

NEW GENERA OF NEOTROPICAL CERATOPOGONIDAE (DIPTERA)¹

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ABSTRACT

Three new genera of Neotropical Ceratopogonidae are described: *Fittkauhelea*, type-species *F. amazonica*, n. sp. from Brazil, related to *Parabezzia* Malloch; *Parastilobezzia*, type-species *P. leei*, n. sp. from Columbia, related to *Stilobezzia* Kieffer; and *Leptohelea*, type-species *L. micronyx*, n. sp. from Colombia, related to *Ceratopogon* Meigen.

We are taking this opportunity to describe three new genera of Neotropical Ceratopogonidae to make the names available for a comprehensive key to the genera of the world, which is in preparation. Explanations of our terminology may be found in papers by Das Gupta and Wirth (1968) and Wirth (1952, 1953, 1965). We are grateful to Dr. Niphan Ratanaworabhan for the illustrations.

Fittkauhelea, new genus (Fig. 1)

Type species: *Fittkauhelea amazonica*, new species.

A very small, compact, nearly bare midge.

Head (Fig. 1f): Eyes broadly separated, with very fine, short, interfacetal hairs. Vertex with two pairs of small bristles above eye margin and median one near the point of the interocular bridge. Female antenna (Fig. 1a) 15-"segmented", with intermediate segments distinctly reduced in size, segments 12-15 stouter and longer than those preceding; apical segment with rather blunt tip, distal sensory tufts not present. Male antennal (Fig. 1b) segments 13-15 bearing short verticils, remaining flagellar segments bearing a plume of long hairs. Male (Fig. 1d) and female (Fig. 1c) palpi four-segmented, slender, third segment without apparent sensilla. Female mandible (Fig. 1g) with 10-14 strong distal teeth.

Thorax: Scutum broadly convex, without anterior spine or tubercle, with scattered strong erect setae; humeral pits absent; scutellum with four erect setae. Legs (Fig. 1h) slender, unarmed; fore tibia distinctly swollen on distal half; hind tibial comb (Fig. 1i) with six long spines, the spur poorly developed. Tarsi (Fig. 1j) with strong sharp spines at the apices of tarsomeres 1-4 plus some scattered spines on mid basitarsus which is distinctly longer and more slender than the others; hind basitarsus with a distinct ventral swelling bearing a stout spine at base, appearing bent at proximal third, and bearing a ventral fringe of fine setae; fourth tarso-

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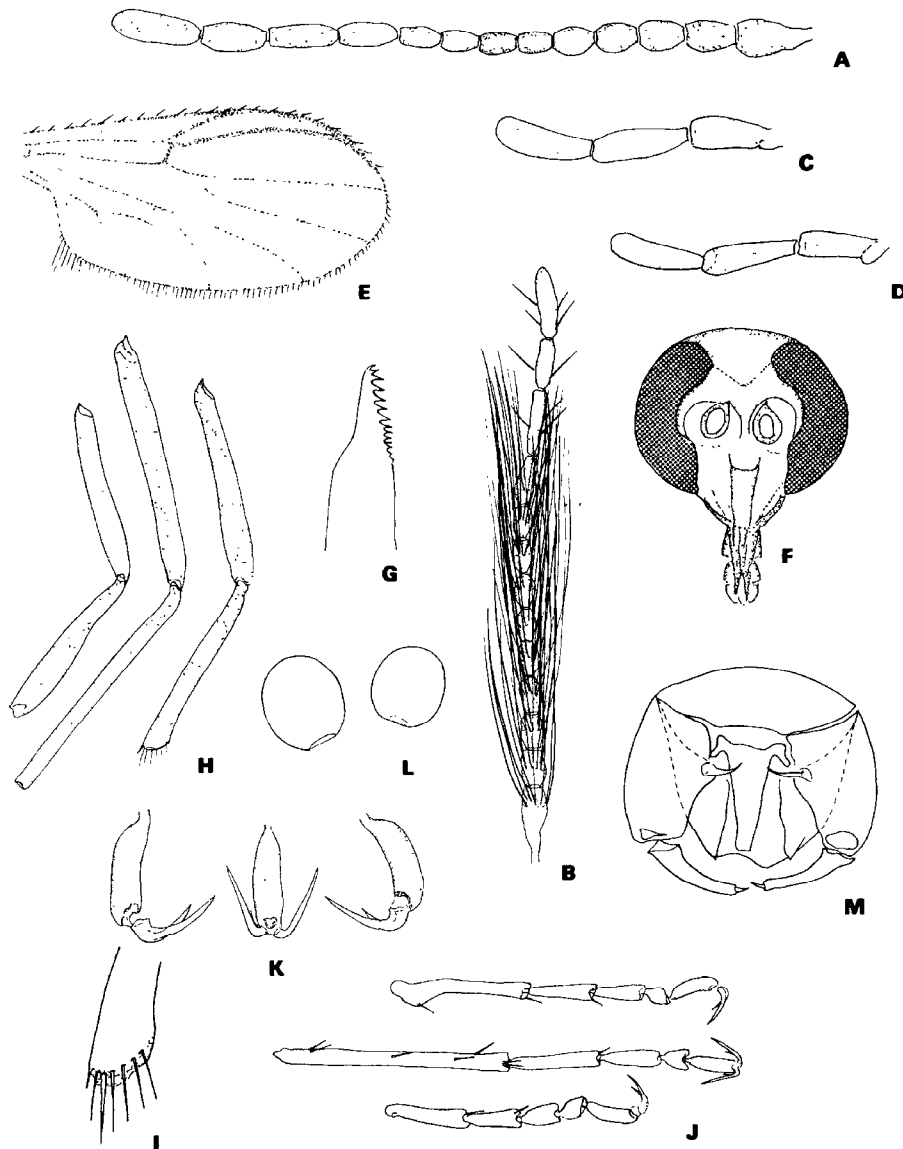


Fig. 1. *Fittkauhelea amazonica*: a, female antenna; b, male antenna; c, female palpus; d, male palpus; e, female wing; f, female head; g, female mandible; h, legs; i, hind tibial comb; j, female tarsi (top to bottom: hind, mid, and fore); k, female claws (left to right: fore, mid, and hind); l, female spermathecae; m, male genitalia.

mere short and cordate, fifth slender without ventral armature; female claws (Fig. 1k) subequal to slightly unequal, moderately long and slender, sharp and each bearing a small basal barb on inner side; male claws short and simple, slightly bent near apices; empodium absent.

Wing without microtrichia or macrotrichia; in female (Fig. 1e) broad with rounded tip, anal angle moderately broad, radial veins somewhat

thickened, one radial cell present, costa surpassing tip of radial cell and nearly attaining wing tip, costa with sparsely spaced spinose setae along entire length; vein R1 about half as long as Rs, the latter bowed anteriorly; media petiolate, the petiole about as long as crossvein; M2 with base indistinct a short distance. Male wing more slender, the costa reaching only slightly past midlength of wing, the radial cell quite short with fairly broad lumen.

Abdomen of female short with moderately pointed tip; two strongly sclerotized spermathecae (Fig. 1L) present, no trace of third; genital opening without special armature. Male genitalia (Fig. 1m) short and broad; ninth sternite without caudomedian excavation; ninth tergite broadly rounded distally, ventral side with characteristic pair of large, well-sclerotized lateral lobes continuous with mesal face of basistyles; the latter stout, each bearing a strongly sclerotized, sharp-pointed mesal process; dististyle slender, curved, with strong, blunt, distal spine; aedeagus with short anterolateral arms; main body appearing as a slender truncate cone in ventral aspect; parameres not visible (possibly hidden by aedeagus).

Fittkauhelea amazonica, new species

Female.—Wing 0.76 mm long. Uniformly brownish black with whitish abdomen and faintly milky-white wings; halter whitish, base of knob dark; legs dark brown, tarsomeres 1-4 on mid and hind legs whitish. Antenna with lengths of flagellar segments in proportion of 20-20-18-17-15-15-15-16-24-28-27-36. Costa extending to 0.96 of wing length. Spermathecae slightly unequal, measuring 0.055 by 0.046 mm and 0.046 by 0.044 mm., oval without sclerotized necks, openings to the ducts broad.

Male.—Similar to the female with the usual sexual differences. Wing 0.83 mm long; costa extending to 0.70 of wing length. Genitalia as in Fig. 1m.

Distribution.—Brazil.

Types.—Holotype female, allotype male, Rio Marauia, Amazonas, Brazil, Jan.-Feb. 1963, E. J. Fittkau, at light (Type no. 70646, USNM). Paratypes, 95 females, same data as type.

Discussion.—It is a pleasure to name this genus in honor of its collector, Dr. Ernst J. Fittkau of the Hydrobiologische Anstalt in Plön, West Germany, who has contributed so much to our knowledge of the aquatic midges of the Amazon. It was our privilege to study the Ceratopogonidae collected by Dr. Fittkau in the Amazon in 1962 and 1963. The Rio Marauia is a small tributary on the north bank of the Rio Negro near the border of the Venezuelan state of Amazonas. The light was operated regularly, and the data on two representative collections are as follows: No. 452, 2 January 1963, "etwa unter dem Äquator, Seringeiro Tapiri am Schwarzwasserbach, rechtes Ufer, Lichtfang"; No. 486, 22 January 1963, "eine Tagesreise oberhalb Mission, grosse Sandpraia, flaches Flussbett mit Blätterpackung an Sandbänken, Lichtfang".

Fittkauhelea is closely related to *Parabezzia* Malloch (Wirth 1965) which it resembles in wing venation, both male and female, especially in the single long radial cell with bowed Rs and prolonged costa in the female; in its 4-segmented palpus, unarmed legs with cordate fourth tarso-

mere and simple, unarmed fifth tarsomere; simple, curved, more or less unequal tarsal claws in the female; female antenna with middle segments smaller and distal segments not greatly elongated; and in the general features of the male genitalia, especially the shape of the aedeagus. It differs from *Parabezzia* in its widely separated eyes; the pubescence of the eyes; the male coxa without long, spinelike hairs; the tibia of the foreleg swollen distally; the male ninth tergite with strong sclerotized lobes on ventral face, and the absence of the male parameres.

Parastilobezzia, new genus (Fig. 2)

Type-species; *Parastilobezzia leei*, new species

A very small, nearly bare midge with long second radial cell and prolonged costa.

Head: Eyes moderately separated, with long interfacetal hairs. Antenna of female (Fig. 2a) 15-segmented, elongate, no marked distinction in lengths between last 5 segments and those preceding; verticils short; male antenna similar to that of female. Proboscis moderately long; female mandible (Fig. 2d) with 6 coarse teeth. Palpus of both sexes (Fig. 2b) appearing 3-segmented, the true second and fourth segments apparently indistinctly fused with the third, the latter broad and swollen, with an indistinct round sensory pit.

Thorax: Scutum broadly convex, with scattered, coarse, erect setae. Legs (Fig. 2e) unarmed, moderately slender; hind tibial comb (Fig. 2f) with 5-6 spines, the spur not developed. Tarsi (Fig. 2g) simple without strong ventral spines, hind basitarsus somewhat enlarged basally, tapering distally; fourth tarsomere slightly cordate, fifth short, moderately slender, that of female with a single, moderately long, curved, sharp-pointed claw bearing a minute basal barb; male claws normal, paired, simple, short, sharp and curved.

Wing (Fig. 2c) without macrotrichia; microtrichia coarse, wing appearing uniformly grayish; first radial cell small, vein R1 located in direct line with r-m crossvein as seen in *Stilobezzia*, second radial cell extending nearly to wing tip; vein R4+5 bowed and paralleling costa; media very obscurely marked, exceptionally long petiolate; anal angle rounded.

Abdomen: Short and moderately slender; female genital opening flanked by a pair of sclerotized flaps. Two large spermathecae (Fig. 2i) present, no third one visible. Male genitalia similar to those of *Stilobezzia* (*Eukraiohelea*) *elegantula* (Johannsen).

Parastilobezzia leei, new species

Female.—Wing 0.74 mm long. Dull dark yellowish with straw-colored legs and uniformly grayish wings; halteres brownish. Antenna with lengths of flagellar segments in proportion of 32-23-23-24-24-25-27-30-40-40-40-40-52. Spermathecae subspherical, with long slender necks, subequal, each measuring 0.050+0.012 (neck) by 0.044 mm.

Male.—Similar to the female, including structure of antenna and palpus; mandible teeth vestigial; wing 0.57 mm long; costa reaching to 0.90 of wing length. Genitalia: Ninth tergite with well-developed, sub-

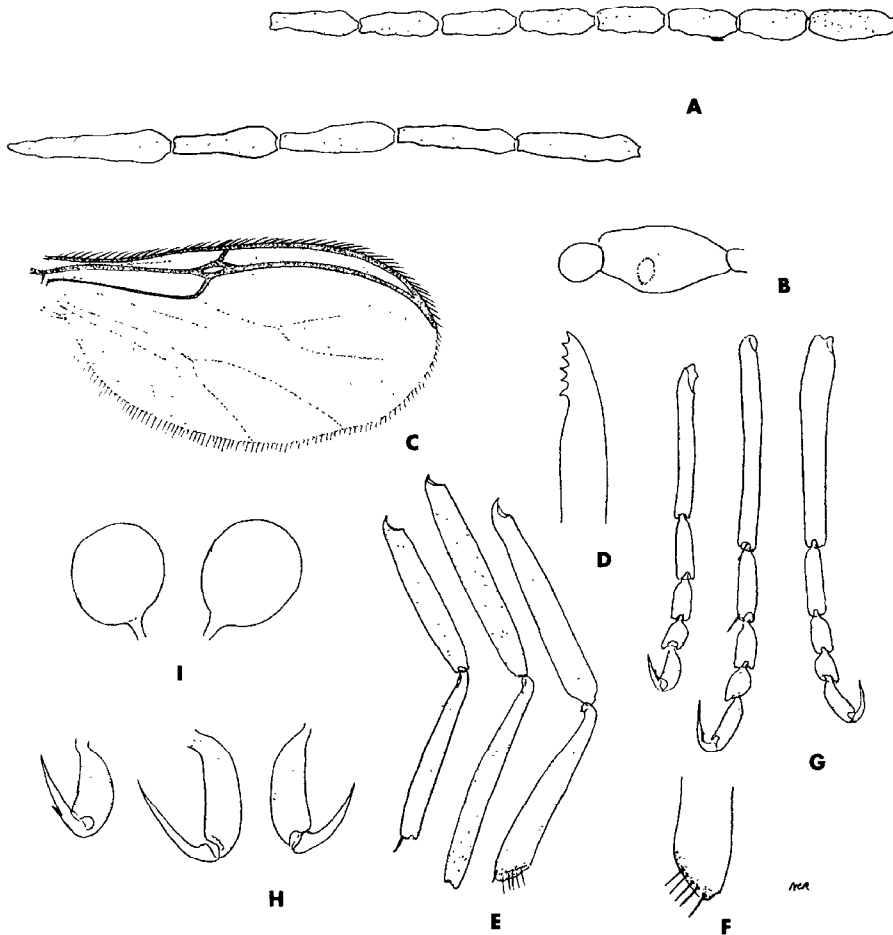


Fig. 2. *Parastilobezzia leei*, female: a, antenna; b, palpus; c, wing; d, mandible; e, legs (left to right: fore, mid, and hind); f, hind tibial comb; g, tarsi (left to right: fore, mid, and hind); h, claws (left to right: fore, mid, and hind).

median, setose lobes corresponding to apicolateral processes. Basistype moderately stout, with a prominent, broad, well-sclerotized mesal lobe near apex; dististyle short and stout, tip blunt and slightly bifid. Slide mount unsuitable for examination of aedeagal sclerites; parameres separate, each with prominent, curved basal apodeme, main body a long, slender, strongly sclerotized rod surpassing tips of apicolateral processes, its tip bluntly pointed.

Distribution.—Colombia.

Types.—Holotype female, allotype male, 1 female paratype, Rio Raposo, Valle, Colombia, July, August 1964, V. H. Lee, light trap (Type no. 70651, USNM).

Discussion.—This species is dedicated to Dr. Vernon H. Lee of the Rockefeller Foundation, who has contributed so much to our knowledge of the biting Diptera of Colombia.

Parastilobezzia is closely related to the genus *Stilobezzia* Kieffer (Wirth 1952, 1953; Das Gupta and Wirth 1968). The wing venation is of the *Stilobezzia* type, particularly the shape of the first radial cell and the relative placement of vein R1, and the media is long petiolate although very faintly indicated. The extreme prolongation of the second radial cell and the costa to the wing tip, with the parallel course of vein R4+5, is similar to that of *Parabezzia* and *Fittkauhelea*. The male genitalia are of the type found in the *Stilobezzia* subgenus *Eukraiohelea*. The long slender antenna, with sparse, coarse setae and somewhat rugose contour are typical of *Stilobezzia*. The partial fusion of the palpal segments and the reduction of the female tarsal claws to a single, curved, moderately long claw on each leg are unique features of this genus.

Leptohelea, new genus (Fig. 3)

Type-species: *Leptohelea micronyx*, new species.

A very small, delicate, nearly bare midge with weak venation and tiny tarsal claws. Male unknown.

Head: Eyes bare, frontal area damaged, eye separation not discernible. Antenna (Fig. 3a) 15-segmented, segments elongate, subcylindrical; verticils short; third segment elongate, provided with 3 sensory pits bordered by fine setae. Palpus (Fig. 3b) apparently 3-segmented, the second (primitive third) swollen, with a small, round, sensory area, third segment small and oval. Proboscis quite short; mandible with 5 coarse teeth.

Thorax: Mesonotum relatively broad, with sparse, scattered setose hairs; scutellum with four marginal setae. Legs (Fig. 3d) moderately slender, without special armature or strong bristles; hind tibial comb (Fig. 3e) with 3 spines, a long slender spur present. Tarsi (Fig. 3f) short and slender, without strong spines or armature, fifth tarsomere setose like the rest; claws (Fig. 3g) very small, somewhat bent at base with a basal swelling but no barb or empodium, sharp and nearly straight distally.

Wing (Fig. 3c) short and rounded, with moderately developed anal angle; costa and radial veins not greatly thickened, only slightly stronger than the obscure medial and cubital veins; one radial cell present, vein R1 long and oblique, arising at r-m crossvein; costa and vein Rs extending 0.76 of wing length. Media apparently unbranched, extending straight from r-m crossvein to wing margin considerably behind wing tip; a faint intercalary vein present in distal part of cell R5 with midportion bowed anteriorly from media, the ends approaching but not meeting media; macrotrichia absent; microtrichia coarse, wing appearing smoky grayish brown.

Abdomen: Moderately short and slender; female genital opening without special armature; cerci short. Spermatheca (Fig. 3h) single, large, oval, with long slender neck.

Leptohelea micronyx, new species

Female.—Wing 0.78 mm long. Uniformly pale yellowish brown, including legs and halteres; wing smoky grayish brown. Antenna with lengths of flagellar segments in proportion of 40-18-17-17-17-18-18-20-24-24-26-27-26. Spermatheca measuring 0.049+0.022 (neck) by 0.042 mm.

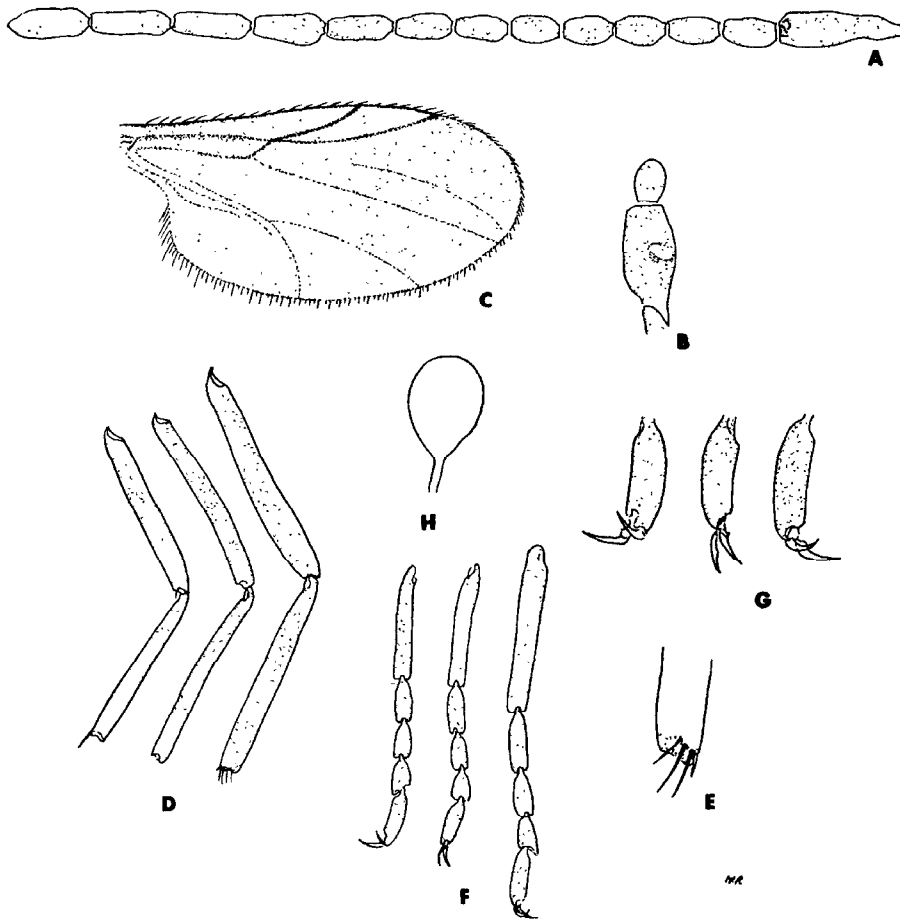


Fig. 3. *Leptohelea micronyx*, female: a, antenna; b, palpus, c, wing; d, legs (left to right): fore, mid, and hind; e, hind tibial comb; f, tarsi (left to right: fore, mid, and hind); g, claws (left to right: fore, mid, and hind); h, female spermathecae.

Male.—Unknown.

Distribution.—Colombia.

Types.—Holotype female, 1 female paratype, Rio Raposo, Valle, Colombia, 28 July 1964, V. H. Lee, light trap (Type no. 70652, USNM).

Discussion.—The generic name is taken from the Greek: *leptos* (small, delicate) + *heleia* (marsh dweller). The wing venation and tarsal structure of this tiny midge are so anomalous that its systematic position is difficult to assess, but most of the characters will place it in the *Ceratopogon* group of genera (Macfie 1940). In this we are guided by the coarse mandibular teeth, the structure of the palpus and antenna, especially the presence of sensory tufts only on the third segment of the latter, and the absence of macrotrichia on the wing. Wing venation, palpal segmentation, and condition of the tarsal claws seem to be in a state of flux in much of the *Ceratopogon* group, which may be the most generalized in the family.

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