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LUTZOMYIA (TRICHOPHOROMYIA) PASTAZAENSIS, A NEW SPECIES OF PHLEBOTOMINE SAND FLY (DIPTERA: PSYCHODIDAE: PHLEBOTOMINAE) FROM THE PERUVIAN AMAZON

R. FERNANDEZ; F. CARBAJAL; B. ALEXANDER* & J. T. NEED

Departamento de Entomología, U. S. Naval Medical Research Institute Detachment (NAMRID), Unit 3800, Lima, Peru *Sección de Entomología, Fundación Centro Internacional de Entrenamiento e Investigaciones Médicas (CIDEIM), A. A. 5390, Cali, Colombia

The phlebotomine sand fly Lutzomyia pastazaensis *n. sp. is described and illustrated from specimens collected from the edge of primary forest near Andoas, Department of Loreto, Peru (03°00'S, 76°05'W). This species appears to belong to the subgenus* Trichophoromyia *Barretto 1962, whose members are generally restricted to the Amazon Basin.*

Key words: *Lutzomyia pastazaensis* n. sp. – sand fly – *Trichophoromyia* – description – Peru

At the time of writing, 28 species of phlebotomine sand flies (Diptera: Psychodidae) of the subgenus *Trichophoromyia* Barretto 1962 have been described (IBBA, 1991), most of which have a restricted geographical range within the Amazon Basin (Llanos 1964; Sherlock & Guitton 1970; Young & Duncan, unpublished). Little is known of their biology, although the females of most species do not seem to be very anthropophilic or involved in *Leishmania* transmission to man. One exception may be *Lutzomyia (Trichophoromyia) ubiquitalis* (Mangabeira), suspected vector of *Le. (Viannia) lainsoni* in Amazonian Brazil (Lainson et al., 1992).

In the course of our studies on the phlebotomine sand fly fauna in primary forest near Andoas, Department of Loreto, Peru, we collected examples of a new species, described below, that apparently belongs to the subgenus *Trichophoromyia*.

Lutzomyia pastazaensis n. sp.
(Figs 1-2)

DESCRIPTION

(All dimensions in mm)

Male: of medium size, dark brown, with the pleurae more lightly pigmented than the mesonotum, sternopleurae, tips of the halteres and the dorsal abdomen.

Head typical of subgenus *Trichophoromyia*, measuring 0.375 from the vertex to the apex of the clypeus and 0.225 broad. Eyes large, with a height of 0.213 and breadth of 0.108, separated by a maximum distance of 0.252 and a minimum of 0.126 at the level of the the interocular suture. Length of flagellomeres I-IV 0.225, 0.126, 0.126 and 0.120 respectively, with long ascoids arising from the basal fifth, extending past the length of the flagellomere on which they occur and bearing short, barely discernible spurs. Length of clypeus 0.102, labrum 0.198 and pharynx 0.258. Maxillary palps 1-5 measuring 0.030, 0.093, 0.120, 0.054 and 0.138 respectively, giving the palpal formula 1:4:2:3:5.

Wing length 1.918, breadth at widest part 0.532. Dimensions of the wing vein sections (Young, 1979) as follows: alpha 0.574, beta 0.238, gamma 0.210 and delta 0.392.

Pleurae with 14-16 superior and 3-4 inferior episternal setae. Lengths of leg segments as follows: prothoracic femur 0.770, tibia 0.994, basitarsus 0.630; mesothoracic femur 0.714, tibia 1.204, basitarsus 0.714; metathoracic femur 0.812, tibia 1.400, basitarsus 0.826.

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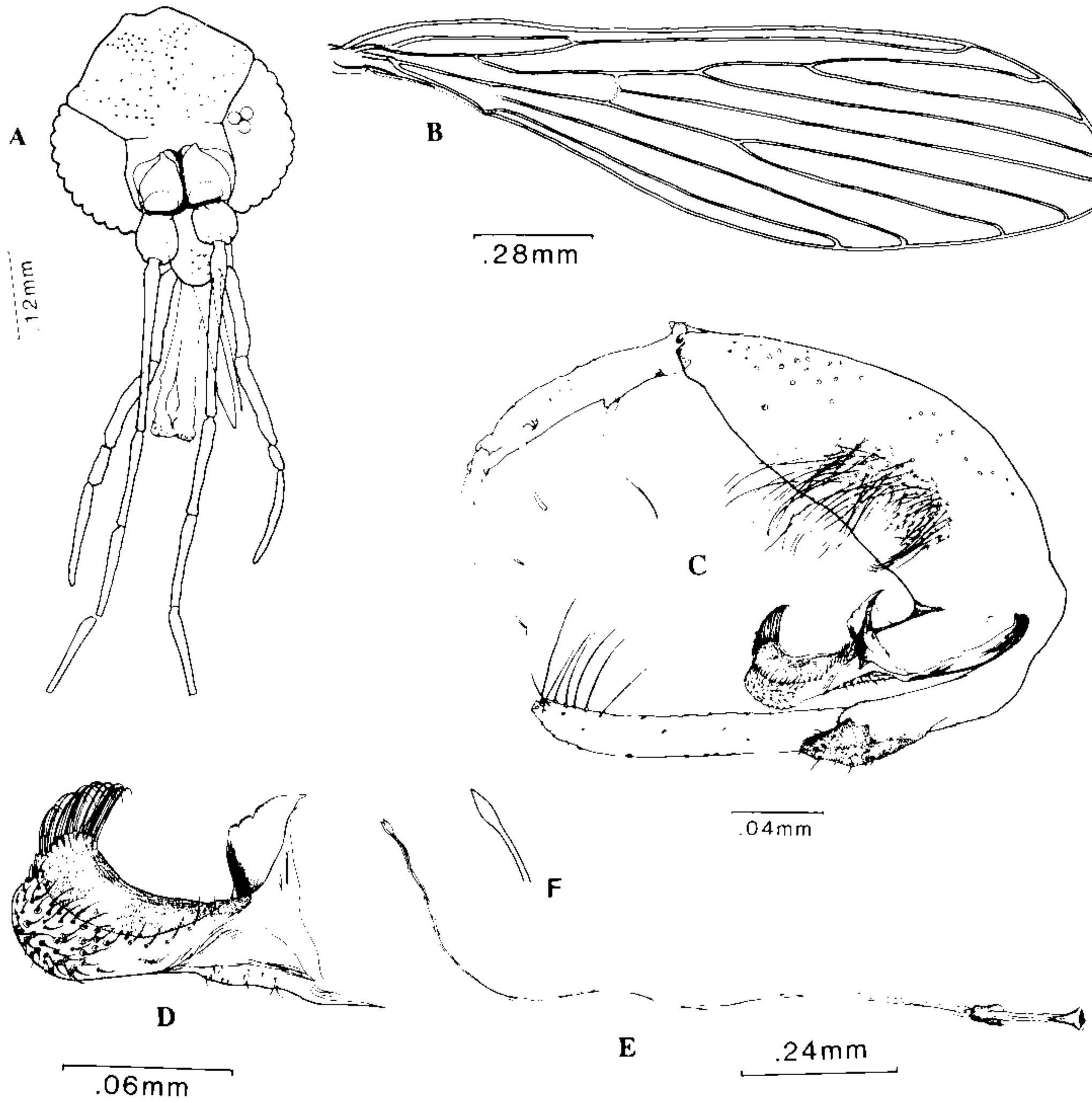

Fig. 1: *Lutzomyia pastazaensis* n. sp. male. A: head. B: wing. C: genitalia. D: paramere. E: genital pump and filaments. F: tip of genital filament.

Genitalia with coxite measuring 0.364, gently curved and bearing a single ventromedial tuft composed of setae of three sizes: the largest slender and positioned distally, those of intermediate size also slender and occupying a medial position and the smallest spiniform, intermingled with those of intermediate size. Style 0.196 long, with four strong spines, one of these isolated and the remaining three positioned at different levels on the distal third. Spoon-shaped paramere more than half length of lateral lobe, with the dorsal surface slightly concave and bearing microsetae, together with a dense group of recurved setae at its apex. Convex surface of paramere with covering of small, less dense setae twisting up towards the dorsum. Aedeagus small, triangular and pigmented. Lateral lobe length 0.392, extending past coxite. Genital filament tips expanded and acute.

Female: coloration as in male. Head height 0.426, breadth 0.351. Eyes large with length 0.196 and width 0.126, separated by a maximum interocular width of 0.245. Antennal segments I-IV of lengths 0.222, 0.117, 0.117 and 0.117 respectively. Length of clypeus 0.162 and labrum 0.172. Pharynx without spicules, length 0.174. Cibarium with 12 horizontal teeth and a transverse row of 12 vertical teeth, below which is situated a central group of five more prominent teeth, flanked by groups of

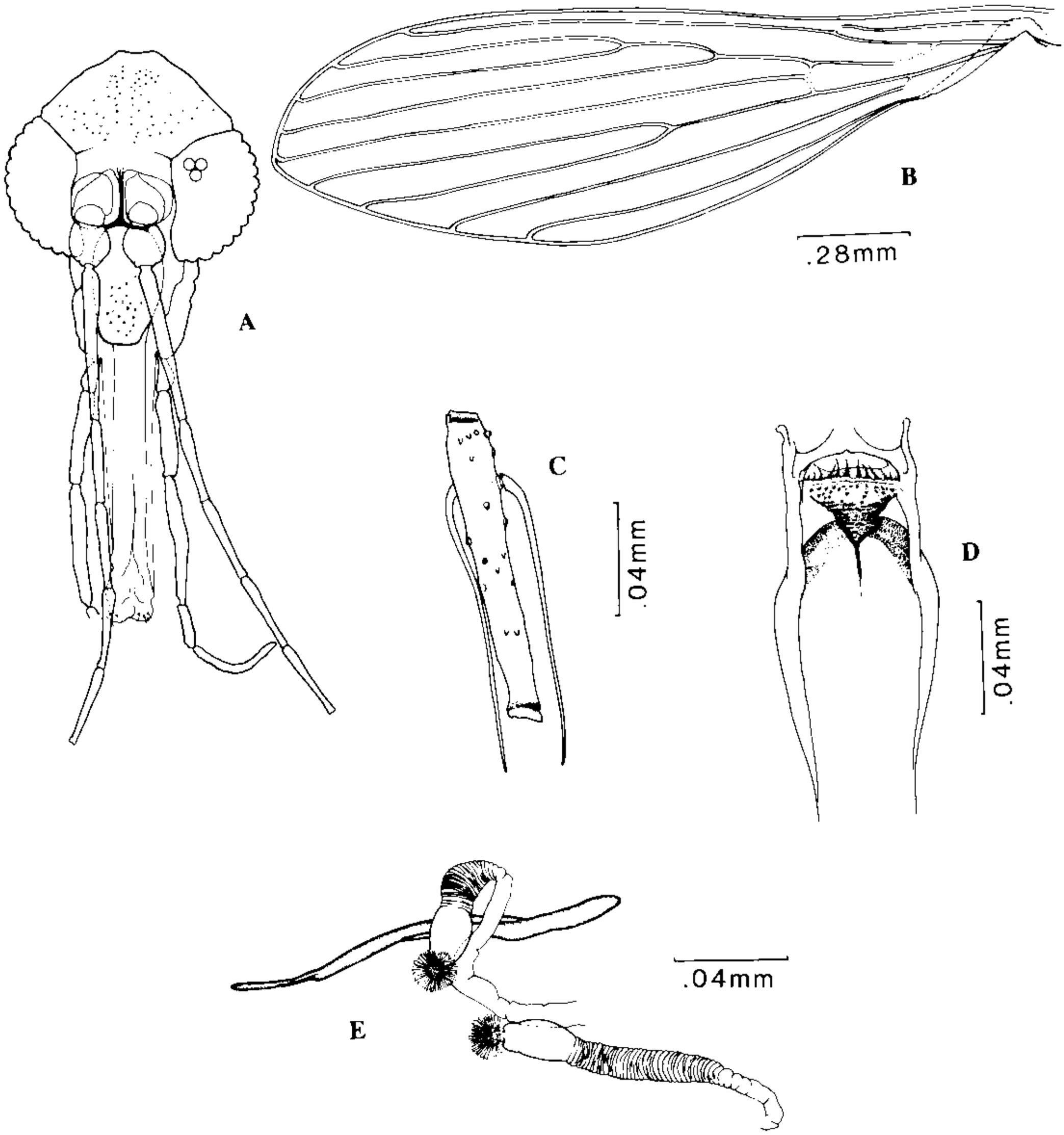

Fig. 2: *Lutzomyia pastazaensis* n. sp. female. A: head. B: wing. C: flagellomere IV. D: cibarium. E: spermathecae.

smaller ones. Cibarial arch complete, pigment patch prominent and funnel-shaped. Maxillary palps 1-5 measuring 0.048, 0.138, 0.174, 0.066 and 0.132 respectively, giving a palpal formula of 1:4:2:5:3.

Wing length 2.058, width 0.588, wing vein sections measuring as follows: alpha 0.728, beta 0.245, gamma 0.240 and delta 0.546. Lengths of leg segments as follows: prothoracic femur 0.735, tibia 1.162, basitarsus 0.763; mesothoracic femur 0.721, tibia 1.162, basitarsus 0.763; metathoracic femur 0.791, tibia 1.400, basitarsus 0.840. Spermathecae with broad smooth head, ending in knob covered in "hairs" and well-differentiated from elongated body which has irregular annulations. Individual ducts of spermathecae long and indistinct, common duct almost invisible.

MATERIAL STUDIED: the holotype male (NAMRID accession no. 929) and allotype female (NAMRID accession no. 930) were collected in a Shannon trap on 27 September 1990 in Fundo Faustino, on the left bank of the Pastaza river, NE of Andoas, Department of Loreto, Peru (03° 00'S: 76° 05'W). The paratype material (all captured by Shannon trap) consists of seven males and four females taken in the same collection, four males col-

lected on 12 December 1990, four males and five females collected on 20 February 1991 and one female collected on 2 May 1991. The holotype and allotype, together with one male and one female paratype, will be lodged in the collection of the Museo de Historia Natural de Javier Prado, Lima, Peru.

DISCUSSION: we assume the male and female specimens described above to belong to the same species on the basis of having been found together in all the collections made, on no other species being present and on morphological features such as coloration and the similarities in length between the genital filaments of males and the individual ducts of the female spermathecae.

L. pastazaensis n. sp. appears to belong to the subgenus *Trichophoromyia* Barretto, 1962, of which nine other species have been recorded from Peru (Young & Duncan, unpublished). The spermathecae of the female resemble those of at least three other species, i.e., *L. (T.) viannamartinsi* Sherlock & Guitton of Brazil, *L. (T.) bettinii* Feliciangeli, Ramirez-Perez & Ramirez of Venezuela and *L. (T.) ruii* Arias & Young of Brazil. The male of *L. (T.) pastazaensis* differs from others in the group in the form of the coxite tuft, which consists of setae of three sizes grouped together, as well as in the shape of the parameres. The new species most closely resembles *L. (T.) loretonensis* (Llanos) but differs in the shape of the paramere and the distribution of setae on their upper surface. Another similar species, *L. (Trichophoromyia)* sp. of Pastaza province, Ecuador (Young & Rogers, 1984) differs in having three distinct groups of setae on the coxite rather than one. Two other undescribed *Trichophoromyia* species from Peru (Young et al., 1985) have coxite tufts consisting of only 7-8 setae and also differ from *L. (T.) pastazaensis* in the shapes of their parameres.

Young (1979) noted the resemblance of *Trichophoromyia* species to members of the subgenus *Nyssomyia,* which contains several anthropophilic species involved in the transmission of *Leishmania.* Little is known about the biology of the former group, other than that many species appear to be attracted to light and that most rarely bite man. However, the discovery of female *L. (T.) ubiquitalis* infected with *Le. lainsoni* (Silveira et al., 1991; Lainson et al., 1992) as well as the observation of a single specimen bitting man in Serra dos Carajás, Brazil (Lainson et al., 1992) suggests that *Trichophoromyia* sand flies could be involved in the transmission of *Leishmania* species that occasionally infect humans. With the exception of *L. (T.) reburra* (Fairchild & Hertig, which occurs as far north as Costa Rica and south to the coastal plain of Ecuador, all known *Trichophoromyia* species appear to be restricted in range to the Amazon Basin.

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