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LUTZOMYIA TINTINNABULA N. SP. (DIPTERA: PSYCHODIDAE) FROM PANAMA[1]

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Abstract: Males and females of *Lutzomyia* (*Psychodopygus*) *tintinnabula* n. sp. are described from eastern Panama. Both sexes were collected in light traps at an altitude of 600 m near the Colombian border. Members of this subgenus have been implicated recently as vectors of cutaneous leishmaniasis.

Phlebotomine sandflies of the subgenus *Psychodopygus* are characterized primarily by the possession of a very short fifth palpal segment and deeply imbricated spermathecal annuli, with ducts partly or wholly wrinkled or pleated (Fairchild 1955). Many of the members of this subgenus are known to bite man. *Lutzomyia panamensis* Shannon and *L. pessoana* Barretto are strongly anthropophilic. Both of these species have been implicated as potential vectors of cutaneous leishmaniasis in the New World (Strangways-Dixon & Lainson 1966, Christensen et al. 1969).

Lutzomyia (Psychodopygus) tintinnabula Christensen & Fairchild, **n. sp.** FIG. 1–8

♂. A medium-sized sandfly with a moderately infuscated head and notum. *Head:* length including clypeus (in mm) .315–.340, x̄ .328; width .350–.385, x̄ .369. Index: $\frac{\text{length}}{\text{width}}$ = .85–.94, x̄ .89. *Palps:* total length .321–.370, x̄ .347. Formula 1-4-5-2-3. Segments: 1 = .030–.035, x̄ .033; 2 = .080–.094, x̄ .088; 3 = .118–.130, x̄ .123; 4 = .031–.044, x̄ .039; 5 = .063–.068, x̄ .064. *Antennae:* total length 1.225. Segment A3 = .235–.265, x̄ .249. A3>4 + 5. The third antennal segment extends to about the middle of palpal segment 4 on the intact head. *Ascoids:* paired, simple; on antennal segment 4 extend slightly beyond the distal end of the segment. *Epipharynx:* length (from anterior border of clypeus) .175–.210, x̄ .193. Index: $\frac{\text{A3}}{\text{E}}$ = 1.2–1.4, x̄ 1.3. *Cibarium:* without denticles; central pigmented area similar to that of female (FIG. 5). Pharynx unarmed. *Wings:* (FIG. 3) length 1.563–1.780, x̄ 1.650; width .475–.500, x̄ .485. Index: $\frac{\text{length}}{\text{width}}$ = 3.4. Alpha .438–.513, x̄ .479; beta .163–.250, x̄ .198; gamma .100–.138, x̄ .121; delta .113–.188, x̄ .142. Gamma usually<delta. Indices $\frac{\text{alpha}}{\text{beta}}$ = 1.9–3.1, x̄ 2.4; $\frac{\text{alpha}}{\text{gamma}}$ = 3.5–4.9, x̄ 4.0; $\frac{\text{alpha}}{\text{delta}}$ = 2.7–4.3, x̄ 3.4. *Genitalia:* coxite .185–.215, x̄ .199; style .135–.145, x̄ .138; lateral lobes .240–.250, x̄ .246; genital pump (FIG. 2) .180; genital filaments (tips simple) .525. Index: $\frac{\text{filaments}}{\text{pump}}$ = 2.9. Parameres with apical tuft of short setae and long ventral digitate process (FIG. 8). *Hind legs:* femur .775; tibia 1.288; basitarsus .775; tarsi 2 + 3 + 4 + 5 = .775.

♀. Similar to ♂ in color but slightly larger. *Head:* as figured (FIG. 4); length including clypeus .430–.465, x̄ .442; width .385–.420, x̄ .408. Index: $\frac{\text{length}}{\text{width}}$ = 1.06–1.13, x̄ 1.09. *Palps:* total length .595–.670, x̄ .621. Formula: 4-1-5-2-3. Segments: 1 = .060–.080, x̄ .066; 2 = .195–.255, x̄ .205; 3 = .215–.250, x̄ .230; 4 = .050–.055, x̄ .053; 5 = .065–.080, x̄ .074. *Antennae:* total length 1.530. A3 = .253–.275, x̄ .257. A3>4 + 5. The third antennal segment extends to about the middle of palpal segment 2 on intact head. *Ascoids:* paired, simple; on antennal segment 4 as in FIG. 4. *Epipharynx:* length (from anterior border of clypeus) .435–.480, x̄ .459. Index: $\frac{\text{A3}}{\text{E}}$ = .52–.58, x̄ .56. *Cibarium:* as shown in FIG. 5. The 4 horizontal teeth strongly inclined towards center, at approximately 45° angle with midline, completely hidden by transverse thickened sclerotization in some individuals. Vertical teeth often very large, especially those located nearest the midline. Pharynx unarmed. *Wings:* total length 1.900–1.938, x̄ 1.925; width .550–.588, x̄ .571. Index: $\frac{\text{length}}{\text{width}}$ = 3.4. Alpha .500–.588, x̄ .566; beta .213–.288, x̄ .243; gamma .125–.188, x̄ .149; delta .125–.213, x̄ .172. Gamma usually< delta. Indices: $\frac{\text{alpha}}{\text{beta}}$ = 1.9–2.7, x̄ 2.3; $\frac{\text{alpha}}{\text{gamma}}$ = 3.1–4.7, x̄ 3.7; $\frac{\text{alpha}}{\text{delta}}$ = 2.9–4.0, x̄ 3.3. *Spermatheca:* as shown in FIG. 6. Individual ducts and terminal 1/3 of common duct involuted and staining as deeply as imbricated spermathecal body with acid fuchsin. Proximal 2/3 of common duct a simple thin-walled tube, which stains poorly and can be discerned only in outline. *Hind legs:* measurements same as for ♂♂.

Type Material: Holotype ♂, slide 8680, Altos de Quia, Pinogana district, Darien Province, Republic of Panama, 13.III.1970, light trap, coll. Beam. ♀ allotype, slide 8688, same data. Five ♂ (slides 8674, 8675, 8678, 8679, 8681) and 9 ♀ (slides 8676, 8677, 8682, 8684, 8685, 8686, 8687, 8690, 8694) paratypes, same locality, 13–19.III. 1970. Type and allotype to be deposited in U.S.N.M. Paratypes in G.M.L. All material collected from 1–2 m above ground at an altitude of 600 m in wet submontane forest. This area is less than 1.6 km from the Colombian border. Associated sandflies collected with the type material included *L. pessoana* Barretto, *trapidoi* Fairchild & Hertig, *triramula* Fairchild & Hertig, *nordestina* Mangabeira, *reburra* Fairchild & Hertig, *saulensis* Floch & Abonnenc, *lichyi* Floch & Abonnenc,

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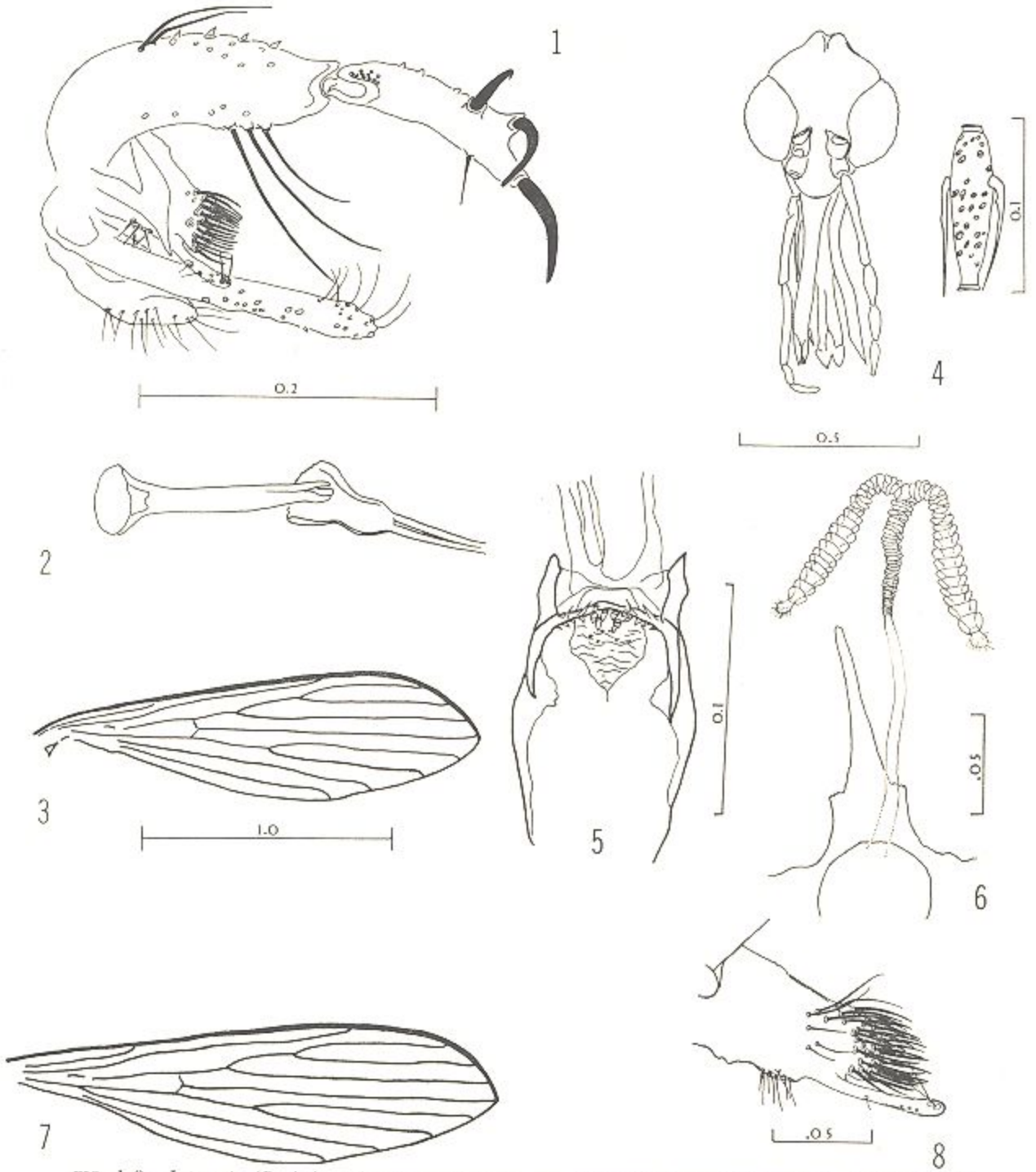

FIG. 1–8. *Lutzomyia* (*Psychodopygus*) *tintinnabula* n. sp. (1) terminalia ♂; (2) genital pump ♂; (3) wing ♂; (4) head, mouthparts and antennal segment 4 showing ascoids ♀; (5) cibarium ♀; (6) spermatheca and genital furca ♀; (7) wing ♀; (8) paramere ♂.

tuberculata Mangabeira, *sanguinaria* Fairchild & Hertig, *hartmanni* Fairchild & Hertig, *shannoni* Dyar, *spinosa* Floch & Abonnenc, *trinidadensis* Newstead, *dysponeta* Fairchild & Hertig, *olmeca bicolor* Fairchild & Theodor, *odax* Fairchild & Hertig, *furcata* Mangabeira.

L. tintinnabula is near *paraensis* Costa Lima, *ayrozai* Barretto & Coutinho, *pessoana*, *panamensis* Shannon, *fairchildi* Barretto, *carrerai* Barretto and *amazonensis* Root. The females of *L. tintinnabula* can be separated from all closely related species by their very small, fine horizontal cibarial teeth

which are strongly inclined towards center and often completely inapparent. Other morphological differences between the new species and closely related species are discussed below.

L. paraensis has palpal ratios quite distinct from the new species. The palpal index $\frac{1+2+3+5}{4} =$ 6.1 for *paraensis* as against an average of 7.9 for *tintinnabula*. Palpal segment 4 comprises 14.2% of total palp length in *paraensis* as opposed to an average of 11.2% in *tintinnabula*. The wings of the new species are shorter and broader than those of *paraensis* (1.520 × .497 vs 1.650 × .485). We can find no description of *paraensis* females, nor have we seen specimens.

L. ayrozai males differ in that their wing venation shows gamma consistently larger than delta, whereas this relationship is usually reversed in the new species. The asymmetrical paramere apices of *tintinnabula* are the result of a ventral constriction just distal to the area where the ventral digitate process arises. The parameres of *ayrozai* lack this ventral constriction and show apical symmetry. The spermathecal annulations in female *tintinnabula* number 10–12 in contrast to 5–6 in *ayrozai*. Individual ducts in the new species never exceed the length of the spermathecal body proper, unlike *ayrozai* in which these ducts are 2.5 × greater. All comparisons are based on Barretto's original description and figures.

L. pessoana is a completely pale sandfly and is thus easily separated from the new species, which possesses a moderately infuscated head and notum.

L. panamensis males have 2 groups of specialized setae arising from the parameres, unlike *tintinnabula* which has but a single tuft. The vertical teeth in the cibarium of *panamensis* females are large and resemble those of the new species. The strong, straight horizontal teeth, however, differ from the weak, inclined teeth of the latter. The terminal knobs of the spermathecae of *panamensis* are displaced to one side by the asymmetrical last annulation, unlike *tintinnabula*.

L. carrerai males possess dorsally expanded parameres with much longer and more numerous setae than in our species. The strong, erect cibarial teeth of the females are unlike those of *tintinnabula*.

L. fairchildi males differ in having hook-like genital filament tips, lacking in *tintinnabula*. Paramere setae appear to be more slender and numerous in the former species. The cibarial teeth of *fairchildi* are much stronger than in *tintinnabula*, although they incline towards the midline in both species. Ascoids of the fourth antennal segment do not extend to the end of this segment as they do in our species.

L. amazonensis females have strong straight horizontal cibarial teeth and lack the large vertical teeth which characterize *tintinnabula*. The male of *amazonensis* is unknown.

The name of the new species is derived from the latin word *tintinnabulum* (a bell) and refers to the bell-shaped spermathecal annulations.

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