

STUDIES ON THE GENUS *FORCIPOMYIA* III.
BLANTONIA, A NEW SUBGENUS IN THE *TRICHOHELEA*
COMPLEX (DIPTERA: CERATOPOGONDAE)

WILLIS W. WIRTH AND MARK I. DOW
Systematic Entomology Laboratory,
Agricultural Research Service, USDA
c/o U. S. National Museum, Washington, D. C. 20560 and
Department of Entomology,
Virginia Polytechnic Institute,
Blacksburg, Virginia, 24061, respectively.

ABSTRACT

Blantonía n. subg. in the genus *Forcipomyia*, type-species *caribbea* n. sp. is described from Florida and circum-Caribbean localities. Characters are given to distinguish it from *Trichohelia* and other related subgenera.

We are taking this opportunity to describe a new subgenus and species of *Forcipomyia* Meigen in order to make the names available for a comprehensive key to the Ceratopogonidae genera and subgenera of the world that is in preparation. Explanations of our terminology may be found in papers by Wirth (1952), Saunders (1956), Chan and LeRoux (1965), and Wirth and Messersmith (1971).

Forcipomyia Meigen

Subgenus *Blantonía* Wirth and Dow, new subgenus

Type-species: *Forcipomyia (Blantonía) caribbea* Wirth and Dow, new species

DIAGNOSIS: A small unmarked brownish midge with hairy body and legs. Wing without color pattern, macrotrichia numerous, not in rows; costa short, reaching to 0.54 (female) or 0.49 (male) of wing length; second radial cell not elongated. Female antenna 13-segmented, proximal segments transverse to globular, 5 distal segments greatly elongated; male antenna 15-segmented, with well developed plume. Maxillary palpus 4-segmented in both sexes, third segment moderately swollen, spindle-shaped, with definite shallow round sensory pit; primitive segments 4 to 5 fused in a single slender tapering terminal segment. Proboscis moderately long; mandible reduced, without teeth; labellum not developed. Legs with numerous erect bristly hairs on extensor surface; basitarsi elongate, tarsal ratios 2.66 to 3.00; female claws short, abruptly bent and flattened in middle, with sharp tips; male claws long, curved and slender, with simple tips; empodium well developed in both sexes. Female abdomen with last tergum convex and bearing long bristly hairs; cerci short but prominent; 2 spermathecae, ovoid with slender necks. Male genitalia with short, transverse ninth sternum, caudomedian excavation or window not developed; ninth tergum elongate, convex dorsally and rounded caudally with long bristly hairs; aedeagus with short basal arms, transverse main body, short slender, distally truncate caudomedian process, and a pair of thin ventro-

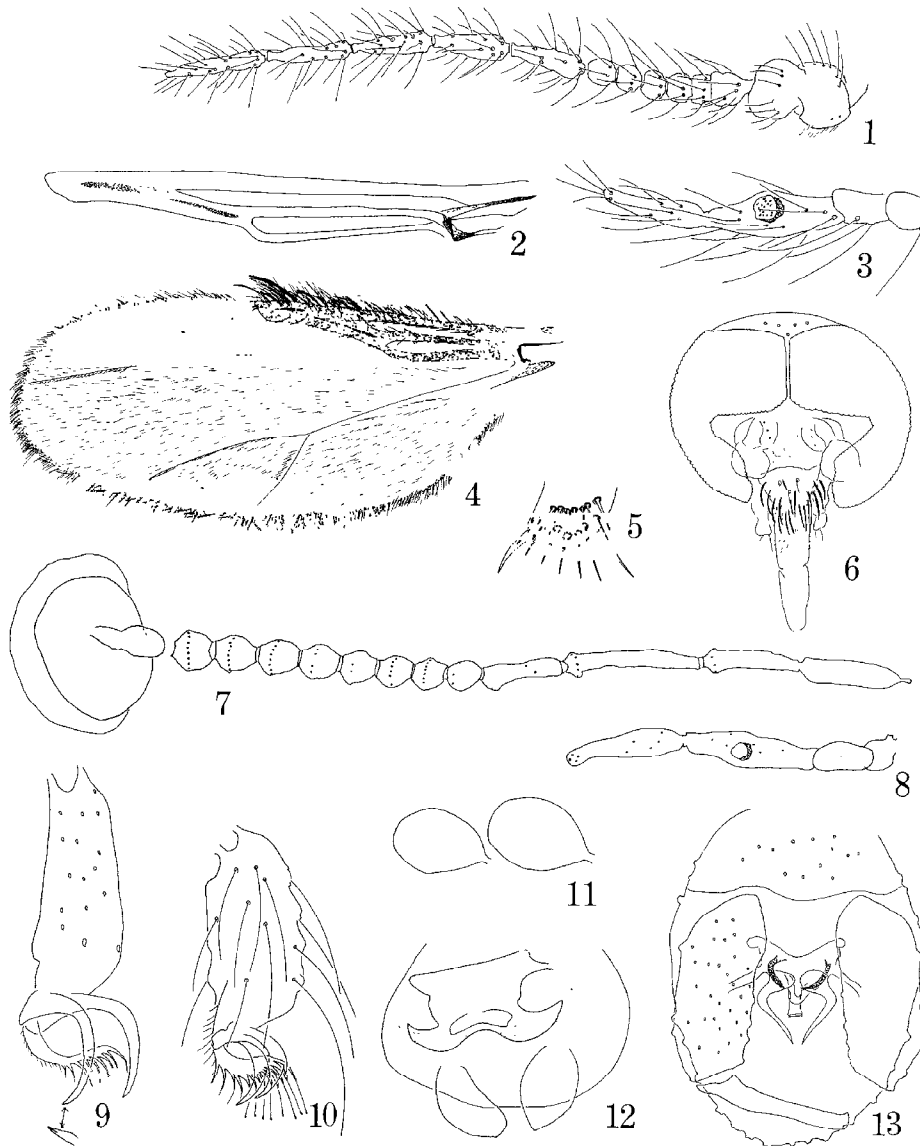


Fig. 1-13: *Forcipomyia (Blantonina) caribbea* from Negril, Jamaica, types (female: 1-6, 10-12; male: 7-9, 13); 1) antenna; 2) anterior wing venation; 3) palpus; 4) wing; 5) hind tibial comb; 6) head; 7) antenna; 8) palpus; 9) fifth tarsomere; 10) same; 11) spermathecae; 12) genital sclerotization; 13) genitalia.

lateral lobes; claspettes joined dorsally in a slender mesal bridge, produced ventrocaudad in a pair of slender, hooklike processes.

Habits and immature stages unknown.

This subgenus is named in honor of our esteemed friend and colleague, Dr. Franklin S. Blanton of the University of Florida, Gainesville, in recog-

niton of his important contributions to our knowledge of Neotropical Ceratopogonidae during the past 20 years.

Forcipomyia (*Blantonina*) *caribbea* Wirth and Dow, new species

(Fig. 1-13)

FEMALE: Wing length 0.96mm, breadth 0.42mm.

Head: Eyes (Fig. 6) contiguous a distance of approximately 6 facets, bare. Antenna (Fig. 1) reduced to 13 segments; primitive segments 3 to 5 fused in a composite segment slightly longer than broad and bearing 2 whorls of verticils; segment 6 short and transverse, segments 7 to 10 progressively longer becoming globular; 6 to 10 each with a basal whorl of verticils; segments 11 to 15 greatly elongated, each tapering distally and bearing numerous scattered long verticils and shorter appressed sensory setae, 15 with long terminal papilla; lengths of flagellar segments in proportion of 30-13-18-18-20-20-50-52-55-60-70 AR (lengths of distal 5 segments divided by preceding 6) 2.40. Maxillary palpus (Fig. 3) 4-segmented, lengths of segments in proportion of 15-25-60-40; primitive segments 4 to 5 combined in a slender tapering segment without trace of division; third segment slightly swollen, 3.0 as long as greatest breadth, spindle-shaped, with a definite round, shallow, sensory pit at midlength. Proboscis (Fig. 6) elongate for a *Forcipomyia*; distance from tip of labrum-epipharynx to tormae 0.65 as long as distance from latter point to line drawn across dorsal eye margins; mandible a poorly developed slender blade without teeth; labium with numerous fine setae nearly to tip, not swollen or modified distally; labellum not developed; clypeus moderately convex, with 15 to 20 long setae.

Thorax: Uniformly brownish; mesonotum with numerous semi-appressed short setae and sparse longer semi-erect hairs. Legs moderately stout; femora and tibiae brownish, tarsi stramineous; clothed with numerous short appressed hairs and sparse, long, erect, bristly hairs, especially on extensor sides; distal brush of spiniform setae at tip of fore tibia moderately developed, not compact; tip of hind tibia (Fig. 5) with short, stout, yellowish spur and comb of 5 moderate-sized spines in distal row. Tarsal claws (Fig. 8) short, abruptly bent and somewhat flattened and broadened at midlength with a minute dorsal barb, sharply pointed distally; empodium strongly developed, plumose, the longer filaments with microscopic apical knobs. TR (length of basitarsus divided by length of second tarsomere) 3.00 on fore leg; 2.90 on midleg; 2.66 on hind leg. Wing (Fig. 4) without color pattern, uniformly brownish; uniformly clothed with long, appressed, only slightly curved macrotrichia, those on costa and radial veins much stronger; costa moderately long, attaining 0.54 of wing length; radial cells (Fig. 2) narrow, moderately short. Halter deeply brownish infuscated.

Abdomen: Brownish; clothed with abundant semi-appressed long slender hairs, especially on sides and toward apex; abdomen tapering distally, last tergum markedly convex with long bristly hairs; cerci prominent but short. Spermathecae (Fig. 11) 2; ovoid, tapering to short, slender necks; unequal, measuring 0.070 by 0.048mm and 0.061 by 0.040mm. Genital sclerotization (Fig. 12) consisting of a short, broad, transverse, anteromedian plate, the

caudolateral corners prolonged caudally and bearing a prominent winglike lateral process and a slender mesal process, the paired mesal processes forming a pair of slender lips flanking caudal side of gonopore.

MALE: Wing length 1.12mm, breadth 0.36mm. Similar to the female with the usual sexual differences.

Head: Antenna (Fig. 7) 15-segmented; long dense verticils on segments 4 to 12 forming a loose brownish plume; lengths of flagellar segments in proportion of 40-30-30-26-26-26-26-26-60-95-70-80; AR (combined lengths of segments 12 to 15 divided by 3 to 11) 1.19. Maxillary palpus (Fig. 8) 4-segmented; lengths of segments in proportion of 15-20-55-50; third segment more slender than in female, 3.7 as long as greatest breadth, with small round sensory pit.

Thorax: As in female; legs with more prominent long bristly hairs, especially on extensor side of hind tibia and basitarsus. Tarsal claws (Fig. 9) long and extremely slender, greatly curved, the apices finely pointed and minutely cleft; empodium well developed but only about half as large as in female. TR 2.70 on fore leg, 2.85 respectively on mid and hind legs. Wing longer and more slender than in female; costa reaching 0.49 of distance to wing tip.

Abdomen: Male genitalia (Fig. 13) with ninth sternum short and broad, caudal margin transverse to slightly convex, surface with 2 irregular rows of scattered long setae; ninth tergum greatly expanded and rounded caudally, convex dorsally, forming a cuplike structure with long bristly hairs, no trace of apicolateral processes. Basimere moderately slender, nearly straight, slightly more than twice as long as broad; telomere moderately slender, slightly curved, only slightly tapered to blunt, mesally pointed tip. Aedeagus with low basal arch extending to approximately a third of total length, basal arms short and projecting laterad; main body broader than long, with convex lateral margins produced ventrad in form of a pair of thin, winglike lobes; a median caudal process with rather stout, truncate tip present, dorsal in position to the lateral lobes. Claspettes (parameres of authors) comprising a pair of strongly bent, zig-zag structures with stout anterolateral arms; dorsal side of anterolateral arm connected at about midlength by a slender apodeme to dorsal articulation of basimere with ninth tergum; caudal ends of claspettes prolonged in a pair of slender, well-sclerotized, hook-like processes with nearly straight tips nearly meeting on midline behind tip of median process of aedeagus; claspettes joined in a slender bridge at extreme dorsomedian angle of anterolateral arms.

Types: Holotype, female; allotype, male; Negril, Westmorland Parish, Jamaica, 10 December 1969, E. G. Farnworth, light trap at beach cottage (Type no. 71144, USNM). Paratypes (15 males, 28 females): BRITISH GUIANA: Demerara, May-June 1962, G. J. Burton, light trap, 1 male. BRITISH HONDURAS: Nattieville, 8 July 1968, W. Haase, light trap, 1 male. FLORIDA: Big Pine Key, Monroe Co., 10 April 1970, W. W. Wirth, light trap, 1 male, 5 females; Sanibel Island, Lee Co., 8 September 1963, G. Quinn, 2 males, 4 females; Vero Beach, Indian River Co., July 1958 to April 1959, Ent. Res. Ctr., light trap, 2 males, 4 females. JAMAICA: Same data as types, 7 males, 13 females. TRINIDAD: U. S. Naval Station, 21 January 1957, 1 February 1957, 31 January 1958, T. H. G. Aitken, light trap, 1 male, 2 females.

DISCUSSION: A comparison of important differentiating characters between *Blantonia* and other related subgenera of *Forcipomyia* is given in Table I. These subgenera form 2 more or less distinct groups. The first,

TABLE 1.—DISTINGUISHING CHARACTERS OF *Blantonia* AND RELATED SUBGENERA OF *Forcipomyia*.

	<i>Blantonia</i>	<i>Trichohoelea</i>	" <i>Apelma</i> "	<i>Thyridomyia</i>	<i>Synthyridomyia</i>	<i>Lasiohoelea</i>	<i>Dacnoforcipomyia</i>
FEMALE:							
Distal 5 antennal segments long	+	+	+	-	-	+	+
No. antennal segments	13	15	11,15	15	15	15	15
Palpal pit definite	+	+	+	±	±	+	+
Costa elongated	-	-	-	±	±	+	+
No. spermathecae	2	2	2	1	1	1	1
MALE:							
Empodium well developed	+	+	-	+	+	+	+
Tergum 9 long	+	-	-	-	+	-	-
Aedeagus complex	-	-	-	+	+	+	+
Claspettes with anterior band only	-	+	-	-	-	+	+
Claspettes with posterior processes	+	-	+	-	+	-	-

with *Blantonia*, *Trichohoelea* Goetghebuer, and *Apelma* Kieffer of authors is characterized by a relatively short costa, unmodified aedeagus, and presence of 2 sclerotized spermathecae. The second group, with *Lasiohoelea* Kieffer, *Dacnoforcipomyia* Chan and Saunders, *Thyridomyia* Saunders, and *Synthyridomyia* Saunders, differs in a usually elongated costa with long narrow second radial cell, variously modified aedeagus, and presence of only 1 sclerotized spermatheca. In the first group, *Blantonia* differs from the other 2 subgenera by its elongated, distally rounded male ninth tergum and strongly sclerotized posterior processes on the claspettes, thus resembling the subgenus *Synthyridomyia*. The reduction of the number of antennal segments of the female antenna to 13 is unique except in 2 species of "*Apelma*", in which there is a further reduction to 11; in "*Apelma*" moreover, the male empodium is vestigial.

The separation of these 7 subgenera into 2 groups is most seriously complicated by the structure of the claspettes and their connecting basistylar apodemes; in *Trichohoelea*, *Lasiohoelea*, and *Dacnoforcipomyia* paired

claspettes are absent and only an anterior connecting apodemal band is present, which is narrow and ribbonlike in *Lasiohelea* and *Dacnoforcipomyia*, but wide and strongly sclerotized and broadly U-shaped in *Trichohoelea*. In "*Apelma*" the claspette complex is strongly developed and H-shaped, with strong, lateral, anterior and posterior processes. In *Blantonina* the mesal connection between the claspettes is an inconspicuous slender dorsal bridge, the anterior processes are absent, but the posterior processes are in the form of a pair of distinctive slender hooklike sclerites. In *Synthyridomyia* the claspettes are entirely separate, the anterior processes are also absent, and the posterior processes are usually in the form of straight "drumsticks", but sometimes otherwise highly modified.

The elongation of the 5 distal antennal segments of *Blantonina* is much greater than that of *Trichohoelea*, only slightly greater than in "*Apelma*", and more like that of *Lasiohelea* and *Dacnoforcipomyia*. In *Synthyridomyia* and *Thyridomyia* the antennal segments are short, sometimes exceptionally so. These subgenera also differ importantly from *Lasiohelea* and *Dacnoforcipomyia* in the much shorter costa and in the complete separation of the claspettes, without the anterior connective band. In *Synthyridomyia* the claspettes are represented only by posteriorly directed processes, while in *Thyridomyia* they are entirely absent except for a triangular expansion on the basistylar apodeme. *Forcipomyia* (*Synthyridomyia*) *unituberculata* Tokunaga (in Tokunaga and Murachi 1959) has claspettes resembling those of *Blantonina* but otherwise it is a fairly typical *Synthyridomyia*.

Our concepts of the subgenera are based on the excellent revision of the subgenera of *Forcipomyia* based on characters of all stages by Saunders (1956), supplemented by his later paper (1964) on the *Lasiohelea* complex, papers by Chan and Saunders (1965) on *Dacnoforcipomyia*, Chan and LeRoux on *Trichohoelea* (1965, as *Neoforcipomyia*) and the *Lasiohelea* complex (1970), and Wirth and Messersmith (1971) on *Trichohoelea*. Remm (1961) pointed out that the name *Trichohoelea* should correctly be applied to the species previously placed in *Neoforcipomyia* Tokunaga (in Tokunaga and Murachi 1959) and that he intended to publish a new genus for the species dwelling in leaf axils of tropical plants for which *Apelma* Kieffer and *Trichohoelea* Goetghebuer had erroneously been used.

REFERENCES CITED

- Chan, K. L., and E. J. LeRoux. 1965. Description of *Forcipomyia* (*Neoforcipomyia*) sp. n. and redescription of *Forcipomyia* (*Neoforcipomyia*) *eques* (Johannsen) (Diptera: Ceratopogonidae), with an account of the digestive and reproductive systems. *Phytoprotection* 46:74-104.
- Chan, K. L., and E. J. LeRoux. 1970. New species of *Forcipomyia* (Diptera: Ceratopogonidae) described in all stages. *Canad. Entomol.* 102:271-293.
- Chan, K. L., and L. G. Saunders. 1965. *Forcipomyia* (*Dacnoforcipomyia*) *unabaenae*, a new blood-sucking midge from Singapore, described in all stages (Diptera, Ceratopogonidae). *Canad. J. Zool.* 43:527-540.
- Remm, H. 1961. A survey of species of the genus *Forcipomyia* Meigen

- (Diptera, Heleidae) from Estonia. Eesti Nsv Tead. Akad. Juures Asuva Loodusuuriijate Seltsi Aastaraamat 54:165-195 (in Russian).
- Saunders, L. G. 1956. Revision of the genus *Forcipomyia* based on characters of all stages (Diptera, Ceratopogonidae). Canad. J. Zool. 34:657-705.
- Saunders, L. G. 1964. New species of *Forcipomyia* in the *Lasiohelea* complex described in all stages (Diptera, Ceratopogonidae). Canad. J. Zool. 42:463-482.
- Tokunaga, M., and E. K. Murachi. 1959. Insects of Micronesia. Diptera: Ceratopogonidae. Insects of Micronesia 12:103-434.
- Wirth, W. W. 1952. The Heleidae of California. Univ. California Pubs. Entomol. 9:95-266.
- Wirth, W. W., and D. H. Messersmith. 1971. Studies on the genus *Forcipomyia*. 1. The North American parasitic midges of the subgenus *Trichohhelea* (Diptera: Ceratopogonidae). Ann. Entomol. Soc. Amer. 64:15-26.

The Florida Entomologist 54(4) 1971