more than twenty uneven-disposition teeth; the top central teeth are slightly larger than the others; with an undeterminate number of smaller teeth laterally (Fig. 2D). Pigment area with a triangular shape and moderately pigmented. Prominent cibarial arch at

sides, diffuse in the middle. Pharynx 0.28 with many small false spines. Thorax: pleura with 17 upper and 5 lower episternal setae. Wings (Fig. 2B): length 3.16, width 1.11. Length of wing at vein section, *alpha* 1.19, *beta* 0.32, *gamma* 0.40, *delta* 0.65. Legs: length of femora, tibiae and basitarsi: foreleg, 1.23, 1.9, 1.34; midleg, 1.12, 2.03, 1.43 and hindleg, 1.31, 2.42 and 1.61, respectively.

Female genitalia (Fig. 2E): spermatheca cilindrical with 16 segments, the last one being larger; body of spermathecae length 0.05, width 0.008, individual ducts ca. 0.124 long, very short common duct, about 0.002 long.

TYPE LOCALITY

Holotype male (NAMRID access no. 1653): collected in a Shannon trap with human bait, located peridomestically in the high forest of Sandia (ca. 14 14'50" S, 69 25'30" W, and 1,187 m above sea level), Sandia Province, Department of Puno, Peru, 17 August 1994. Allotype female (NAMRID access no. 1650): collected while biting a man in the same locality, 21 August 1994. Paratypes one male (NAMRID access no. 1654) and three females (NAMRID access nos. 1655,1656,1657): collected extradomestically in a Shannon trap with human

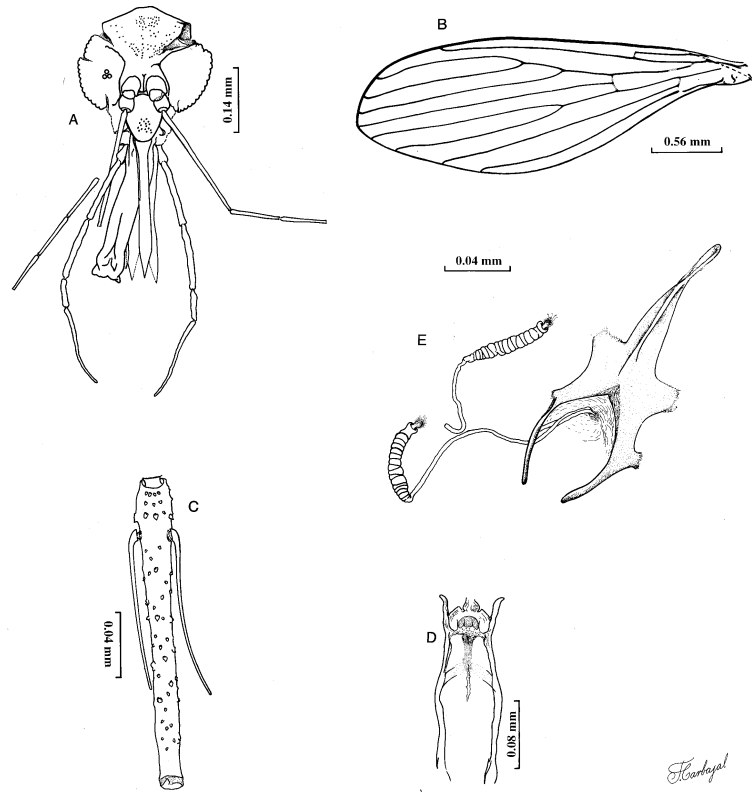

Fig. 2: *Lutzomyia adamsi* n. sp., female. A: head; B: wing; C: flagellomere; D: cibarium; E: spermathecae.

bait in the same locality, 20 August 1994. The holotype and allotype will be deposited in the Javier Prado Museum of Natural History, Lima-Peru. The rest of paratypes will remain in the NAMRID collection.

DISCUSSION

L. (H.) adamsi n. sp., based on defined characteristics, belongs to the subgenus *Helcocyrtomyia* Barretto, 1962, series Sanguinaria Galati and Cáceres (1994). Notwithstanding, three other species of the subgenus, the association between the sexes of *L. adamsi* n.sp. was based on the similarities of the body coloration, length of genital filaments of the male, ducts of the spermathecae, and markedly large size.

The male of *L. adamsi* n.sp. is placed in subgenus Helcocyrtomyia because these species lack a basal tuft of setae or persistent setae in the coxite, and is closely related to *L. (H.) tortura* Young and Rogers (1984) and *L. guderiani* Le Pont et al. (in press).

In both sexes, *L. adamsi* n.sp. differs from *L. guderiani* and *L. tortura* by a markedly larger size. Also, body coloration of *L. adamsi* n.sp. is more infuscated than that of *L. tortura*.

The male of *L. adamsi* n.sp. differs from *L. tortura* by the disposition of spines on the dististyle. *L. adamsi* has a basal or proximal pair of spines inserted at the same level and reaching beyond the middle of the structure; the sole or "median" spine is inserted in the middle, between the proximal and the apical pairs, whereas for *L. tortura*, the basal or proximal pair is inserted at different levels, one of them (the internal one) is near the third middle of the structure; the sole spine is inserted closer to the apical pair than to the proximal pair.

The female of *L. adamsi* n. sp. differs from *L. tortura* by color, size, cibarium armature and pharynx spines. The cibarium has a wide row of more than twenty vertical teeth of uneven disposition and the pharynx has small false spines; whereas in *L. tortura*, the pharynx is unarmed and with about 16 vertical cibarial teeth.

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